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**TOXICOMETRIC PARAMETERS  
OF INDUSTRIAL  
TOXIC CHEMICALS  
UNDER SINGLE EXPOSURE**

**by N.F. Izmerov, I.V. Sanotsky  
and K.K. Sidorov**

**UNITED NATIONS ENVIRONMENT PROGRAMME**

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**CENTRE OF INTERNATIONAL PROJECTS, GKN**

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Translated by *G. B. Podosinov*

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This book is intended for toxicologists, hygienists and those responsible for evaluation and control of harmful effects of chemicals to human health and the environment.

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## PREFACE TO THE ENGLISH EDITION

The translation and publication of this book has been carried out at the Centre of International Projects under the State Committee of the USSR for Science and Technology in cooperation with the Research Institute of Industrial Hygiene and Occupational Diseases within the framework of the USSR—UNEP/IRPTC Project «Control of Hazards posed by Chemicals to Human Health and the Environment».

For those who are insufficiently familiar with the terminology used by Soviet toxicologists, we explain below some terms and concepts in addition to those defined in the preface to the Russian edition. These definitions do not necessarily reflect the views or official policies of UNEP.

**A harmful substance** is a substance human exposure to which (at work or in everyday life) may cause disease or deviation from a normal state of health detectable by currently available methods of investigation during the period of exposure or in the long term, in this or subsequent generations.

**The tentative safe exposure level (TSEL)** is a temporary hygienic standard specifying the level of a harmful substance in worksite air, the ambient air of residential areas, or water bodies. It is arrived at by calculation from parameters of toxicometry and physicochemical properties on the basis of regression correlations or by inter- or extrapolation in series of structurally related compounds. TSEL values are subject to approval by the USSR Ministry of Health and remain valid for a limited period of time (2 or 3 years), after which they may be replaced by maximum allowable concentrations, declared valid for another period of time, or abolished depending on prospects for the further use of the substances concerned and the available information regarding their toxic properties.

By the time of publication of this book, the USSR Ministry of Health had approved the following MACs not included in the Russian edition (these are marked by asterisk in the body of the text):

(a) Air of the working zone

| Substance               | MAC,<br>mg/m <sup>3</sup> | Predominant<br>physical<br>state | Hazard<br>class |
|-------------------------|---------------------------|----------------------------------|-----------------|
| Benzine, solvent (as C) | 100                       | vapour                           | IV              |
| Hexamethylene diamine   | 0.1                       | vapour                           | I               |
| Hydrogen fluoride       | 0.05                      | vapour                           | I               |
| Nickel (metallic)       | 0.05                      | aerosol                          | I               |

(b) The atmosphere of residential areas

| Substance            | MAC, mg/m <sup>3</sup> |                  | Hazard<br>class |
|----------------------|------------------------|------------------|-----------------|
|                      | highest mo-<br>mentary | average<br>daily |                 |
| Ammonia              | 0.2                    | 0.04             | IV              |
| Benzene              | 1.5                    | 0.1              | II              |
| Carbon monoxide      | 5.0                    | 3.0              | IV              |
| Carbon tetrachloride | 4.0                    | 0.7              | II              |
| Nitrogen dioxide     | 0.085                  | 0.04             | II              |

(c) Water bodies used for watersupply,  
public, and/or recreational purposes  
(water bodies of «sanitary-domestic uses»)

| Substance     | MAC,<br>mg/l |
|---------------|--------------|
| β-Chloroprene | 0.01         |

The Compilers, 1982

## PREFACE TO THE RUSSIAN EDITION

This Handbook summarizes the data available in the Soviet literature regarding the toxicity and hazards shown after single exposure by chemicals widely employed in industry. It gives lethal and threshold doses or concentrations of more than 700 industrial toxic chemicals for laboratory animals with various routes of absorption, including inhalation, gastric intubation, intraabdominal injection, skin application, etc. The main actions of the chemicals are specified, as are the detection methods used. Where known, thresholds of irritant action on the mucous membranes of the upper respiratory tract and of the eyes and thresholds of odour for man are also given. The officially approved values of maximum allowable concentrations (MAC) of toxic chemicals for the air of workplaces and residential areas and for water bodies are presented. For a number of chemicals, tentative safe exposure levels (TSEL) are given. References to the literature used in compiling this Handbook are appended.

The Handbook is intended for a wide range of practical and research workers professionally concerned with harmful chemicals (toxicologists, occupational health physicians, hygienists, biochemists, etc.).

## CONTENTS

|                                                                                                                     |     |
|---------------------------------------------------------------------------------------------------------------------|-----|
| Introduction . . . . .                                                                                              | 7   |
| Key to abbreviations and symbols . . . . .                                                                          | 9   |
| How to use this handbook . . . . .                                                                                  | 13  |
| Toxicometric parameters . . . . .                                                                                   | 15  |
| Annex I. Standard test conditions for measuring toxicometric parameters                                             | 121 |
| Annex II. Classification chemicals by hazard . . . . .                                                              | 122 |
| Annex III. Classification of chemicals by toxicity with subcutaneous and<br>intraabdominal administration . . . . . | 123 |
| References . . . . .                                                                                                | 124 |
| Index of chemicals . . . . .                                                                                        | 152 |

## INTRODUCTION

The toxicometric parameters included in this Handbook have been taken from the literature published in the USSR and partly from the material available in the Section on Establishment of Maximum Allowable Concentrations (MAC) for Harmful Substances in the Air of Working Zones of the All-Union Problem Commission on the Scientific Basis of Occupational Health. Unlike most other reference works concerned with lethal doses and concentrations, this Handbook gives also results of determination of thresholds of harmful effects, knowledge of which is considered essential for adequate validation of preventive measures. On the other hand, it was felt that a mere listing of hygienic standards (MAC) without presentation of at least some of the material on the basis of which they were derived, would reduce the usefulness of this reference book.

The Handbook presents values of lethal and threshold concentrations (doses) for more than 700 toxic industrial chemicals when these are administered by various routes -- by inhalation, into the stomach, under the skin, into the abdominal cavity, intravenously, and on the skin -- to laboratory animals most commonly used in toxicological studies, namely mice, rats, guinea pigs, rabbits, and cats. In most instances, precise lethal doses and concentrations for man have not been established, but the following guidelines will be helpful of extrapolation of animal data to man:

1. If the lethal doses for the four most commonly used species of laboratory rodents differ insignificantly (less than three-fold), the probability is high (about 70%) that the lethal dose for man will be of the same order of magnitude (Ulanova et al., 1969).

2. An approximate lethal dose for man can be calculated by plotting a regression line using several data points in the following system of coordinates: (a) the lethal dose for a particular animal species and (b) the body weight of an adult individual of that species (Krasovsky, 1973).

For threshold values, the indices (procedures) on the basis of which these values have been established are given.

For a number of substances, single exposure thresholds for man as estimated from the irritant effect on the mucous membranes

of the upper respiratory tract and the eyes or from the effect on the organ of smell are presented. Unless otherwise stated, the data for chemicals have been obtained under standard conditions (Annex I).

To facilitate the use of this book, the material is arranged in tabular form. The chemicals are listed in alphabetical order. The names of chemicals are generally presented in accordance with the Geneva Nomenclature. In addition, the more widely used trade names are included and chemical formulas of the substances are shown as well.

The officially approved MAC values in the air of working zones are given where available, with indication of the predominant physical state (state of aggregation) of the substance concerned in the air of industrial premises and the class of hazard posed by the substance to man according to the State Standard GOST 12.1.005-76 entitled «System of Occupational Safety Standards. The air of Working Zones. General Sanitary and Hygienic Requirements». The maximum permissible values of harmful substances in the atmosphere of residential areas and in water bodies used for sanitary, domestic, and recreational purposes are presented in accordance with the Sanitary Standard SN 246-71 entitled «Sanitary Norms for the Design of Industrial Enterprises» and addenda thereto approved by the Chief State Sanitary Physician of the USSR. As regards substances for which no official MAC values exist as yet, tentative safe exposure levels (TSELs) in worksite air, the atmosphere of residential areas, and water are presented.

To make it easier for the reader to appraise the toxicometric parameters, a classification of industrial chemicals by hazard at lethal and threshold exposure levels (State Standard GOST 12.1.007-76: «System of Occupational Safety Standards. Harmful Substances. Classification and General Safety Requirements») is appended (Annex II), as is a classification of substances by toxicity with subcutaneous and intraabdominal administration (Annex III).

There is an index of chemicals included in the book and a complete list of the literature consulted in compiling the latter; this list may also serve as a source of references to the Soviet literature in the field of industrial toxicology. The information relating to toxic properties of chemical compounds has been prepared in cooperation with Dr. V. S. Pozdniakov and that relating to the detection methods used, in cooperation with Dr. L. T. Poddubnaya. The authors wish to express their gratitude to Dr. A. I. Khalepo for assistance in manuscript preparation.

In conclusion, we are well aware that this reference work is not devoid of flaws, but these were inevitable because of gaps in our knowledge concerning thresholds of harmful action of substances and experimental conditions. We will appreciate any criticisms and suggestions.

## KEY TO ABBREVIATIONS AND SYMBOLS

- LD<sub>50</sub>** (**LD<sub>100</sub>**) The dose of a given chemical which kills 50% (100%) of the test animals after its single administration into the stomach or abdominal cavity, application to the skin, etc. (with the exception of the inhalational route) under defined conditions and within a specified period (usually 2 weeks)<sup>1</sup>; it is stated in milligrams of the chemical per kilogram of animal body weight (mg/kg).
- ND<sub>50</sub>** The dose of a given chemical which produces narcosis in 50% of the test animals, stated in milligrams of the chemical per kilogram of animal body weight (mg/kg).
- D** The lethal dose of a given chemical<sup>1</sup>, stated in milligrams of the chemical per kilogram of animal body weight (mg/kg).
- ND** The narcotic dose of a given chemical<sup>1</sup>, stated in milligrams of the chemical per kilogram of animal body weight (mg/kg).
- LT<sub>50</sub>** The time of exposure to a given chemical applied to the skin during which 50% of the test animals die; it is given in minutes in this handbook.
- LC<sub>50</sub>** (**LC<sub>100</sub>**) The concentration of a given chemical which is lethal to 50% (100%) of the test animals with exposure by inhalation under defined conditions and within a specified period<sup>1</sup>; it is stated in milligrams of the chemical per cubic meter of air (mg/m<sup>3</sup>); the exposure time is also indicated.
- NC<sub>50</sub>** The concentration of a given chemical producing narcosis in 50% of the test animals, stated in milligrams of the chemical per cubic meter of air (mg/m<sup>3</sup>).
- LC** The lethal concentration of a given chemical<sup>1</sup>, stated in milligrams of the chemical per cubic meter of air (mg/m<sup>3</sup>).
- NC** The narcotic concentration of a given substance<sup>1</sup>, stated in milligrams of the chemical per cubic meter of air (mg/m<sup>3</sup>).
- Lim<sub>ac</sub>** The threshold of acute effect, i. e., the lowest concentration (dose) of a given substance that causes such a change in a particular biochemical index in a whole organism which is

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<sup>1</sup> The quantities LC<sub>100</sub>, LD<sub>100</sub>, LC, LD, NC, and ND have no statistical significance and are given only for guidance.

beyond the latter's capacity for physiological adaptation. The index on the basis of which this threshold has been established is designated by a figure in parentheses. The figures stand for the following indices<sup>1</sup>:

- (1) Summated threshold index
- (2) Flexor reflex
- (3) Galvanic skin reflex
- (4) Conditioned reflexes
- (5) Electroencephalogram
- (6) Chronaxie of antagonist muscles
- (7) Respiratory rate
- (8) Oxygen consumption by whole animal
- (9) Vital staining of lung tissue
- (10) Weight coefficients of internal organs
- (11) Rectal temperature
- (12) Working capacity
- (13) Working capacity as estimated in an error correction test
- (14) Working capacity of frog gastrochemius muscle
- (15) Spontaneous motor activity
- (16) Methemoglobinemia
- (17) Blood leukocyte count
- (18) Leukocyte formula of the blood
- (19) Blood reticulocyte count
- (20) Blood catalase activity
- (21) Transferrin index of the blood
- (22) Acid resistance of erythrocytes
- (23) Number of Heinz bodies in the blood
- (24) Blood cholinesterase activity
- (25) Blood peroxidase activity
- (26) Arterial blood pressure
- (27) Morphological changes in formed elements of the blood
- (28) Hypersalivation
- (29) Lacrimation
- (30) Urinary excretion of fluorescein
- (31) Urinary level of chlorides
- (32) Change in spermatogenesis
- (33) Morphological changes in internal organs
- (34) Blood level of pyruvic acid
- (35) Phagocytic index
- (36) Blood level of sugar
- (37) Blood level of sulfhydryl groups
- (38) Urinary level of 17-ketosteroids
- (39) Blood phosphatase activity
- (40) Blood aldolase activity

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<sup>1</sup> Only the names of the indices are listed. The specific procedures used to derive these are described in the cited literature; see also the section «How to Use this Book».

- (41) Biliary level of cholic acid
  - (42) Urinary level of hippuric acid
  - (43) Activity of glutamic acid decarboxylase in the cerebral hemispheres
- Lim<sub>ir</sub>** The threshold of irritant action of a given chemical on the mucous membranes of the upper airways and eyes, stated in milligrams of the chemical per cubic meter of air ( $\text{mg}/\text{m}^3$ ). The figures in parentheses denote the same indices as for Lim<sub>ac</sub>. Values for man are based on subjective sensations for exposures lasting 1 minute unless stated otherwise.
- Lim<sub>olf</sub>** The olfactory threshold of action of a given chemical, stated in milligrams of the chemical per cubic meter of air ( $\text{mg}/\text{m}^3$ ).
- MAC<sub>wz</sub>** The maximum allowable concentration of a harmful substance in the air of the working zone is the concentration that, in the case of daily exposure in work conditions for eight hours daily (with the exception of non-working days) or during another period, but not more than 41 hours per week, throughout the entire working life, will not cause any disease or deviations from a normal state of health detectable by currently available methods of investigation, either during the work itself or in the long term, in this and subsequent generations.  
The working zone is defined as the space up to 2 m above the level of the floor or of the site which is the place where the workers are permanently or temporarily employed.
- MAC<sub>hm</sub>** The highest momentary (single-occasion) maximum allowable concentration of a given chemical in the atmosphere of residential areas, stated in milligrams of the chemical per cubic meter of air ( $\text{mg}/\text{m}^3$ ).
- MAC<sub>ad</sub>** The average daily maximum allowable concentration of a given chemical in the atmosphere of residential areas, stated in milligrams of the chemical per cubic meter of air ( $\text{mg}/\text{m}^3$ ).
- MAC<sub>w</sub>** The maximum allowable concentration of a given chemical in bodies of water of «sanitary—domestic uses» (i. e., those used for water-supply, public, and/or recreational purposes), stated in milligrams of the chemical per litre of water ( $\text{mg}/\text{l}$ ).
- TSEL<sub>wz</sub>** The tentative safe exposure level of a given chemical in the air of working zones, stated in milligrams of the chemical per cubic meter of air ( $\text{mg}/\text{m}^3$ ).
- TSEL<sub>hm</sub>** The highest momentary (single-occasion) tentative safe exposure level of a given chemical in the atmosphere of residential areas, stated in milligrams of the chemical per cubic meter of air ( $\text{mg}/\text{m}^3$ ).
- TSEL<sub>ad</sub>** The average daily tentative safe exposure level of a given chemical in the atmosphere of residential areas, stated in milligrams of the chemical per cubic meter of air ( $\text{mg}/\text{m}^3$ ).

- TSEL<sub>w</sub> The tentative safe exposure level of a given chemical in bodies of water of «sanitary-domestic uses» (i. e., those used for water-supply, public, and/or recreational purposes), stated in milligrams of the chemical per litre of water (mg/l).
- + The chemical is dangerous when absorbed through intact skin
  - v Vapour and/or gas
  - a Aerosol
  - v+a A mixture of vapour and aerosol
  - < This sign means that the indicated dose or concentration is not lethal to the animals. For example, in the case of intragastric administration of 4,4-azobenzenedicarboxylic acid, LD<10,000; this means that the dose of 10,000 mg/kg did not kill the animals with this route of administration.

## HOW TO USE THIS HANDBOOK

In the column «Substance, MAC, TSEL, Hazard Class, Reference (s)», the chemicals are ordered alphabetically. References to the References section at the end of the book are designated by figures.

In the column «Toxicometric parameters, Test Conditions, Action(s), Method(s) of Detection» (in air), the figures in parentheses refer to the indices used in establishing threshold concentrations (doses).

Here is an example illustrating the complete description (without abbreviations and symbols) for one of the entries (see also p. 16).

Aniline (aminobenzene, phenylamine)†



The MAC for the air of the working zone is 0.1 mg/m<sup>3</sup>, vapour, Hazard class II.

The highest momentary MAC for the atmosphere of residential areas is 0.05 mg/m<sup>3</sup>.

The average daily MAC for the atmosphere of residential areas is 0.03 mg/m<sup>3</sup>.

The MAC for water bodies of «sanitary-domestic uses» is 0.1 mg/l.

The figures 464, 511, 544 and 545 denote the references used

With intragastric administration, the median lethal dose is 550(450—630) mg/kg for rats and 750(650—870) mg/kg for mice; the lethal dose for rabbits is 1000–1500 mg/kg.

With exposure by inhalation, the threshold for rats is 200—250 mg/m<sup>3</sup> with 4-hour exposure as estimated from changes in the blood level of methemoglobin; the threshold for rabbits is 20—40 mg/m<sup>3</sup> with 40-min exposure and 4—6 mg/m<sup>3</sup> with 8-hour exposure, and both these thresholds were estimated from changes in the flexor reflex.

This sign means that the substance is dangerous when absorbed via intact skin -

Name → Aniline (aminobenzene, phenylamine)<sup>+</sup>  
 Synonyms →  
 Hazard class → NH<sub>3</sub>  
 Formula → c1ccccc1N  
 State of aggregation in air →  
 Maximum allowable concentration in the air of working zones (mg/m<sup>3</sup>) = MAC<sub>wz</sub> → 0,1 (V) Class II  
 Highest momentary MAC for ambient air (mg/m<sup>3</sup>) = MAC<sub>hm</sub> → 0,05  
 Average daily MAC for ambient air (mg/m<sup>3</sup>) = MAC<sub>ad</sub> → 0,03  
 MAC for water bodies of „sanitary-domestic uses“ (mg/l) = MAC<sub>w</sub> → 0,1  
 464, 511, 544, 545 → References to the References Section

Median lethal dose (LD<sub>50</sub>) (mg/kg)  
 Confidence limits →  
 Intragastric: LD<sub>50</sub> rat 550 (450-630)  
 LD<sub>50</sub> mouse 750 (650-870); LD rabbit 1000-1500  
 Inhalation:  

|                          |      |         |          |
|--------------------------|------|---------|----------|
| Lim <sub>ac</sub> rat    | (16) | 200-250 | → 4h     |
| Lim <sub>ac</sub> rabbit | (2)  | 20-40   | → 40 min |
| Lim <sub>ac</sub> rabbit | (2)  | 4-6     | → 8h     |

→ Numbers of indices listed on pp. 10 & 11  
 → Exposure time  
 → Acute action threshold

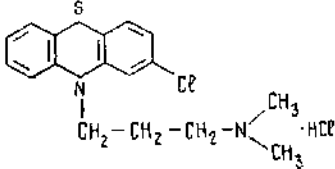
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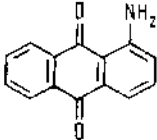
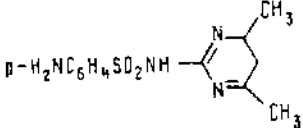
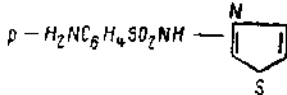
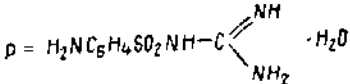
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Toxicometric Parameters, Test Conditions, Action(s), Methods(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Acetaldehyde</b> (acetic aldehyde, ethanal)</p> $\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3 - \text{C} - \text{H} \end{array}$ <p>MAC<sub>wz5</sub> (v), Class III<br/>MAC<sub>hm</sub> 0.01<br/>MAC<sub>ad</sub> 0.2<br/>89,465</p> <p><b>Acetaldehyde tetramer</b> (metaldohyde)</p> $\begin{array}{c} \text{CH}_3\text{HCOCHCH}_3 \\   \quad   \\ \text{O} \quad \text{O} \\   \quad   \\ \text{CH}_3\text{HCOCHCH}_3 \end{array}$ <p>MAC<sub>wz</sub> 0.2 (a), Class II<br/>MAC<sub>hm</sub> 0.03<br/>MAC<sub>ad</sub> 0.003<br/>75</p> <p><b>Acetone</b> (propanon, dimethylketone)<br/><math>\text{CH}_3\text{COCH}_3</math><br/>MAC<sub>wr</sub> 200 (v), Class IV<br/>MAC<sub>hm</sub> 0.35<br/>MAC<sub>ad</sub> 0.35<br/>143, 244, 467</p> <p><b>Acetone cyanohydrin</b><br/><math>(\text{CH}_3)_2\text{C}(\text{OH})\text{CN}</math><br/>MAC<sub>wr</sub> 0.9 (v), Class II<br/>MAC<sub>w</sub> 0.001<br/>17</p> | <p>Intravenous: ND mouse 350—400, ND rabbit 90—100<br/>Has irritant properties<br/>Detection: colorimetry; detection limit 2.5 µg in analytical volume</p> <p>Intragastric: LD<sub>50</sub> mouse 200 (160—239)<sup>1</sup>, LD<sub>50</sub> rat 227 (149—304)<sup>1</sup>, LD<sub>50</sub> guinea pig 175 (101—248), LD<sub>50</sub> rabbit 290 (141—438), LD<sub>50</sub> cat 207<br/>On skin: LD<sub>50</sub> rat 2275<br/>Inhalation: LC<sub>50</sub> mouse 348 (182—515) 2 h, LC<sub>50</sub> rat 203 (139—270) 4 h; Limac rat 10 4 h (6)</p> <p>Inhalation: LC mouse 150 000 2h; Limac rabbit 1000—2500 40 min (2)<br/>Narcotic<br/>Detection: gas—liquid chromatography; detection limit 0.1 µg in analytical volume</p> <p>Intragastric: LD<sub>50</sub> mouse 30<br/>Inhalation: LC<sub>50</sub> mouse 70 2h, LC<sub>40</sub> rat 185 2h<br/>Affects respiratory centre<br/>Detection: colorimetry; detection limit 0.1 µg in analytical volume</p> |

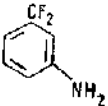
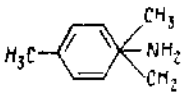
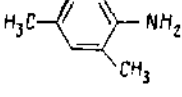
<sup>1</sup> Technical — grade product

| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                                                       | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Acetonitrile</b> (methyl cyanide)<br>$\text{H} \backslash$<br>$\text{H}-\text{C}=\text{C}=\text{N}$<br>$\text{N} /$<br>MAC <sub>wz</sub> 10 (v), Class III<br>MAC <sub>w</sub> 0.7<br>312                               | Intragastric: LD <sub>50</sub> mouse 1670 (1450—1890), LD <sub>50</sub> rat 5900 (4580—7220)<br>Subcutaneous: LD <sub>50</sub> mouse 4480 (3520—5400), LD <sub>50</sub> rat 3500 (2560—4440)<br>Intraabdominal: LD <sub>50</sub> mouse (2950—3410), LD <sub>50</sub> rat 1100 (700—1500)<br>Intravenous: LD <sub>50</sub> mouse 612 (278—946), LD <sub>50</sub> rat 2800 (2450—3150)<br>Inhalation: LC <sub>50</sub> mouse 15 300 (13 900—16 300) 2h, LC <sub>50</sub> rat 22 000 (20 300—23 700) 4h, LC <sub>50</sub> cat 18 000 (13 700—22 300); Lim <sub>ac</sub> rat 340 4h (4)<br>Affects respiratory centre<br>Detection: colorimetry; detection limit 0.003 µg per 10 ml of solution |
| <b>Acetophenone</b> (methyl phenyl ketone)<br>$\text{C}_6\text{H}_5-\text{CO}-\text{CH}_3$<br>MAC <sub>wz</sub> 5 (v), Class III<br>MAC <sub>hm</sub> 0.003<br>MAC <sub>ad</sub> 0.003<br>MAC <sub>w</sub> 0.1<br>222, 264 | Intragastric: LD <sub>50</sub> mouse 1350 (1030—1510), LD <sub>50</sub> rat 2650 (1850—3780)<br>Inhalation: mouse, LC mouse <250 2h, Lim <sub>ac</sub> rabbit 100—150 40 min, (2), Lim <sub>ir</sub> man 35<br>Has irritant action<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Acetopropyl acetate</b><br>$\text{CH}_3\text{COCH}_2\text{CH}_2\text{CH}_2\text{OCOCH}_3$<br>MAC <sub>wz</sub> 5 (v), Class III<br>321, 469                                                                             | Intragastric: LD <sub>50</sub> rat 6080 (5333—6931)<br>Inhalation: Lim <sub>ac</sub> rat 150 4h (1.8)<br>Narcotic<br>Detection: colorimetry; detection limit 10 µg in analytical volume                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Acetopropyl alcohol</b><br>$\text{CH}_3\text{COCH}_2\text{CH}_2\text{CH}_2\text{OH}$<br>MAC <sub>wz</sub> 10 (v), Class III<br>321                                                                                      | Intragastric: LD <sub>50</sub> rat 6750 (4410—9280)<br>Inhalation: Lim <sub>ac</sub> rat 300 4h (8, 11)<br>Narcotic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Acrylic acid</b><br>$\text{CH}_2=\text{CHCOOH}$<br>MAC <sub>wz</sub> 5 (v), Class III<br>MAC <sub>w</sub> 0.5<br>15, 465                                                                                                | Intragastric: LD <sub>50</sub> rat 33.5±4<br>Inhalation: LC <sub>50</sub> mouse 5300±500 2h; Lim <sub>ac</sub> mouse 300 40 min (1); Lim <sub>ir</sub> man 40<br>Has irritant action<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Acrylonitrile+</b><br>$\text{CH}_2=\text{CHCN}$<br>MAC <sub>wz</sub> 0.5 (v), Class II<br>MAC <sub>ad</sub> 0.003<br>MAC <sub>w</sub><br>312, 536                                                                       | Intragastric: LD <sub>100</sub> rat 150<br>Inhalation: LC <sub>100</sub> mouse 800 1h, LC <sub>100</sub> rat 5300 1h<br>Blocks respiratory enzyme; paralyzes respiratory and vasomotor centres<br>Detection: colorimetry; detection limit 0.3 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                             |

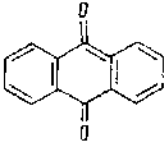
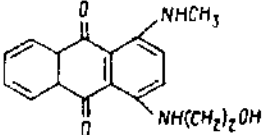
| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                         | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                            |
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| <b>Acrylyl chloride</b><br>$\text{CH}_2=\text{CHCOCl}$<br>MAC <sub>wz</sub> 0.3 (v), Class II<br>14, 465                                                                     | Inhalation: LC <sub>50</sub> mouse 92 (83—330) 2 h,<br>LC <sub>14</sub> rat 70 4 h; Lim <sub>ac</sub> mouse 3 2 h (1);<br>Lim <sub>ir</sub> man 2.4<br>Has irritant action<br>Detection: colorimetry; detection limit<br>1 µg in analytical volume                                        |
| <b>Adipodinitrile (1,4-dicyanobutane)</b><br>$\text{NC}(\text{CH}_2)_4\text{CN}$<br>MAC <sub>wz</sub> 20 (a), Class IV<br>MAC <sub>w</sub> 0.1<br>310, 463                   | Intragastric: LD <sub>50</sub> rat 1000<br>On skin: LD rabbit <0.25 ml/kg<br>Inhalation: LC mouse <120 2 h, LC rat<br><150 4 h; Lim <sub>ac</sub> mouse 93 40 min<br>Detection: colorimetry; detection limit<br>3 µg in analytical volume                                                 |
| <b>Aerosil-175</b><br>MAC <sub>wz</sub> 1 (a), Class III<br>446                                                                                                              | Inhalation: LC rat <1000 4 h; Lim <sub>ac</sub> rat<br>300 4 h (7, 8, 33)<br>Causes fibrosis of pulmonary tissue<br>Detection: weighing method                                                                                                                                            |
| <b>Alipur</b><br>(mixture of N-cyclooctyl-N-<br>N-dimethylurea and 1-methylpro-<br>pyl-2,2-di-m-chlorophenylcarba-<br>mate)<br>MAC <sub>wz</sub> 1 (a), Class II<br>267, 469 | Intragastric: LD <sub>50</sub> mouse 696, LD <sub>50</sub> rat<br>1125<br>On skin: LD rat and rabbit <2000<br>Inhalation: LC rat and cat <220; Lim <sub>ac</sub><br>rat and cat 25<br>Detection: thin-layer chromatography; de-<br>tection limit 5 µg in analytical volume                |
| <b>Alkyl ferrocene (AF-1)</b><br>(composition: 5% ferrocene, 65%<br>monotertiary butyl ferrocene, 30%<br>ditertiary butyl ferrocene)<br>400                                  | Intragastric: LD <sub>50</sub> mouse 2390 (1731—<br>3298), LD <sub>50</sub> rat 3958 (2946—4960);<br>Lim <sub>ac</sub> mouse (15) 100                                                                                                                                                     |
| <b>Alkyl ferrocene (AF-2)</b><br>(composition: 5% ferrocene, 65%<br>ditertiary butyl ferrocene, 20% 3-<br>isooctyl ferrocene)                                                | Intragastric: LD <sub>50</sub> mouse 11 000 (7345—<br>12 340), LD <sub>50</sub> rat 12 229 (10 577—<br>13 881); Lim <sub>ac</sub> mouse (15) 500                                                                                                                                          |
| <b>Allyl alcohol</b><br>$\text{CH}_2=\text{CH}-\text{CH}_2\text{OH}$<br>MAC <sub>wz</sub> 2 (v), Class III<br>MAC <sub>w</sub> 0.1<br>316, 399, 465                          | Intragastric: LD <sub>50</sub> rat 66 (58—75)<br>Inhalation: LC <sub>50</sub> mouse 750—500 2 h;<br>Lim <sub>ac</sub> cat 100 1—2 h (28)<br>Has irritant properties<br>Detection: colorimetry; detection limit<br>0.5 µg in analytical volume                                             |
| <b>Allylamine</b><br>$\text{CH}_2=\text{CHCH}_2\text{NH}_2$<br>MAC <sub>wz</sub> 0.5 (v), Class II<br>260, 469                                                               | Intragastric: LD <sub>50</sub> mouse 78 (52—102),<br>LD <sub>50</sub> rat 102 (64—108)<br>Inhalation: LC <sub>50</sub> rat 320 (120—520) 4 h;<br>Lim <sub>ac</sub> rat 8 4 h (1.7); Lim <sub>ir</sub> man 5<br>Has irritant properties; causes convul-<br>sions<br>Detection: colorimetry |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                 | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                             |
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| <b>Allyl chloride</b> (3-chloropropene)<br>$\text{CH}_2=\text{CHCH}_2\text{Cl}$<br>$\text{MAC}_{\text{wz}}$ 0.3 (v), Class II<br>$\text{MAC}_{\text{w}}$ 0.3<br>343, 465                                                                          | Intragastric: $\text{LD}_{50}$ mouse 1150, $\text{LD}_{50}$ rat 860<br>Inhalation: $\text{LC}_{50}$ mouse 10 700 2 h; $\text{Lim}_{\text{ir}}$ rabbit (7) 400 40 min, $\text{Lim}_{\text{ac}}$ rabbit (2) 340 40 min<br>Has irritant properties<br>Detection: burning in a special torch; detection limit 5 $\mu\text{g}$ in analytical volume          |
| <b>Allyl cyanide</b> (vinyl acetonitrile) +<br>$\text{CH}_2=\text{CHC}\equiv\text{N}$<br>$\text{MAC}_{\text{wz}}$ 0.3 (v), Class II<br>$\text{MAC}_{\text{w}}$ 0.1<br>73                                                                          | Intragastric: $\text{LD}_{50}$ mouse 50<br>Subcutaneous: $\text{LD}_{50}$ rat 150<br>Inhalation: $\text{LC}_{50}$ mouse 900 2 h, $\text{LC}_{50}$ rat 2000 4 h; $\text{Lim}_{\text{ac}}$ mouse and rabbit (1,7), 5–10 40 min<br>Detection: photometry; detection limit 8 $\mu\text{g}$ in analytical volume                                             |
| <b>Allyl formate</b> +<br>$\text{HCCOC}_3\text{H}_7$<br>$\text{MAC}_{\text{wz}}$ 10 (v), Class III<br>217, 461                                                                                                                                    | Intragastric: $\text{LD}_{50}$ mouse $6300 \pm 380$<br>Inhalation: $\text{LC}_{50}$ mouse $14\,000 \pm 820$ 2 h; $\text{Lim}_{\text{ac}}$ rat 250 4 h (1), $\text{Lim}_{\text{ir}}$ rabbit 500 40 min (7), $\text{Lim}_{\text{ir}}$ man 130<br>Has irritant properties<br>Detection: colorimetry; detection limit 10 $\mu\text{g}$ in analytical volume |
| <b>Aminazine</b> [N-(3-dimethylamino-propyl)-2-chlorophenothiazine hydrochloride] +<br>                                                                         | Intragastric: $\text{LD}_{50}$ mouse 150<br>Inhalation: $\text{LC}_{50}$ mouse 80 2 h, $\text{LC}_{50}$ rat 70 2 h, $\text{LC}$ mouse and rat <20 2 h<br>Tranquilizer; affects central nervous system<br>Detection: photometry; detection limit 5 $\mu\text{g}$ in analytical volume                                                                    |
| $\text{MAC}_{\text{wz}}$ 0.3 (a), Class II<br>465, 538                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                         |
| <b>Amines, aliphatic, higher</b><br>$\text{C}_{16}-\text{C}_{20}$<br>$\text{RNH}_2$<br>$\text{MAC}_{\text{wz}}$ 1 (v + a), Class II<br>$\text{MAC}_{\text{hm}}$ 0.003<br>$\text{MAC}_{\text{ad}}$ 0.003<br>$\text{MAC}_{\text{w}}$ 0.03<br>45, 69 | Intragastric: $\text{LD}_{50}$ mouse $730 \pm 32$ , $\text{LD}_{50}$ rat $4125 \pm 52$<br>Inhalation: $\text{Lim}_{\text{ac}}$ rat 0 4 h (1); $\text{LC}$ rat 200 4 h; $\text{Lim}_{\text{air}}$ man 10.4<br>Has irritant action<br>Detection: colorimetry; detection limit 0.01 $\mu\text{g}$ in analytical volume                                     |
| <b>Amines, aliphatic, primary</b><br>$\text{C}_7-\text{C}_9$<br>(mixture of 80% heptylamine $\text{C}_7\text{H}_{15}\text{NH}_2$ and octylamine $\text{C}_8\text{H}_{17}\text{NH}_2$ and 20% lower and higher amines)                             | Intragastric: $\text{LD}_{50}$ mouse $190 \pm 6.9$<br>Inhalation: $\text{LC}_{50}$ mouse $280 \pm 20$ 2 h; $\text{Lim}_{\text{ac}}$ rat 10 4 h (1)<br>Has irritant action                                                                                                                                                                               |

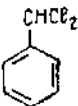
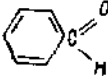
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                      | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                            |
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| $RNH_2$<br>MAC <sub>wz</sub> 1 (v), Class III<br>MAC <sub>w</sub> 0.1<br>463,470                                                                                                                                                       | Detection: photometry; detection limit<br>1 µg in analytical volume                                                                                                                                                                                    |
| <b>α-Aminoanthraquinone</b> (anthraquinonyl amine)<br><br>MAC <sub>wz</sub> 5 (a), Class III<br>247,467                                               | Intragastric: LD mouse <10 000<br>Intraabdominal: LD <sub>50</sub> mouse 6026<br>(3474--6578)<br>Detection: polarography; detection limit<br>2.5 µg per 1 ml of analytical volume                                                                      |
| <b>p-Aminobenzenesulfamide</b> (streptocid)<br>$p-H_2NC_6H_4SO_2NH_2$<br>MAC <sub>wz</sub> 1 (a), Class II<br>MAC <sub>w</sub> 0.5<br>90,469                                                                                           | Intragastric: LD <sub>50</sub> mouse 6000±800, LD <sub>50</sub><br>rat 10 500±500, LD <sub>50</sub> rabbit 1300±375<br>Inhalation: LC rat <375 2 h<br>Has systemic toxicity; affects kidneys<br>and hematopoietic system<br>Detection: weighing method |
| <b>2-(p-Aminobenzenesulfonamido)-4,6-dimethylpyrimidine</b> (sulfadimethine)<br><br>MAC <sub>wz</sub> 1 (a), Class II<br>MAC <sub>w</sub> 1<br>90,469 | Intragastric: LD <sub>50</sub> mouse 20 000<br>Inhalation: LC mouse <1765 2 h<br>Causes acute renal insufficiency; affects<br>hematopoietic system                                                                                                     |
| <b>2-(p-Aminobenzenesulfonamido)-thiazole</b> (norsulfazole)<br><br>MAC <sub>wz</sub> 1 (a), Class II<br>MAC <sub>w</sub> 90                        | Inhalation: LC rat <60 2 h<br>Causes acute renal insufficiency; affects<br>hematopoietic system                                                                                                                                                        |
| <b>p-Aminobenzenesulfonylguanidine monohydrate</b> (sulfaguine)<br><br>$p-H_2NC_6H_4SO_2NH-C(=NH)-NH_2 \cdot H_2O$                                  | Intragastric: LD mouse <20 000<br>Inhalation: LC mouse <1000 2 h<br>Has systemic toxicity; affects kidneys<br>and hematopoietic system<br>Detection: weighing method                                                                                   |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                             | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                          |
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| MAC <sub>wz</sub> 1 (a), Class II<br>MAC <sub>w</sub> 0.01<br>90.469                                                                                                                          |                                                                                                                                                                                                                                                                      |
| <b>m-Aminobenzotrifluoride</b>                                                                                                                                                                |                                                                                                                                                                                                                                                                      |
|                                                                                                              | Intragastric: LD <sub>50</sub> mouse 220 (151—319), LD <sub>50</sub> rat 180 (331—696), LD <sub>50</sub> rabbit 615 (572—661)<br>Inhalation: LC <sub>50</sub> mouse 690 (600—790) 2 h; LC <sub>50</sub> rat 440 (400—490); 4 h; Lim <sub>ac</sub> rat (1, 11) 22 4 h |
| MAC <sub>wz</sub> 0.5 (v), Class II<br>150.469                                                                                                                                                | Has irritant action; methemoglobin former<br>Detection: photometry; detection limit 1.1 µg in analytical volume                                                                                                                                                      |
| <b>Aminoanthric acid</b><br>NH <sub>2</sub> (CH <sub>2</sub> ) <sub>6</sub> COOH<br>MAC <sub>wz</sub> 8 (a), Class III<br>312                                                                 | Intragastric: LD <sub>50</sub> rat 9000<br>Inhalation: LC < 3000 2 h<br>Detection: colorimetry; detection limit 8 µg in analytical volume                                                                                                                            |
| <b>5-Amino-8-hydroxy-3,7-dibromo-1,4-naphthoquinone imine</b><br>C <sub>10</sub> H <sub>6</sub> O <sub>2</sub> N <sub>2</sub> Br <sub>2</sub><br>MAC <sub>wz</sub> 1 (a), Class II<br>220.509 | Intragastric: LD <sub>50</sub> rat 2400 (1900—3200)<br>Subcutaneous: LD rat < 30<br>Inhalation: Lim <sub>ir</sub> rabbit 2 15 min (7)                                                                                                                                |
| <b>m-Aminophenol</b><br>                                                                                     | Intragastric: LD <sub>50</sub> mouse 420 (250—590)<br>Inhalation: LC mouse and rat < 24 6 h<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume                                                                                                   |
| TSEL <sub>wz</sub> 5<br>273.422                                                                                                                                                               |                                                                                                                                                                                                                                                                      |
| <b>2-Amino-1,3,5-trimethylbenzene (mezidine)+</b>                                                                                                                                             |                                                                                                                                                                                                                                                                      |
|                                                                                                            | Intragastric: LD <sub>50</sub> mouse 590 ± 26<br>Inhalation: LC <sub>50</sub> mouse 290 2 h; Lim <sub>ir</sub> rabbit 20 40 min (7); Lim <sub>ac</sub> rabbit 10 40 min (2)<br>Detection: colorimetry; detection limit 3 µg in analytical volume                     |
| MAC <sub>wz</sub> 1 (v), Class II<br>MAC <sub>nm</sub> 0.003<br>MAC <sub>ad</sub> 0.003<br>MAC <sub>w</sub> 0.01<br>93.464                                                                    |                                                                                                                                                                                                                                                                      |
| <b>4-Amino-m-xylene (m-xyldine)+</b>                                                                                                                                                          |                                                                                                                                                                                                                                                                      |
|                                                                                                            | On skin: Lim <sub>ir</sub> rabbit 4—5 (2)<br>Inhalation: Lim <sub>ac</sub> rabbit 40 40 min (2)<br>Has systemic toxicity<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                        |

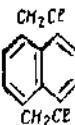
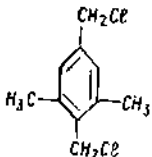
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                            | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                     |
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| <p>MAC<sub>wz</sub> 3 (v), Class III<br/>461, 545</p> <p><b>Ammonia</b><br/>NH<sub>3</sub><br/>MAC<sub>wz</sub> 20 (v), Class IV<br/>MAC<sub>hm</sub> 0.2<br/>MAC<sub>ad</sub> 0.2<br/>MAC<sub>r</sub> 2<br/>4, 329, 464</p> | <p>Inhalation: LC<sub>50</sub> rat 18 620±690 5 min, LC<sub>50</sub> rat 12 120±1440 15 min, LC<sub>50</sub> rat 7040±940 30 min, LC<sub>50</sub> rat 7870±790 1 h, LC<sub>50</sub> rat 7600 2 h, LC<sub>50</sub> mouse 8800 (3300—4300) 2 h; Lim<sub>ac</sub> rat 85 2 h (1), Lim<sub>ir</sub> rat 25 2 h (7); Lim<sub>ir</sub> mouse 20 15 min (3, 7)</p> <p>Has irritant action</p> <p>Detection: colorimetry; detection limit 1 µg in analytical volume</p> |
| <p><b>Ammonium sulfamate</b></p> $\begin{array}{c} \text{O} \\    \\ \text{NH}_2-\text{S}-\text{O}-\text{NH}_4 \\    \\ \text{O} \end{array}$ <p>MAC<sub>wz</sub> 10 (a), Class III<br/>45, 518</p>                          | <p>Intragastric: LD<sub>50</sub> 3000 (2600—3400), LD<sub>50</sub> rat 4520 (4070—5020)</p> <p>Inhalation: LC rat &lt;400—500 2 h; Lim<sub>ir</sub> rat 200—250 2 h</p>                                                                                                                                                                                                                                                                                         |
| <p><b>Amorphous</b><br/>(mixture of ammonium phosphate, diammonium phosphate, ammonium sulphate and ammonium silico-fluoride)<br/>MAC<sub>wz</sub> 6 (a), Class IV<br/>63</p>                                                | <p>Intragastric: LD<sub>50</sub> mouse 1930 (1480—2380), LD<sub>50</sub> rat 4900 (4110—5690), LD<sub>50</sub> rabbit 3800 (2860—4730)</p> <p>Inhalation: LC rat &lt;2000 4 h; Lim<sub>ac</sub> rat 630 4 h (6.24), Lim<sub>ir</sub> rat 400 4 h (7)</p>                                                                                                                                                                                                        |
| <p><b>Amyl alcohol</b> (1-pentanol)<br/>CH<sub>3</sub>(CH<sub>2</sub>)<sub>4</sub>CH<sub>2</sub>OH<br/>MAC<sub>wz</sub> 10 (v), Class III<br/>172, 462</p>                                                                   | <p>Intragastric: LD<sub>50</sub> mouse 3000±200, LD<sub>50</sub> rat 4500±370</p> <p>Has narcotic and irritant actions</p> <p>Detection: colorimetry; detection limit 2 µg in analytical volume</p>                                                                                                                                                                                                                                                             |
| <p><b>tert-Amyl hydroperoxide</b></p> $\begin{array}{c} \text{CH}_3 \\   \\ \text{CH}_3\text{CH}_2\text{COOH} \\   \\ \text{CH}_3 \end{array}$ <p>TSEL<sub>wz</sub> 1.5<br/>44, 45, 344</p>                                  | <p>Intragastric: LD<sub>50</sub> mouse 450 (388—518), LD<sub>50</sub> rat 863 (789—937)</p> <p>Intraabdominal: LD<sub>50</sub> mouse 275 (250—300), LD<sub>50</sub> rat 225 (200—250)</p> <p>Detection: colorimetry and chromatography; detection limit 0.5 µg per 4.5 ml in analytical volume</p>                                                                                                                                                              |
| <p><b>Amyl iodide</b> (1-iodopentane)<br/>CH<sub>3</sub>(CH<sub>2</sub>)<sub>4</sub>CH<sub>2</sub>I<br/>312, 450</p>                                                                                                         | <p>Intraabdominal: LD<sub>50</sub> mouse 489 (442—536), LD<sub>50</sub> rat 948 (862—1034)</p> <p>Detection: colorimetry; detection limit 5 µg per 6 ml of analytical volume</p>                                                                                                                                                                                                                                                                                |
| <p><b>Aniline</b> (aminobenzene, phenylamine)<sup>+</sup></p> $\text{NH}_2$                                                               | <p>Intragastric: LD<sub>50</sub> rat 550 (450—630), LD<sub>50</sub> mouse 750 (650—870), LD rabbit 1000—1500</p> <p>Inhalation: Lim<sub>ac</sub> rat 200—250 4 h (16), Lim<sub>ac</sub> rabbit 20—40 40 min (2), Lim<sub>ac</sub> rabbit 4—6 8 h (2)</p>                                                                                                                                                                                                        |

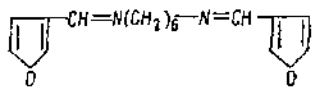
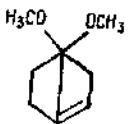
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <p>MAC<sub>wz</sub> 0.1 (v), Class II<br/> MAC<sub>hm</sub> 0.05<br/> MAC<sub>st</sub> 0.03<br/> MAC<sub>w</sub> 0.1<br/> 464, 511, 544, 545</p> <p><b>p-Anisidine</b> (p-aminoanisole, p-methoxyaniline)<sup>+</sup><br/> p-CH<sub>3</sub>OC<sub>6</sub>H<sub>4</sub>NH<sub>2</sub><br/> MAC<sub>wz</sub> 1 (v), Class II<br/> TSEL<sub>hm</sub> 0.08<br/> 467, 541</p> <p><b>9,10-Anthraquinone</b></p>  <p>MAC<sub>wz</sub> 5 (a), Class III<br/> 464, 529</p> <p><b>Anthraquinone, disperse blue dye «K»</b></p>  <p>MAC<sub>wz</sub> 5 (a), Class III<br/> 476</p> <p><b>Antimony, metallic</b><br/> Sh<br/> MAC<sub>wz</sub> 0.5 (a), Class II<br/> 45, 124</p> <p><b>Antimony pentachloride</b><br/> SbCl<sub>5</sub><br/> MAC<sub>wz</sub> 0.3 (v+a), Class II<br/> 57, 466</p> | <p>Methemoglobin former; causes convulsions<br/> Detection: colorimetry; detection limit 1 µg in analytical volume</p> <p>Intragastric: LD<sub>100</sub> mouse 1000, LD mouse &lt;250<br/> Inhalation: LC mouse ≤10–30 2 h<br/> Has systemic toxicity; methemoglobin former; causes convulsions<br/> Detection: polarography; detection limit 1 µg per 1 ml of solution</p> <p>Intragastric: LD rat 15 000<br/> Intraabdominal: LD<sub>50</sub> rat 3500±600<br/> Inhalation: LC rat &lt;12 6 h<br/> Detection: colorimetry; detection limit 3 µg in analytical volume</p> <p>Inhalation: LC rat &lt;10 4 h<br/> Affects liver and hematopoietic system</p> <p>Intragastric: LD rat &lt;1000<br/> Intraabdominal: LD<sub>50</sub> rat 100 (80–120), LD<sub>50</sub> mouse 90 (70–110)<br/> Inhalation: LC rat &lt;50 2 h; Lim<sub>ir</sub> man 13.5<br/> Affects nervous system, kidneys and liver<br/> Detection: colorimetry; detection limit 5 µg per 7 ml of solution</p> <p>Inhalation: LC<sub>50</sub> mouse 620±40 2 h, LC<sub>50</sub> rat 720±60 2 h<br/> Affects kidneys, liver and nervous system; has irritant properties<br/> Detection: colorimetry; detection limit 2 µg in analytical volume</p> |

| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                 | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                               |
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| <b>Antimony pentafluoride</b><br>$\text{SbF}_5$<br>MAC <sub>wz</sub> 0.3 (v+a), Class II<br>45, 58                                   | Inhalation: LC <sub>50</sub> mouse 270 2 h<br>Affects kidneys, liver and nervous system; has irritant properties<br>Detection: colorimetry; detection limit 5 µg in analytical volume        |
| <b>Antimony pentasulfide</b><br>$\text{Sb}_2\text{S}_5$<br>MAC <sub>wz</sub> 2 (a), Class III<br>45, 124                             | Intraabdominal: LD <sub>50</sub> mouse 458 (241—675)<br>Affects kidneys, liver and nervous system; has irritant properties<br>Detection: colorimetry; detection limit 5 µg per 7 ml solution |
| <b>Antimony pentoxide</b><br>$\text{Sb}_2\text{O}_5$<br>MAC <sub>wz</sub> 2 (a), Class III<br>45, 124                                | Intraabdominal: LD <sub>50</sub> mouse 978 (708—1248)                                                                                                                                        |
| <b>Antimony trichloride</b><br>$\text{SbCl}_3$<br>MAC <sub>wz</sub> 0.3 (v+a), Class II<br>45, 124                                   | Intraabdominal: LD <sub>50</sub> mouse 13 (8—18)<br>Detection: photocolourimetry; detection limit 2 µg in analytical volume                                                                  |
| <b>Antimony trifluoride</b><br>$\text{SbF}_3$<br>MAC <sub>wz</sub> 0.3 (v+a), Class II<br>227, 466                                   | Subcutaneous: LD <sub>50</sub> mouse 15<br>Detection: photometry; detection limit 2 µg in analytical volume                                                                                  |
| <b>Antimony trioxide</b><br>$\text{Sb}_2\text{O}_3$<br>MAC <sub>wz</sub> 1 (a), Class II<br>45, 124                                  | Intraabdominal: LD <sub>50</sub> mouse 172 (90—254)<br>Has irritant properties<br>Detection: colorimetry; detection limit 5 µg in analytical volume                                          |
| <b>Antimony trisulfide</b><br>$\text{Sb}_2\text{S}_3$<br>MAC <sub>wz</sub> 1 (a), Class II<br>45, 124                                | Intraabdominal: LD <sub>50</sub> mouse 209 (110—308)<br>Has irritant properties<br>Detection: colorimetry; detection limit 5 µg in analytical volume                                         |
| <b>Ashes of oil shales</b><br>MAC <sub>wz</sub> 4 (a), Class IV<br>468                                                               | Intragastric: LD <sub>50</sub> mouse 20 000<br>Intraabdominal: LD <sub>50</sub> mouse 8250<br>Detection: weighing method                                                                     |
| <b>4,4-Azobenzenedicarboxylic acid</b><br>$\text{C}_{10}\text{H}_8\text{N}_2\text{O}_4$<br>MAC <sub>wz</sub> 3 (a), Class III<br>163 | Intragastric: LD mouse and rat <10 000                                                                                                                                                       |
| <b>Barium caprylate</b><br>$\text{Ba}[\text{CH}_3(\text{CH}_2)_6\text{COO}]_2$<br>275                                                | Intragastric: LD <sub>50</sub> mouse 1100 (802—1398), LD <sub>50</sub> rat 1000 (1443—1557), LD <sub>50</sub> guinea pig 1250 (994—1606)                                                     |
| <b>Barium carbonate</b><br>$\text{BaCO}_3$                                                                                           | Intragastric: LD <sub>50</sub> mouse 200, LD <sub>50</sub> rat 418                                                                                                                           |

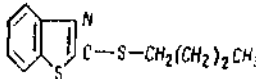
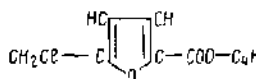
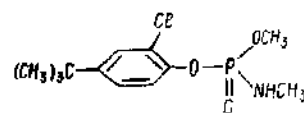
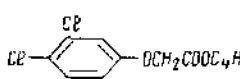
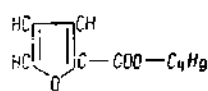
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                            | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                               |
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| MAC <sub>wz</sub> 0.5 (a), Class I<br>330                                                                                                                                                                                    | Intraabdominal: LD <sub>50</sub> mouse 50<br>Inhalation: LC rat <33 4 h<br>Has systemic toxicity and affects nervous system and liver                                                                                                                                                                                                                                                                                                     |
| <b>Barium stearate</b><br>Ba(C <sub>18</sub> H <sub>35</sub> O <sub>2</sub> ) <sub>2</sub><br>275                                                                                                                            | Intragastric: LD <sub>50</sub> mouse 3500 (2645--4355), LD <sub>50</sub> rat 4000 (3249--4750), LD <sub>50</sub> guinea pig 3600 (3089--4111)                                                                                                                                                                                                                                                                                             |
| <b>Benzal chloride</b><br>                                                                                                                  | Intragastric: LD <sub>50</sub> mouse 1400<br>Inhalation: LC <sub>50</sub> mouse 210 2 h, LC <sub>50</sub> rat 400 (230--700) 2 h<br>Has irritant properties<br>Detection: colorimetry; detection limit 5 µg in analytical volume                                                                                                                                                                                                          |
| MAC <sub>wz</sub> 0.5 (v), Class I<br>271, 462<br><b>Benzaldehyde</b>                                                                                                                                                        | Intragastric: LD <sub>50</sub> mouse 2020±188, LD <sub>50</sub> rat 2400±157<br>Detection: colorimetry; detection limit 2.5 µg in analytical volume                                                                                                                                                                                                                                                                                       |
| <br>MAC <sub>wz</sub> 5 (v), Class III<br>45, 315<br><b>Benzene</b>                                                                         | Intragastric: LD <sub>50</sub> mouse 4600±685, LD <sub>50</sub> rat 6400 (5300--7740)<br>Inhalation: LC <sub>50</sub> mouse 45 000±9350 2 h, LC <sub>50</sub> rat 65 000 (50 800--83 000) 4 h, LC <sub>50</sub> mouse 15 000 2 h; Lim <sub>50</sub> rat 1100 4 h (17), Lim <sub>50</sub> rabbit 1000 40 min (2)<br>Narcotic; affects hematopoiesis<br>Detection: gas-liquid chromatography; detection limit 0.001 µg in analytical volume |
| MAC <sub>wz</sub> 5 (v), Class II<br>MAC <sub>hm</sub> 1.5<br>MAC <sub>ad</sub> 0.8<br>MAC <sub>w</sub> 0.5<br>22, 91, 104, 467<br><b>Benzine</b> (solvent) (as C)<br>MAC <sub>wz</sub> * 300 (v), Class IV<br>117, 372, 422 | Intragastric: LD <sub>50</sub> mouse 62 600±1840, LD <sub>50</sub> rat 92 000±3920<br>Inhalation: LC mouse 50 000--70 000 2 h; Lim <sub>50</sub> rabbit 280 40 min (2)<br>Narcotic<br>Detection: titrimetry; detection limit 0.6 µg in analytical volume                                                                                                                                                                                  |
| <b>Benzotrichloride</b> (phenylchloroform, α-trichlorotoluene)<br>                                                                        | Intragastric: LD <sub>50</sub> mouse 1300<br>Inhalation: LC <sub>50</sub> mouse 60 (40--90) 2 h, LC <sub>50</sub> rat 150 (110--200) 2 h<br>Has irritant action; damages liver and hematopoietic system                                                                                                                                                                                                                                   |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                              | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                  |
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| MAC <sub>wz</sub> 0.2 (v), Class II<br>TSEL <sub>wz</sub> 0.01<br>271, 464                                     | Detection: colorimetry; detection limit 3 µg in analytical volume                                                                                                                                                                                                                            |
| <b>Benztotrifluoride</b> (trifluorotoluene)                                                                    | Intragastric: LD <sub>50</sub> mouse 10 000 (7462--13 400), LD <sub>50</sub> rat 15 000 (11 538--19 500)<br>Inhalation: LC <sub>50</sub> mouse 92 240 (69 450--129 630) 2 h, LC <sub>50</sub> rat 70 810 (54 530--91 970) 4 h; Limac rat 2170 4 h (1)<br>Narcotic                            |
| MAC <sub>wz</sub> 100 (v), Class IV<br>150, 464                                                                | Detection: colorimetry; detection limit 1.4 µg in analytical volume                                                                                                                                                                                                                          |
| <b>p-Benzoquinone</b> (p-quinone)                                                                              | Subcutaneous: LD <sub>50</sub> 296<br>Has irritant properties<br>Detection: polarography; detection limit 2.5 µg per 1 ml of solution                                                                                                                                                        |
| MAC <sub>wz</sub> 0.05 (v), Class I<br>413, 467                                                                | Intragastric: LD rat 1900; LC <sub>50</sub> rat 1870 2 h<br>Inhalation: Limac rabbit 440 40 min (2), Limac mouse 380 (1), Limir rabbit 80 (7)<br>Has irritant properties<br>Detection: colorimetry; detection limit 5 mg/m <sup>3</sup>                                                      |
| <b>Benzoylchloride</b><br>C <sub>6</sub> H <sub>5</sub> COCl<br>MAC <sub>wz</sub> 5 (v), Class III<br>294, 312 | Intragastric: LD <sub>50</sub> mouse 1500<br>Inhalation: LC <sub>50</sub> mouse 390 (260--580) 2 h, LC <sub>50</sub> rat 740 (500--1100) 2 h; Limir rat 10--50 2 h, Limir man 0.8 15--20 min<br>Has irritant properties<br>Detection: colorimetry; detection limit 2 µg in analytical volume |
| <b>Benzyl chloride</b> (α-chlorotoluene)                                                                       | Detection: colorimetry; detection limit 2 µg in analytical volume                                                                                                                                                                                                                            |
| MAC <sub>wz</sub> 0.5 (v), Class I<br>271, 462                                                                 | Intragastric: LD <sub>50</sub> mouse 78, LD <sub>50</sub> rat 270<br>Inhalation: LC <sub>50</sub> rat 430 2 h, LC <sub>50</sub> mouse 100 2 h; Limac mouse 3--6 1 h (15), Limac rat 6--8 2 h (7)<br>Damages respiratory centre                                                               |
| <b>Benzyl cyanide</b> (cyanotoluene)+                                                                          | Detection: colorimetry; detection limit 15 µg in analytical volume                                                                                                                                                                                                                           |
| MAC <sub>wz</sub> 0.8 (v), Class II<br>106, 469                                                                |                                                                                                                                                                                                                                                                                              |

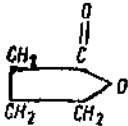
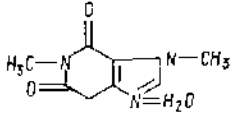
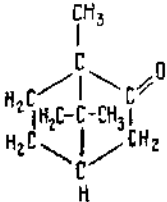
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                  | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                              |
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| <b>Beryllium chloride</b> (as Be)<br>$\text{BeCl}_2$<br>MAC <sub>wz</sub> 0.001 (a), Class I<br>373, 464                                                                                           | Intragastric: LD <sub>50</sub> mouse 92±7, LD <sub>50</sub> rat 86±10<br>Has irritant properties and damages lungs<br>Detection: fluorescence measurement; detection limit 0.05 µg in analytical volume                                                                                                                                                                                                  |
| <b>Beryllium sulfate</b> (as Be)<br>$\text{BeSO}_4$<br>MAC <sub>wz</sub> 0.001 (a), Class I<br>MAC <sub>w</sub> 0.0002<br>373, 464                                                                 | Intragastric: LD <sub>50</sub> 80±5.6 mouse, LD <sub>50</sub> rat 82±9.7<br>Has irritant properties and damages lungs<br>Detection: fluorescence measurement; detection limit 0.05 µg in analytical volume                                                                                                                                                                                               |
| <b>Bis(chloromethyl)benzene</b><br><br>MAC <sub>wz</sub> 1 (v), Class II 343, 464                                 | Intragastric: LD <sub>50</sub> mouse 470, LD <sub>50</sub> rat 1000<br>Inhalation: LC <sub>75</sub> mouse 75—110 2 h, LC <sub>50</sub> rat 200 4 h<br>Narcotic; has irritant properties and affects hematopoiesis<br>Detection: titrimetry, detection limit 4 µg in analytical volume; colorimetry, detection limit 0.5 µg in analytical volume; photometry, detection limit 0.1 µg in analytical volume |
| <b>Bis(chloromethyl)naphthalene</b><br><br>MAC <sub>wz</sub> 0.5 (a), Class II<br>343, 464                       | Intragastric: LD <sub>50</sub> mouse 1300, LD <sub>50</sub> rat 2000<br>Inhalation: LC <sub>50</sub> rat 150 4 h<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume                                                                                                                                                                                                                  |
| <b>Bis(chloromethyl)xylene</b><br><br>MAC <sub>wz</sub> 1 (v), Class II<br>TSEL <sub>wz</sub> 0.004<br>434, 464 | Intragastric: LD <sub>50</sub> mouse 670, LD <sub>50</sub> rat 1600<br>Inhalation: LC <sub>50</sub> rat 250 4 h<br>Affects hematopoiesis<br>Detection: titrimetry, detection limit 4 µg in analytical volume; colorimetry, detection limit 0.5 µg in analytical volume; photometry, detection limit 0.1 µg in analytical volume                                                                          |
| <b>Bis(dimethylamino)isopropylmethacrylate ester</b>                                                                                                                                               | Intragastric: LD <sub>50</sub> rat 1606 (1446—1763)<br>Inhalation: LC <sub>50</sub> mouse 220 (182—266)                                                                                                                                                                                                                                                                                                  |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                      | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                            |
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| $\text{Cl}_2\text{-C}(\text{CH}_3)\text{COOCH}_2\text{CH}_2\text{N}(\text{CH}_3)_2$<br>TSEL 15<br>461, 462                                             | 2 h, $\text{LC}_{50}$ rat 110 (90—133) 4 h<br>Detection: colorimetry; detection limit<br>10 $\mu\text{g}$ in analytical volume                                                                                                                                                                                         |
| <b>Bisfurfurylidenehexamethylene di-<br/>amine (bifurgin)</b>                                                                                          | Intragastric: $\text{LD}_{50}$ rat 490 (450—540),<br>$\text{LD}_{50}$ mouse 1380 (1060—1790)                                                                                                                                                                                                                           |
|                                                                       | Inhalation: LC rat 500 4 h; $\text{Lim}_{ac}$ rat 30<br>4 h (1.7, 15)                                                                                                                                                                                                                                                  |
| MAC <sub>wz</sub> 0.2 (v+a), Class II<br>445                                                                                                           |                                                                                                                                                                                                                                                                                                                        |
| <b>1,1-Bis(hydroxymethyl)-3-cyclohe-<br/>xene</b>                                                                                                      | Intragastric: $\text{LD}_{50}$ rat 1750±42, $\text{LD}_{50}$<br>mouse 1750, $\text{LD}_{50}$ guinea pig 2150, $\text{LD}_{50}$<br>rabbit 3400                                                                                                                                                                          |
|                                                                       | Detection: colorimetry; detection limit<br>5 $\mu\text{g}$ in analytical volume                                                                                                                                                                                                                                        |
| MAC <sub>wz</sub> 5 (a), Class III<br>274, 469                                                                                                         |                                                                                                                                                                                                                                                                                                                        |
| <b>Boric acid (orthoboric acid)</b><br>$\text{H}_3\text{BO}_3$                                                                                         | Intragastric: $\text{LD}_{50}$ 3450±160; $\text{LD}_{50}$ rat<br>2660±200                                                                                                                                                                                                                                              |
| MAC <sub>wz</sub> 10 (v+a), Class III<br>45, 145                                                                                                       | Inhalation: LC rat 28 4 h                                                                                                                                                                                                                                                                                              |
| <b>Bornyl chloride</b><br>$\text{C}_{10}\text{H}_{17}\text{Cl}$<br>TSEL <sub>wz</sub> 50<br>20, 289                                                    | Has systemic toxicity and gonadotropic<br>action<br>Detection: colorimetry<br>Intragastric: $\text{LD}_{50}$ mouse 1840±54<br>Detection: photometry; detection limit<br>2 $\mu\text{g}$ per 2 ml of solution                                                                                                           |
| <b>Boron fluoride</b><br>$\text{BF}_3$<br>MAC <sub>wz</sub> 1 (v), Class II<br>145, 157                                                                | Inhalation: $\text{LC}_{50}$ mouse 3460 (2900—<br>4350) 2 h, $\text{LC}_{50}$ rat 1180 (959—1451)<br>4 h, $\text{LC}_{50}$ guinea pig 109 (815—146.3)                                                                                                                                                                  |
| <b>Boron oxide (boric anhydride)</b><br>$\text{B}_2\text{O}_3$<br>MAC <sub>wz</sub> 5 (a), Class III<br>145, 468                                       | Has irritant action<br>Intragastric: $\text{LD}_{50}$ mouse 3163±270<br>Intraabdominal: $\text{LD}_{50}$ mouse 1868±109<br>Detection: weighing method                                                                                                                                                                  |
| <b>Bromoacetopropyl acetate</b><br>$\text{BrCH}_2\text{COCH}_2\text{CH}_2\text{OCOCH}_3\text{CH}_2$<br>MAC <sub>wz</sub> 0.5 (v), Class II<br>321, 469 | Intragastric: $\text{LD}_{50}$ rat 600 (480—750)<br>Inhalation: $\text{LC}_{50}$ rat 149±11 4 h; $\text{Lim}_{ac}$<br>rat 13 4 h (1.8); $\text{Lim}_{ir}$ rat 4.3 4 h (9),<br>$\text{Lim}_{ir}$ man 2.2<br>Has irritant properties<br>Detection: colorimetry, detection limit<br>10 $\mu\text{g}$ in analytical volume |

| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                                                                         | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                      |
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| <b>Bromobenzene</b><br><br>MAC <sub>wz</sub> 3 (v), Class II<br>379, 466                                                                                    | Intragastric: LD <sub>50</sub> mouse 2700 (2061—3537), LD <sub>50</sub> rat 3200 (2742—3744), LD <sub>50</sub> guinea pig 1700±238, LD <sub>50</sub> rabbit 3300±892<br>Inhalation: LC <sub>50</sub> mouse 21 000 (16 000—27 000) 2 h, LC <sub>50</sub> rat 42 000 (33 000—54 000) 4 h; Lim <sub>ac</sub> 250 4 h (1,18)<br>Narcotic; affects hematopoiesis<br>Detection: colorimetry; detection limit 0.25 µg in analytical volume |
| <b>Bromoform</b><br>CHBr <sub>3</sub><br>MAC <sub>wz</sub> 5 (v), Class III<br>463, 526                                                                                                                                                      | Inhalation: LC <sub>120</sub> rat 45 000 4 h<br>Narcotic; damages liver and kidneys<br>Detection: photometry; detection limit 0.3 µg in analytical volume                                                                                                                                                                                                                                                                           |
| <b>Butyl acetate</b><br>CH <sub>3</sub> COOCH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub><br>MAC <sub>wz</sub> 200 (v), Class IV<br>MAC <sub>hm</sub> 0.1<br>MAC <sub>cat</sub> 0.1<br>MAC <sub>w</sub> 0.1<br>47, 293, 461 | Intragastric: LD <sub>50</sub> mouse 7700 (5900—9500); LD <sub>50</sub> rat 13 100 (10 200—16 000), LD <sub>50</sub> guinea pig 4700, LD <sub>50</sub> rabbit 3200<br>Has irritant properties<br>Detection: colorimetry; detection limit 10 µg in analytical volume                                                                                                                                                                 |
| <b>Butyl acrylate</b><br>CH <sub>2</sub> =CHCOOC <sub>4</sub> H <sub>9</sub><br>MAC <sub>wz</sub> 10 (v), Class III<br>MAC <sub>w</sub> 0.01<br>13, 464                                                                                      | Intragastric: LD <sub>50</sub> rat 900<br>Inhalation: LC <sub>50</sub> mouse 7800 2 h, LC <sub>50</sub> rat 35 000 2 h<br>Has irritant properties<br>Detection: photometry; detection limit 1 µg in analytical volume                                                                                                                                                                                                               |
| <b>Butyl alcohol (butanol)</b><br>CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> OH<br>MAC <sub>wz</sub> 10 (v), Class III<br>MAC <sub>hw</sub> 0.1<br>MAC <sub>cat</sub> 0.1<br>MAC <sub>w</sub> 1<br>121, 393, 467        | Intraabdominal: LD <sub>50</sub> mouse 603 (478—729)<br>Inhalation: NC mouse 80 000 2 h; Lim <sub>ac</sub> rabbit 4000 40 min (2)<br>Narcotic; has irritant properties<br>Detection: chromatography; detection limit 1 µg in analytical volume                                                                                                                                                                                      |
| <b>Butylamine</b><br>CH <sub>3</sub> (CH <sub>2</sub> ) <sub>3</sub> NH <sub>2</sub><br>MAC <sub>wz</sub> 10 (v), Class III<br>TSEL <sub>w</sub> 8<br>312, 412, 475                                                                          | Intragastric: LD <sub>50</sub> mouse, rat and guinea pig 430—450<br>Inhalation: LC <sub>50</sub> mouse 800 2 h; Lim <sub>ir</sub> cat 500 30 min (28), Lim <sub>ir</sub> rabbit 400 40 min (7), Lim <sub>ir</sub> man 100; Lim <sub>o1r</sub> 2.5<br>Has irritant action<br>Detection: photometry; detection limit 0.002 mg per 10 ml of solution                                                                                   |
| <b>Butyl bromide</b><br>CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> Br<br>174                                                                                                                                            | Intraabdominal: LD <sub>50</sub> mouse 6680, LD <sub>50</sub> rat 4450<br>Narcotic; has irritant properties<br>Detection: colorimetry                                                                                                                                                                                                                                                                                               |

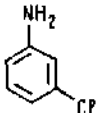
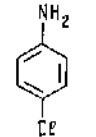
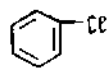
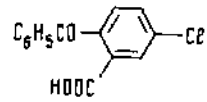
| Substance, MAC or TSEL.<br>Hazard Class Reference(s)                                                                                                                                                                                    | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>tert-Butyl bromide</b><br>$(\text{CH}_3)_3\text{CBr}$<br>174                                                                                                                                                                         | Intraabdominal: $\text{LD}_{50}$ mouse 4400, $\text{LD}_{50}$ rat 1250<br>Narcotic; has irritant action<br>Detection colorimetry                                                                                                                                                                                                                           |
| <b>Butylcaptax</b> (2-butylthiobenzo-thiazole)<br><br>$\text{MAC}_{wz}$ 2 (v), Class III<br>164                                                        | Intragastric: $\text{LD}_{50}$ mouse 1610 (1247—1973), $\text{LD}_{50}$ rat 1270 (977—1647), $\text{LD}_{50}$ rabbit 2344 (2140—2547)<br>On skin: LD rat < 200, LD rabbit < 1000<br>Inhalation: LC rat and rabbit < 197 4 h; $\text{Lim}_{ac}$ rat and rabbit 42 4 h (20)<br>Detection: colorimetry; detection limit 25 $\mu\text{g}$ in analytical volume |
| <b>Butyl 5-chloromethyl-2-furancarboxylate</b><br><br>$\text{MAC}_{wz}$ 0.5 (a), Class II<br>444                                                       | Intragastric: $\text{LD}_{50}$ mouse 2000<br>Inhalation: LC rat < 20 2 h                                                                                                                                                                                                                                                                                   |
| <b>O-(4-tert-Butyl-2-chlorophenyl)-N-methyl-N-methylamido phosphate (amidophos)<sup>+</sup></b><br><br>$\text{MAC}_{wz}$ 0.5 (a), Class II<br>300, 464 | Intragastric: $\text{LD}_{50}$ rat $954 \pm 69$ , $\text{LD}_{50}$ rabbit 550; $\text{Lim}_{ac}$ rat and rabbit 50 (24)<br>On skin: LD rabbit < 1000<br>Inhalation: LC rat 12 4 h, LC rabbit < 32 4 h; $\text{Lim}_{ac}$ rat 3 4 h (24)<br>Detection: colorimetry; detection limit 0.5 $\mu\text{g}$ in analytical volume                                  |
| <b>Butyl 2,4-dichlorophenoxyacetate</b><br><br>$\text{MAC}_{wz}$ 0.5 (v-a), Class II<br>$\text{MAC}_w$ 0.5<br>2, 166, 468                            | Intragastric: $\text{LD}_{50}$ mouse 425 (340—518), $\text{LD}_{50}$ rat 995 (783—1265), $\text{LD}_{50}$ cat 780 (634—956)<br>On skin: LD rabbit < 2000<br>Inhalation: $\text{Lim}_{ac}$ rat 190 4 h (1)<br>Has embryotropic action<br>Detection: photometry; detection limit 100 $\mu\text{g}$ in analytical volume                                      |
| <b>Butyl 2-furancarboxylate</b><br><br>$\text{MAC}_{wz}$ 0.5 (a), Class II                                                                           | Intragastric: $\text{LD}_{50}$ mouse 1500<br>Inhalation: LC rat < 20 2 h                                                                                                                                                                                                                                                                                   |

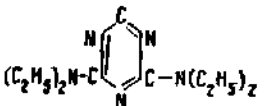
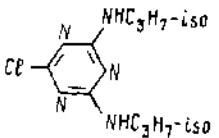
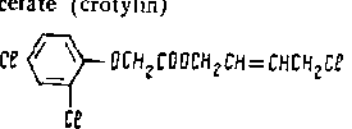
| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                                                              | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                                  |
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| <b>tert-Butyl hydroperoxide</b><br>$\begin{array}{c} \text{CH}_3 \\   \\ \text{CH}_3\text{C} \\ / \quad \backslash \\ \text{CH}_3 \quad \text{COOH} \end{array}$<br>44, 45, 344                                                   | Intragastric: LD <sub>50</sub> mouse 800 (689—911), LD <sub>50</sub> rat 800 (688—912)<br>Intraabdominal: LD <sub>50</sub> mouse 246 (234—255), LD <sub>50</sub> rat 200 (176—224)<br>Detection: chromatography and colorimetry; detection limit 0.5 µg per 4.5 ml of analytical volume                         |
| <b>Butyl iodide (1-iodobutane)</b><br>$\text{CH}_3(\text{CH}_2)_2\text{CH}_2\text{I}$                                                                                                                                             | Intraabdominal: LD <sub>50</sub> mouse 101 (100—103), LD <sub>50</sub> rat 692 (652—731)<br>Narcotic; has irritant action<br>Detection: colorimetry; detection limit 5 µg per 6 ml of analytical volume                                                                                                         |
| <b>tert-Butyl peracetate</b><br>$\text{CH}_3\text{COOO}(\text{CH}_3)_3$<br>MAC <sub>wz</sub> 0.1 (v), Class I<br>45, 388                                                                                                          | Intragastric: LD <sub>50</sub> mouse 632±74, LD <sub>50</sub> rat 675<br>Inhalation: LC <sub>50</sub> rat 8200 4 h, LC <sub>50</sub> mouse 6000 2 h; Lim <sub>ac</sub> rat 150 4 h (4), Lim <sub>ac</sub> rat 20 4 h (32)<br>Detection: photometry; detection limit 2 µg in analytical volume                   |
| <b>tert-Butyl perbenzoate</b><br>$(\text{CH}_3)_3\text{C-OO-COC}_6\text{H}_5$<br>MAC <sub>wz</sub> 1 (v), Class II<br>387                                                                                                         | Intragastric: LD <sub>50</sub> mouse 914±90, LD <sub>50</sub> rat 1012<br>Inhalation: LC rat and mouse <57 4 h                                                                                                                                                                                                  |
| <b>Butylthioethyl methacrylate</b><br>$\text{CH}_2=\text{C}(\text{CH}_3)\text{COOCH}_2\text{CH}_2\text{SC}_4\text{H}_9$<br>399                                                                                                    | Intragastric: LD <sub>50</sub> mouse 6300 (5478—7245), LD <sub>50</sub> rat 5300 (4711—6545)                                                                                                                                                                                                                    |
| <b>1,4-Butynediol</b><br>$\text{HOCH}_2\text{C}\equiv\text{CCH}_2\text{OH}$<br>MAC <sub>wz</sub> 1 (v+a), Class II<br>MAC <sub>w</sub> 5<br>441                                                                                   | Intragastric: LD <sub>50</sub> mouse 100, LD <sub>70</sub> rat 150<br>Inhalation: LC mouse and rat 150—280 2 h<br>Narcotic; has irritant properties                                                                                                                                                             |
| <b>Butyric acid</b><br>$\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$<br>MAC <sub>wz</sub> 10 (v), Class III<br>MAC <sub>hm</sub> 0.015<br>437, 464                                                                               | Intragastric: LD <sub>50</sub> mouse 1000, LD <sub>50</sub> rat 2000<br>Inhalation: LC mouse and rat <500—700 2 h<br>Has irritant properties<br>Detection: colorimetry; detection limit 10 µg in analytical volume                                                                                              |
| <b>Butyric aldehyde (butanal, butaldehyde, butylaldehyde)</b><br>$\text{CH}_3\text{CH}_2\text{CH}_2\text{C}\begin{array}{l} \nearrow \text{O} \\ \searrow \text{H} \end{array}$<br>MAC <sub>wz</sub> 5 (v), Class III<br>111, 467 | Inhalation: LC <sub>50</sub> mouse 44 610 (41 590—47 630) 2 h; NC <sub>50</sub> mouse 30 900 (28 600—33 640) 15—20 min; Lim <sub>ac</sub> rabbit 100 40 min (2); Lim <sub>ir</sub> man 7.5; Lim <sub>0.1</sub> 2<br>Has irritant properties<br>Detection: photometry; detection limit 1 µg per 1 ml of solution |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                      | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                     |
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| <b>Butyric anhydride</b><br>$\begin{array}{c} \text{C}_3\text{H}_7-\text{C}=\text{O} \\ \quad \quad \quad \diagdown \\ \quad \quad \quad \text{O} \\ \quad \quad \quad \diagup \\ \text{C}_3\text{H}_7-\text{C}=\text{O} \end{array}$<br>MAC <sub>wz</sub> 1 (v), Class II<br>438, 464 | Intragastric: LD <sub>50</sub> mouse 2000, LD rat <5000<br>Inhalation: LC mouse and rat <50 2 h<br>Has irritant properties<br>Detection: colorimetry; detection limit 5 µg in analytical volume                                                 |
| <b>γ-Butyrolactone</b><br><br>TSEL <sub>wz</sub> 2<br>184                                                                                                                                             | Intragastric: LD <sub>50</sub> rat 1800                                                                                                                                                                                                         |
| <b>Cadmium oxide</b><br>CdO<br>MAC <sub>wz</sub> 0.1 (a), Class I<br>MAC <sub>w</sub> 0.01<br>45, 267                                                                                                                                                                                  | Intragastric: LD <sub>50</sub> mouse 72 (41—113)<br>Inhalation: LC rat <60 1 h<br>Has irritant properties<br>Detection: colorimetry; detection limit 0.02 µg in analytical volume                                                               |
| <b>Cadmium stearate</b><br>Cd(C <sub>17</sub> H <sub>35</sub> COO) <sub>2</sub><br>MAC <sub>wz</sub> 0.1 (a), Class I<br>378                                                                                                                                                           | Intragastric: LD <sub>50</sub> mouse 590 (556—624), LD <sub>50</sub> rat 1225 (876—1574)<br>Inhalation: LC rat <3 4 h                                                                                                                           |
| <b>Caffeine (base)</b><br><br>MAC <sub>wz</sub> 0.5 (a), Class I<br>287, 469                                                                                                                         | Intragastric: LD <sub>50</sub> mouse 310±20, LD <sub>50</sub> rat 310±33<br>Inhalation: LC rat <55 4 h; Lim <sub>ac</sub> rat 13 4 h (4)<br>Damages central nervous system<br>Detection: colorimetry; detection limit 5 µg in analytical volume |
| <b>Caffeine sodium benzoate</b><br>MAC <sub>wz</sub> 0.5 (a), Class II<br>287                                                                                                                                                                                                          | Intragastric: LD <sub>50</sub> mouse 800±41, LD <sub>50</sub> rat 860±62<br>Damages central nervous system                                                                                                                                      |
| <b>Camphor (2-camphanone)</b><br>                                                                                                                                                                   | Inhalation: LC mouse 400—1760 3 h<br>Damages central nervous system                                                                                                                                                                             |

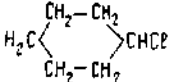
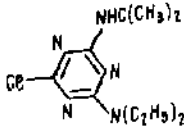
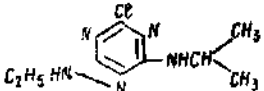
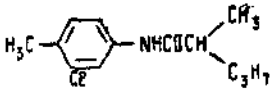
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                                                                                                                                                             | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| MAC <sub>wz</sub> 3 (v), Class III<br>285, 464<br><b>Caproic acid</b><br>$\text{CH}_3(\text{CH}_2)_4\text{COOH}$<br>MAC <sub>wz</sub> 5 (v), Class III<br>MAC <sub>hm</sub> 0.01<br>MAC <sub>ad</sub> 0.005<br>45, 83<br><b>Caprolactam</b><br>$\begin{array}{c} \text{H}_2\text{C} - \text{CH}_2 - \text{CH}_2 \\   \qquad \qquad \qquad \diagup \\ \text{H}_2\text{C} - \text{CH}_2 - \text{C} \quad \text{NH} \end{array}$ | Detection: photometry; detection limit 20 µg in analytical volume<br>Intragastric: LD <sub>50</sub> mouse 5000<br>Inhalation: LC <sub>50</sub> mouse 4100 2 h<br>Has irritant properties<br>Detection: colorimetry; detection limit 2 mg/m <sup>3</sup><br>Intragastric: LD <sub>50</sub> rat 2000—4000<br>Inhalation: LD <sub>50</sub> rat 300 2 h; Lim <sub>ac</sub> rat 140 2 h (4)<br>Damages central nervous system<br>Detection: colorimetry; detection limit 50 µg in analytical volume |
| MAC <sub>wz</sub> 10 (a), Class III<br>MAC <sub>hw</sub> 0.06<br>MAC <sub>ad</sub> 0.006<br>MAC <sub>w</sub> 1<br>236, 464<br><b>Carboethoxymethyl acrylate</b><br>$\text{CH}_2=\text{CHCOOCH}_2\text{COOC}_2\text{H}_5$<br>398<br><b>Carboethoxymethyl methacrylate</b><br>$\text{CH}_2=\text{C}(\text{CH}_3)\text{COOCH}_2\text{COOC}_2\text{H}_5$<br>398                                                                   | Intragastric: LD <sub>50</sub> rat 215 (185—244)<br><br>Intragastric: LD <sub>50</sub> rat 7885 (6855—8915)                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>N-Carboisopropoxy-o-acetyl-N-phenyl carbamate (acylate)</b><br>$\begin{array}{c} \text{O} \\    \\ \text{C}_6\text{H}_5 - \text{N} - \text{C} - \text{OCH}(\text{CH}_3)_2 \\   \\ \text{O} - \text{COCH}_3 \end{array}$                                                                                                                                                                                                    | Intragastric: LD <sub>50</sub> mouse 2075±141, LD <sub>50</sub> rat 3400±180<br>On skin: LD rabbit <5000<br>Inhalation: LC <sub>50</sub> rat 1170 6 h; Lim <sub>ac</sub> rat 38 6 h (8, 16)                                                                                                                                                                                                                                                                                                    |
| MAC <sub>wz</sub> 2 (v+a), Class III<br>177<br><b>Carboisopropoxymethyl methacrylate</b><br>$\text{CH}_2=\text{C}(\text{CH}_3)\text{COOCH}_2\text{COOC}_3\text{H}_7\text{-iso}$<br>398<br><b>Carbon disulfide</b><br>$\text{CS}_2$<br>MAC <sub>wz</sub> 1 (v), Class II<br>MAC <sub>hw</sub> 0.03<br>MAC <sub>ad</sub> 0.005<br>MAC <sub>w</sub> 1<br>246, 458, 516                                                           | Intragastric: LD <sub>50</sub> rat 9000 (8086—10 017)<br><br>Intragastric: LD <sub>50</sub> mouse 2780, LD <sub>50</sub> rat 3188, LD <sub>50</sub> guinea pig 2125, LD <sub>50</sub> rabbit 2550<br>Inhalation: LC <sub>50</sub> mouse 10 000 2 h, LS <sub>50</sub> rat 25 000 2 h; Lim <sub>ac</sub> rat 1000 1 h (4)<br>Narcotic; causes organic lesions in nervous system<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume                                           |

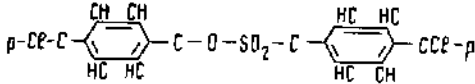
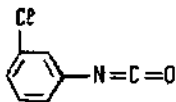
| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                                        | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                             |
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| <b>Carbon monoxide</b><br>$\text{CO}$<br>$\text{MAC}_{\text{wz}}$ 20 (v), Class IV<br>$\text{MAC}_{\text{hw}}$ 3<br>$\text{MAC}_{\text{od}}$ 1<br>464, 474                                                  | Inhalation: $\text{LC}_{50}$ mouse 3600 (3200—4000) 2 h; $\text{LC}_{100}$ rat 18 000 15 min; CL rabbit 20 000 1 h; $\text{Lim}_{\text{ac}}$ mouse 2500 5 min (4), $\text{Lim}_{\text{ac}}$ mouse 2000 15 min (4), $\text{Lim}_{\text{ac}}$ mouse 100 2 h (4), $\text{Lim}_{\text{ac}}$ rat 3000 15 min (4)<br>Forms carboxyhemoglobin and causes anoxemia<br>Detection: titrimetry; detection limit 14 $\mu\text{g}$ in analytical volume |
| <b>Carbon tetrachloride+</b><br>$\text{CCl}_4$<br>$\text{MAC}_{\text{wz}}$ 20 (v), Class II<br>$\text{MAC}_{\text{hm}}$ * 4<br>$\text{MAC}_{\text{ad}}$ * 2<br>$\text{MAC}_{\text{w}}$ 0.3<br>214, 462, 497 | Intragastric: $\text{LD}_{50}$ mouse 9066 (7749—10 607), $\text{LD}_{50}$ rat 6200 (5082—7564), $\text{LD}_{50}$ guinea pig 5760, $\text{LD}_{50}$ rabbit 5760<br>Inhalation: $\text{LC}_{50}$ mouse 34 500 $\pm$ 7100 2 h; $\text{Lim}_{\text{ac}}$ rat 1200 4 h (1)<br>Narcotic; damages liver and kidneys<br>Detection: colorimetry; detection limit 2 $\mu\text{g}$ in analytical volume                                               |
| <b>Cerous chloride</b><br>$\text{CeCl}_3$<br>387, 461                                                                                                                                                       | Intraabdominal: $\text{LD}_{50}$ mouse 215 (198—230)<br>Detection: weighing method                                                                                                                                                                                                                                                                                                                                                         |
| <b>Cerous oxide</b><br>$\text{Ce}_2\text{O}_3$<br>387, 461                                                                                                                                                  | Intraabdominal: $\text{LD}_{50}$ mouse 475 (402—538)<br>Detection: weighing method                                                                                                                                                                                                                                                                                                                                                         |
| <b>Chlorinated naphtalenes (higher)+</b><br>$\text{MAC}_{\text{wz}}$ 0.5 (v), Class II<br>380, 469                                                                                                          | Inhalation: LC mouse <50—200 2 h<br>Detection: photometry; detection limit 0.1 $\mu\text{g}$ in analytical volume                                                                                                                                                                                                                                                                                                                          |
| <b>Chlorine</b><br>$\text{Cl}_2$<br>$\text{MAC}_{\text{wz}}$ 1 (v), Class II<br>$\text{MAC}_{\text{hw}}$ 0.1<br>$\text{MAC}_{\text{ar}}$ 0.03<br>98, 453                                                    | Inhalation: LC dog 1900 30 min<br>Has irritant properties; causes edema of lungs<br>Detection: nephelometry; detection limit 3 $\mu\text{g}$ in analytical volume                                                                                                                                                                                                                                                                          |
| <b>Chlorine dioxide</b><br>$\text{ClO}_2$<br>$\text{MAC}_{\text{wz}}$ 0.1 (v), Class I<br>99, 468                                                                                                           | Intragastric: $\text{LD}_{50}$ rat 140<br>Has irritant properties; damages upper and lower respiratory tracts<br>Detection: photometry; detection limits 0.4 $\mu\text{g}$ in analytical volume                                                                                                                                                                                                                                            |
| <b>Chloroacetic acid+</b><br>$\text{CH}_2\text{ClCOOH}$<br>$\text{MAC}_{\text{wz}}$ 1 (v+a), Class II<br>249                                                                                                | Intragastric: $\text{LD}_{50}$ rat 580 (513—655)<br>On skin: $\text{LT}_{50}$ mouse 35 (31—39)<br>Inhalation: $\text{LC}_{50}$ rat 180 (146—221) 4 h; $\text{Lim}_{\text{ar}}$ rat 93 4 h (1, 8, 11); $\text{Lim}_{\text{ar}}$ rat 25 4 h (7,9), $\text{Lim}_{\text{ar}}$ man 5.7<br>Detection: photometry; detection limit 10 $\mu\text{g}$ in analytical volume; gas liquid chromatography                                               |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                   | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                |
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| <b>Chloroacetopropyl acetate</b><br>$\text{CH}_3\text{COCHClCH}_2\text{CH}_2\text{OCOCH}_3$<br>MAC <sub>wz</sub> 2 (v), Class III<br>321                                                                                                            | Intragastric: LD <sub>50</sub> rat 2049 (1694—2479)<br>Inhalation: Lim <sub>ac</sub> rat 60 4 h (1,11);<br>Lim <sub>ir</sub> rat 20 4 h (9), Lim <sub>ir</sub> man 7<br>Has irritant properties<br>Detection: colorimetry; detection limit<br>10 µg in analytical volume                                                                                                                                                                                                                   |
| <b>m-Chloroaniline+</b><br><br>MAC <sub>wz</sub> 0.05 (v), Class I<br>MAC <sub>ad</sub> 0.01<br>MAC <sub>w</sub> 0.2<br>164, 250, 312, 557                         | Intragastric: LD <sub>50</sub> mouse 368±27, LD <sub>50</sub><br>rat 256±41, LD <sub>50</sub> guinea pig 250<br>On skin: LD <sub>50</sub> rat 250<br>Inhalation: LC mouse <550 2 h; LC <sub>50</sub><br>mouse 550 4 h, LC <sub>50</sub> mouse 550 6 h;<br>Lim <sub>ac</sub> mouse 38 4 h (19)<br>Detection: colorimetry; detection limit<br>0.2 µg in analytical volume                                                                                                                    |
| <b>p-Chloroaniline+</b><br><br>MAC <sub>wz</sub> 0.3 (v), Class II<br>MAC <sub>hw</sub> 0.04<br>MAC <sub>ad</sub> 0.01<br>MAC <sub>w</sub> 0.2<br>152, 164, 312    | Intragastric: LD <sub>50</sub> mouse 228 (198—262),<br>LD <sub>50</sub> rat 371, LD <sub>50</sub> guinea pig 350<br>On skin: LD <sub>50</sub> cat 239 (167—311)<br>Inhalation: LC mouse <250 4 h; LC <sub>12</sub><br>mouse 250 6 h; Lim <sub>ac</sub> rat 40 4 h (19).<br>Lim <sub>ac</sub> rat 21 4 h (19), Lim <sub>ac</sub> mouse<br>10 4 h<br>Methemoglobin former; affects nervous<br>system<br>Detection: photoelectrocolorimetry; detec-<br>tion limit 0.3 µg in analytical volume |
| <b>Chlorobenzene+</b><br><br>MAC <sub>wz</sub> 50 (v), Class III<br>MAC <sub>hw</sub> 0.1<br>MAC <sub>ad</sub> 0.1<br>MAC <sub>w</sub> 0.02<br>51, 143, 379, 466 | Intragastric: LD <sub>50</sub> mouse 2300 (1825—<br>2898), LD <sub>50</sub> rat 3300±625, LD <sub>50</sub> rabbit<br>2800±561, LD <sub>50</sub> guinea pig 2250<br>Inhalation: LC mouse 15 000; Lim <sub>ac</sub> rab-<br>bit 700 40 min (2)<br>Narcotic; damages hematopoietic organs<br>Detection: colorimetry; detection limit<br>0.25 µg in analytical volume                                                                                                                          |
| <b>4-Chlorobenzophenone-2-carboxy-<br/>lic acid</b><br><br>MAC <sub>wz</sub> 1 (a), Class II<br>5, 468                                                           | Intragastric: LD <sub>50</sub> mouse 570 (338—957),<br>LD <sub>50</sub> rat 3700 (3189—4292)<br>Inhalation: Lim <sub>ir</sub> man 4<br>Detection: colorimetry; detection limit<br>0.5 µg in analytical volume                                                                                                                                                                                                                                                                              |

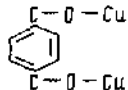
| Substance, MAC or TSFL, Hazard Class Reference(s)                                                                                        | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                  |
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| <b>2-Chloro-4,6-bis(diethylamino)-sym-triazine (chlorazine)</b>                                                                          | Intragastric: LD <sub>50</sub> mouse 743; LD <sub>50</sub> rat 980                                                                                                                                                                                                                                           |
|                                                         | Inhalation: LC rat <800—1100 4 h<br>Affects central nervous system and blood<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume                                                                                                                                                          |
| MAC <sub>wz</sub> 2 (a), Class III<br>463, 519                                                                                           |                                                                                                                                                                                                                                                                                                              |
| <b>2-Chloro-4,6-bis(isopropylamino)-sym-triazine (propazine)</b>                                                                         | Intragastric: LD <sub>50</sub> mouse 3180 (2971—3402), LD <sub>50</sub> rat 3840 (2953—4992), LD <sub>50</sub> guinea pig 1200, LD <sub>50</sub> rat 5000                                                                                                                                                    |
|                                                         | On skin: LD rat <1000, LD rabbit <500<br>Inhalation: LC mouse and rat <7000 2—4 h; Lim <sub>ac</sub> mouse and rat 1200—1500 4 h (1,25)<br>Affects nervous system                                                                                                                                            |
| MAC <sub>wz</sub> 5 (a), Class III<br>MAC <sub>w</sub> 1<br>383, 466                                                                     | Detection: photometry; detection limit 0.5 µg in analytical volume                                                                                                                                                                                                                                           |
| <b>1,3-Chlorobromopropane</b><br>Cl-CH <sub>2</sub> -CH <sub>2</sub> -CH <sub>2</sub> -Br<br>MAC <sub>wz</sub> 3 (v), Class I<br>84, 406 | Intragastric: LD <sub>50</sub> mouse 1290, LD <sub>50</sub> rat 930<br>Inhalation: LC mouse 7270 2 h; LC <sub>50</sub> rat 7270 (7000—7530) 4 h; Lim <sub>ac</sub> rat 410 4 h (10)                                                                                                                          |
|                                                                                                                                          | Detection: photometry; detection limit 3 µg in analytical volume                                                                                                                                                                                                                                             |
| <b>4-Chloro-2-butynyl-N-(4-chlorophenyl)carbamate (carbyne)</b>                                                                          | Intragastric: LD <sub>50</sub> mouse 630, LD <sub>50</sub> rat 527                                                                                                                                                                                                                                           |
|                                                       | On skin: LD rabbit <1000<br>Inhalation: Lim <sub>ac</sub> rat 80 4 h (24)                                                                                                                                                                                                                                    |
| MAC <sub>wz</sub> 0.5 (a), Class II<br>463, 522                                                                                          | Affects nervous system; has irritant properties                                                                                                                                                                                                                                                              |
| <b>γ-Chlorocrotyl 2,4-dichlorophenoxyacetate (crotylin)</b>                                                                              | Detection: titrimetry; detection limit 5 µg in analytical volume; photometry; detection limit 0.1 µg in analytical volume                                                                                                                                                                                    |
|                                                       | Intragastric: LD <sub>50</sub> mouse 469±50 <sup>1</sup> , LD <sub>50</sub> rat 547±86, LD <sub>50</sub> rat 662±10 <sup>1</sup> , LD <sub>50</sub> rabbit 784±120 <sup>1</sup> ; Lim <sub>ac</sub> mouse 20 (1)<br>On skin: LD rabbit <300<br>Inhalation: LC <sub>50</sub> mouse 2190 2 h; LC rat <5840 4 h |
| MAC <sub>wz</sub> 1 (v+a), Class II<br>MAC <sub>w</sub> 0.02<br>108, 468                                                                 | Affects nervous system; has irritant properties<br>Detection: colorimetry; detection limit 100 µg in analytical volume                                                                                                                                                                                       |

<sup>1</sup> Technical — grade product

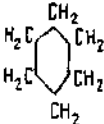
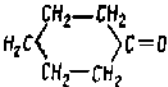
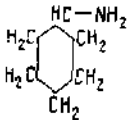
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                               | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                          |
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| <b>Chlorocyclohexane</b> (cyclohexyl chloride)<br>                                                                                             | Intragastric: LD <sub>50</sub> rat 3000<br>Inhalation: LC mouse 31 000 2 h, LC rat 10 000—75 000 2 h<br>Affects central nervous system<br>Detection: burning in special torch; detection limit 5 µg in analytical volume                                                                                                             |
| MAC <sub>w</sub> , 80 (v), Class IV<br>291, 164, 524<br><b>2-Chloro-4-diethylamino-6-isopropylamino-sym-triazine</b> (ipazine)<br>             | Intragastric: LD <sub>50</sub> mouse 2300 (1500—3000), LD <sub>50</sub> rat 1700 (1200—2200), LD <sub>50</sub> cat 1300<br>On skin: LD rat <1000, LD rabbit <500<br>Affects nervous system                                                                                                                                           |
| MAC <sub>w</sub> , 2 (a), Class III<br>487<br><b>2-Chloroethanesulfonylchloride</b><br>ClCH <sub>2</sub> CH <sub>2</sub> SO <sub>2</sub> Cl<br>MAC <sub>w</sub> , 0.3 (v), Class II<br>108, 466                                 | Intragastric: LD <sub>50</sub> rat 240 (157—365)<br>Inhalation: LC <sub>50</sub> mouse 250 (190—330) 2 h, LC <sub>50</sub> rat 420 (210—840) 4 h; Lim <sub>ac</sub> rat 97 4 h (1); Lim <sub>ir</sub> 12 (9), Lim <sub>ir</sub> man 5<br>Has irritant properties<br>Detection: photometry; detection limit 3 µg in analytical volume |
| <b>2-Chloro-4-ethylamino-6-isopropylamino-sym-triazine</b> (atrazine)<br>                                                                     | Intragastric: LD <sub>50</sub> mouse 850 (521—1129), LD <sub>50</sub> rat 1410 (728—2092)<br>On skin: LD rat <1000<br>Inhalation: LC rat <2200—2400 2 h<br>Affects liver<br>Detection: titrimetry; detection limit 5 µg in analytical volume; photometry; detection limit 0.1 µg in analytical volume                                |
| MAC <sub>w</sub> , 2 (a), Class III<br>MAC <sub>w</sub> , 0.5<br>179, 464<br><b>Chloroethyl methacrylate</b><br>CH <sub>2</sub> -C(CH <sub>3</sub> )COOCH <sub>2</sub> CH <sub>2</sub> Cl<br>TSEL <sub>w</sub> , 10<br>398, 461 | Intragastric: LD <sub>50</sub> rat 200 (166—240)<br>Inhalation: LC <sub>50</sub> mouse 700 (530—920) 2 h, LC <sub>50</sub> rat 550 (460—660) 4 h<br>Detection: colorimetry; detection limit 10 µg in analytical volume                                                                                                               |
| <b>3-Chloro-4-methylanilide-α-methyl-valeric acid</b> (solan)<br>                                                                            | Intragastric: LD <sub>50</sub> mouse 1800 (1522—2078), LD <sub>50</sub> rat 5100 (4519—5681)<br>On skin: LD rat and rabbit <2000<br>Inhalation: LC rat <52 4 h; Lim <sub>ac</sub> rat 28 4 h (16)                                                                                                                                    |

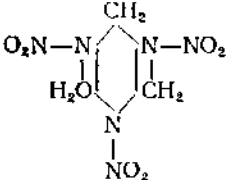
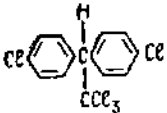
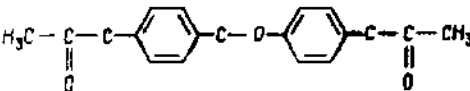
| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                              | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                    |
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| MAC <sub>wz</sub> 1 (a), Class II<br>302, 469                                                                                                                     | Methemoglobin former; affects nervous system<br>Detection: thin-layer chromatography; detection limit 5 µg                                                                                                                                                                                        |
| <b>Chloromethyltrichlorosilane</b><br><chem>ClCH2SiCl3</chem><br>MAC <sub>wz</sub> 1 (v), Class II<br>201, 464                                                    | Intragastric: LD <sub>100</sub> mouse 100<br>On skin: LD <sub>100</sub> mouse 100<br>Intraabdominal: LD <sub>100</sub> mouse 100<br>Inhalation: LC <sub>50</sub> mouse 30–60 2 h; LC rat 5 h<br>Has irritant properties<br>Detection: photocolormetry; detection limit 15 µg in analytical volume |
| <b>Chloropelargonic acid</b><br><chem>Cl(CH2CH2)4COOH</chem><br>MAC <sub>wz</sub> 5 (v), Class III<br>MAC <sub>w</sub> 0.3<br>462, 500                            | Intragastric: LD <sub>50</sub> mouse 2000<br>Inhalation: LC mouse and rat <100–50 2 h; Lim <sub>ir</sub> cat 20 1 h (28)<br>Has irritant properties; affects parenchymatous organs                                                                                                                |
| <b>p-Chlorophenol</b> †<br>                                                      | Intragastric: LD <sub>50</sub> rat 500 (400–600)<br>On skin: LD <sub>50</sub> rat 1000 (700–1300)<br>Inhalation LC <sub>50</sub> mouse 1 (9–13) 2 h; LC <sub>50</sub> rat 135 (100–170) 2 h; Lim <sub>ac</sub> rat 13 2 h (1.8)<br>Affects nervous system; has irritant properties                |
| MAC <sub>wz</sub> 1 (v), Class II<br>TSEL <sub>wz</sub> 0.01<br>125                                                                                               |                                                                                                                                                                                                                                                                                                   |
| <b>p-Chlorophenyl-p-chlorobenzene-sulfonate</b> (ester sulfonate, ovotran)<br> | Intragastric: LD <sub>50</sub> mouse 1475, LD <sub>50</sub> rat 2650<br>On skin: LD rabbit <500<br>Affects nervous system and liver                                                                                                                                                               |
| MAC <sub>wz</sub> 2 (v+a), Class III<br>521                                                                                                                       |                                                                                                                                                                                                                                                                                                   |
| <b>m-Chlorophenyl isocyanate</b><br>                                           | On skin: LD rabbit <60<br>Inhalation: Lim <sub>ir</sub> rabbit 0.8–1 40 min (7); Lim <sub>ir</sub> man 1 30 sec<br>Has irritant properties<br>Detection: colorimetry; detection limit 0.5 µg per 1 ml                                                                                             |
| MAC <sub>wz</sub> 0.5 (v), Class II<br>MAC <sub>hw</sub> 0.005<br>MAC <sub>sd</sub> 0.005<br>100, 289                                                             |                                                                                                                                                                                                                                                                                                   |

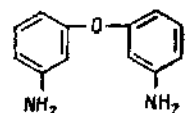
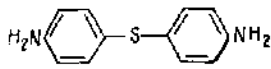
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                        | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                              |
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| <p><b>p-Chlorophenyl isocyanate</b></p>  <p>MAC<sub>wz</sub> 0.5 (v), Class II<br/>MAC<sub>hw</sub> 0.0015<br/>MAC<sub>ad</sub> 0.0015<br/>189, 290</p> | <p>Intragastric: LD<sub>50</sub> mouse 450<br/>On skin: LD rabbit &lt;300<br/>Inhalation: LC<sub>50</sub> mouse 53±3; Lim<sub>ir</sub> rabbit 1.8—2 40 min (7); Lim<sub>ir</sub> man 0.8<br/>Has irritant properties</p>                                                                                                                                                                                                                                                 |
| <p><b>N-o-Chlorophenylmaleimide</b><br/>148</p>                                                                                                                                                                                          | <p>Intragastric: LD<sub>50</sub> mouse 350, LD<sub>50</sub> rat 520</p>                                                                                                                                                                                                                                                                                                                                                                                                  |
| <p><b>N-(p-Chlorophenyl)maleimide</b><br/>148</p>                                                                                                                                                                                        | <p>Intragastric: LD<sub>50</sub> mouse 310, LD<sub>50</sub> rat 440</p>                                                                                                                                                                                                                                                                                                                                                                                                  |
| <p><b>Chloroprene</b> (2-chlorobutadiene-1,3-β-chlorobutadiene)<br/>CH<sub>2</sub>-CClCH=CH<sub>2</sub><br/>MAC<sub>wz</sub> 0.05 (v), Class I<br/>MAC<sub>w</sub> 0.1<br/>112, 465</p>                                                  | <p>Intragastric: LD<sub>50</sub> mouse 146 (119—180), LD<sub>50</sub> rat 450 (369—550)<br/>On skin: LT<sub>50</sub> mouse 78 (57—106), LT<sub>50</sub> rat 330 (268—406)<br/>Inhalation: LC<sub>50</sub> mouse 3480 (3000—4000), 2 h, LC<sub>50</sub> rat 11 800 (10 500—13 200) 4 h<br/>Narcotic; affects internal organs and irritates upper respiratory tract<br/>Detection: burning in special torch; detection limit 5 µg in analytical volume; chromatography</p> |
| <p><b>Chlorothene</b> (strobane)<br/>(mixture of chlorinated bicyclic compounds)<br/>MAC<sub>wz</sub> 0.2 (v+a), Class II<br/>464, 520</p>                                                                                               | <p>Intragastric: LD<sub>50</sub> mouse 180, LD<sub>50</sub> rat 500<br/>On skin: LD<sub>100</sub> rabbit 1000—1500<br/>Inhalation: LC<sub>100</sub> cat 600 4 h; Lim<sub>ac</sub> cat 4—6 4 h (4)<br/>Affects central nervous system<br/>Detection: photometry; detection limit 0.1 µg in analytical volume</p>                                                                                                                                                          |
| <p><b>p-Chlorotoluene</b></p>  <p>TSEL<sub>wz</sub> 40<br/>TSEL<sub>hw</sub> 0.01<br/>152, 464</p>                                                    | <p>Intragastric: LD<sub>50</sub> mouse 1900; LD<sub>50</sub> rat 3600<br/>Inhalation: LC<sub>50</sub> mouse 34 000 2 h<br/>Detection: colorimetry; detection limit 0.1 µg in analytical volume</p>                                                                                                                                                                                                                                                                       |
| <p><b>Chromic ammonium sulfate</b> (ammonium chrome alums)</p>                                                                                                                                                                           | <p>Intragastric: LD<sub>50</sub> rat 720±170<br/>Intramuscular: LD<sub>50</sub> mouse 115±23</p>                                                                                                                                                                                                                                                                                                                                                                         |

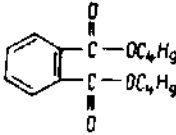
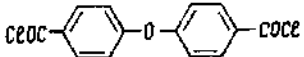
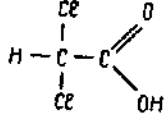
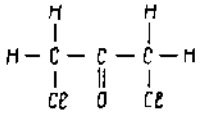
| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                    | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                    |
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| $\text{Cr}_2(\text{SO}_4)_3 \cdot (\text{NH}_4)_2\text{SO}_4 \cdot 24\text{H}_2\text{O}$<br>MAC <sub>wz</sub> 0.02 (a), Class I<br>422                                  | On skin: LD <sub>50</sub> mouse 110±14; LD rat 2000, LD rabbit 1000<br>Inhalation: LC <sub>50</sub> mouse 51±13 2 h;<br>Lim <sub>ac</sub> mouse 4 2 h (1,8)                                                                                                                                       |
| <b>Chromic chloride</b><br>$\text{CrCl}_3$<br>MAC <sub>wz</sub> 0.01 (a), Class I<br>422                                                                                | Intragastric: LD <sub>50</sub> rat 44±46<br>Intramuscular: LD <sub>50</sub> mouse 40±6<br>On skin: LD rat <2000, LD rabbit <1000<br>Inhalation: LC <sub>50</sub> mouse 31.5±6.1 2 h;<br>Lim <sub>ac</sub> mouse 1.5 2 h (1,8)<br>Detection: photometry; detection limit 1 µg in analytical volume |
| <b>Chromo-alumino-potassium catalyst</b><br>A-30 (composition: 21% $\text{Cr}_2\text{O}_3$ ,<br>76.5% $\text{Al}_2\text{O}_3$ , 2.5% $\text{K}_2\text{O}$ )<br>403, 468 | Intragastric: LD <sub>50</sub> mouse 450±69, LD <sub>50</sub> rat 792±84<br>Detection: weighing method                                                                                                                                                                                            |
| <b>Cobalt hydrocarbonyl</b><br>$\text{Co}(\text{CO})_4\text{H}$<br>MAC <sub>wz</sub> 0.01 (v), Class I<br>465, 531                                                      | Inhalation: LC <sub>50</sub> rat 46.2 (31.7—64.2) 2 h, LC <sub>50</sub> mouse 17.5 (12.4—24.6) 2 h;<br>Lim <sub>ac</sub> rat 2 h (10), Lim <sub>ac</sub> rat 2 h (10)<br>Detection: photometry; detection limit 0.5 µg in analytical volume                                                       |
| <b>Cobalt tetracarbonyl</b><br>$\text{Co}(\text{CO})_4$<br>426                                                                                                          | Intragastric: LD <sub>50</sub> mouse 378 (288—474),<br>LD <sub>50</sub> rat 754 (675—832)<br>Has irritant action on skin and ocular mucosa                                                                                                                                                        |
| <b>Copper-chromium-barium catalyst</b><br>$\text{BaCrO}_4 \cdot \text{CuO} \cdot \text{C}_4\text{CrO}_4$<br>MAC <sub>wz</sub> 0.01 (a), Class I<br>192                  | Intragastric: LD <sub>50</sub> rat 17 500<br>Inhalation: LC rat <200 4 h                                                                                                                                                                                                                          |
| <b>Copper hydroquinonate</b><br>                                                     | Intragastric: LD <sub>50</sub> mouse 850±98, LD <sub>50</sub> rat 2880±370<br>Intratracheal: LD <sub>100</sub> rat 50                                                                                                                                                                             |
| TSEL <sub>wz</sub> 0.5<br>247                                                                                                                                           |                                                                                                                                                                                                                                                                                                   |
| <b>Copper-nickel ore</b><br>MAC <sub>wz</sub> 4 (a), Class IV<br>464, 468                                                                                               | Intragastric: LD <sub>33</sub> mouse 15 000<br>Intraabdominal: LD <sub>50</sub> mouse 3846<br>Detection: weighing method                                                                                                                                                                          |
| <b>Copper oxychloride</b><br>$3\text{CuO} \cdot \text{CuCl}_2 \cdot 4\text{H}_2\text{O}$<br>453                                                                         | Intragastric: LD <sub>50</sub> rat 812±16                                                                                                                                                                                                                                                         |
| <b>Copper sulfide ore (dust)</b><br>MAC <sub>wz</sub> 4 (a), Class IV<br>240, 468                                                                                       | Intraabdominal: LD <sub>50</sub> mouse 2015±285,<br>LD <sub>50</sub> rat 3584±400<br>Inhalation: LC rat and rabbit <217 4 h<br>Detection: weighing method                                                                                                                                         |

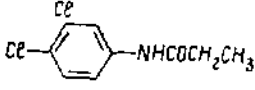
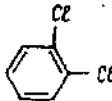
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                    | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                            |
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| <b>Copper 2,4,5-trichlorophenolate</b><br>$(C_6H_2Cl_3O)_2Cu$<br>MAC <sub>wz</sub> 0.1 (a), Class I<br>457                                                           | Intragastric: LD <sub>50</sub> 3333 (3094—3572), LD <sub>50</sub> rat 5500 (4163—6836), LD <sub>50</sub> rabbit 1537 (1324—1750)<br>Inhalation: LC guinea pig 200—300 1 h<br>Affects parenchymatous organs and blood vessels                                                                                                                                                                           |
| <b>m-Cresol</b> (m-oxytoluene)<br>$m-CH_3C_6H_4OH$<br>MAC <sub>w</sub> 0.004<br>TSEL <sub>wz</sub> 0.02<br>45, 504                                                   | Intragastric: LD <sub>50</sub> mouse 344 (270—435), LD <sub>50</sub> rat 1470 (1170—1830)<br>On skin: LD <sub>50</sub> mouse 1100 (800—1400)<br>Detection: colorimetry; detection limit 10 mg/m <sup>3</sup>                                                                                                                                                                                           |
| <b>o-Cresol</b> (o-oxytoluene)<br>$o-CH_3C_6H_4OH$<br>TSEL <sub>wz</sub> 0.028<br>289, 504                                                                           | Intragastric: LD <sub>50</sub> mouse 436 (311—610)<br>On skin: LD <sub>50</sub> mouse 620 (370—1110)<br>Inhalation: LC <sub>50</sub> mouse 179 2 h<br>Detection: thin-layer chromatography; detection limit 2 µg per 3 ml of solution                                                                                                                                                                  |
| <b>p-Cresol</b> (p-oxytoluene)<br>$p-CH_3C_6H_4OH$<br>MAC <sub>w</sub> 0.004<br>TSEL <sub>wz</sub> 0.02<br>45, 504                                                   | Intragastric: LD <sub>50</sub> mouse 828 (695—935)<br>On skin: LD <sub>50</sub> mouse 750 (510—1100)<br>Detection: colorimetry; detection limit 10 mg/m <sup>3</sup>                                                                                                                                                                                                                                   |
| <b>Crotonic aldehyde</b> (β-methylacrolein)<br>$CH_3CH=CHC \begin{array}{l} \nearrow O \\ \searrow H \end{array}$<br>MAC <sub>wz</sub> 0.5 (v), Class II<br>463, 480 | Inhalation: LC <sub>50</sub> mouse 1510 2 h; Lim <sub>ir</sub> cat 50 30 min (28), Lim <sub>ir</sub> rabbit 9 40 min (7); Lim <sub>ac</sub> rabbit 7—11 40 min (2); Lim <sub>ir</sub> man 0.5—1<br>Has irritant properties<br>Detection: colorimetry; detection limit 20 µg in analytical volume                                                                                                       |
| <b>Cuprozin</b><br>(mixture of zinc and copper salts of ethylene-bis-dithiocarbamic acid)<br>MAC <sub>wz</sub> 0.5 (a), Class II<br>428, 469                         | Intragastric: LD <sub>50</sub> mouse 1550 (1438—1660); LD rat 5000, LD rabbit <1000<br>Inhalation: LC cat <90 4 h; Lim <sub>ac</sub> rat and cat 8 4 h (27, 40)<br>Detection: colorimetry; detection limit 25 µg in analytical volume                                                                                                                                                                  |
| <b>Cyanamide</b> (free)+<br>$\begin{array}{l} H \\ \diagup \\ N-C=N \\ \diagdown \\ H \end{array}$<br>MAC <sub>wz</sub> 0.5 (v+a), Class II<br>45, 131               | Intragastric LD <sub>50</sub> mouse 388 (355—441), LD <sub>50</sub> rat 210 (154—266), LD <sub>50</sub> rabbit 150 (101—199), LD <sub>50</sub> cat 100 (49—150)<br>Intravenous: LD <sub>50</sub> rat 56 (36—76)<br>On skin: LD <sub>50</sub> rat 84 (64—103)<br>Inhalation: LC rat 86 4 h; Lim <sub>ac</sub> rat 19 4 h (1,37)<br>Detection: nephelometry; detection limit 0.5 µg per 4 ml of solution |

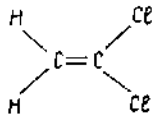
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                         | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Cyanoethyl methacrylate</b><br>$\text{CH}_2=\text{C}(\text{CH}_3)\text{COOCH}_2\text{CH}_2\text{CN}$<br>398                            | Intragastric: $\text{LD}_{50}$ rat 7333 (6600–8066)                                                                                                                                                                                                                                                                                                                                                |
| <b>Cyclohexane</b> (hexahydrobenzene, hexamethylene)<br> | Inhalation: LC mouse 70 000 2 h, LC mouse <60 000 2 h; NC mouse 5000 2 h<br>Narcotic<br>Detection: colorimetry; detection limit 10 µg in analytical volume                                                                                                                                                                                                                                         |
| MAC <sub>wz</sub> 8 (v), Class IV<br>MAC <sub>hw</sub> 1.4<br>MAC <sub>ad</sub> 1.4<br>MAC <sub>w</sub> 0.1<br>210, 468                   | Inhalation: NC <sub>50</sub> mouse 25 000; NC mouse 10 000 4 h, NC mouse 5000 6 h; Lim <sub>ac</sub> rabbit 1000–2000 40 min (7), Lim <sub>ac</sub> rabbit 4000 40 min (2), Lim <sub>ac</sub> rabbit 50 8 h (2), Lim <sub>ac</sub> rabbit 40 min (4); Lim <sub>ir</sub> man 500; Lim <sub>oit</sub> man 15<br>Narcotic<br>Detection: photocalorimetry; detection limit 0.5 µg in analytical volume |
| <b>Cyclohexanone</b> (ketoexamethylene, hexanone)<br>    | Intragastric: $\text{LD}_{50}$ mouse $224 \pm 17$ ; $\text{LD}_{50}$ rat $228 \pm 24$<br>On skin: LD rat <1500, LD rabbit <1000<br>Inhalation: LC <sub>50</sub> rat 1000, LC <sub>50</sub> mouse 7500; Lim <sub>ac</sub> mouse 10 (1)<br>Has irritant properties; inhibits oxidative processes<br>Detection: colorimetry; detection limit 10 µg in analytical volume                               |
| MAC <sub>wz</sub> 10 (v), Class III<br>MAC <sub>hw</sub> 0.04<br>MAC <sub>w</sub> 0.2<br>462, 532                                         | Inhalation: LC <sub>50</sub> mouse 14 000 (11 600–16 800) 2 h, LC <sub>50</sub> rat 39 000 (35 900–42 500) 2 h; Lim <sub>ac</sub> rat 3000–4000 2 h (1,11); Lim <sub>ir</sub> man 35–41; Lim <sub>oit</sub> man 3–7<br>Narcotic<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume                                                                                             |
| <b>Cyclohexylamine</b><br>                             |                                                                                                                                                                                                                                                                                                                                                                                                    |
| MAC <sub>wz</sub> 1 (v), Class II<br>232, 468                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Cyclopentadiene</b><br>                             |                                                                                                                                                                                                                                                                                                                                                                                                    |
| MAC <sub>wz</sub> 5 (v), Class III<br>381, 462                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                    |

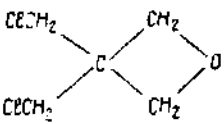
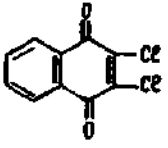
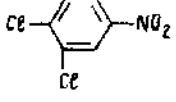
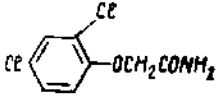
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                          | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Cyclotetramethylenetetranitramine</b><br>(octogen)<br>$C_4H_8(N-NO_2)_4$<br>TSEL <sub>w</sub> 0.2<br>137                                                | Intragastric: LD <sub>50</sub> mouse 1500; LD rat <5000; LD <sub>50</sub> guinea pig 300                                                                                                                        |
| <b>Cyclotrimethylenetrinitroamine</b><br>(hexogen)<br>                    | Intragastric: LD <sub>50</sub> mouse 500; LD rabbit 500, LD cat 100–250<br>Inhalation: LC rat <14 000–1700 1–6 h<br>Detection: colorimetry; detection limit 0.2 µg in analytical volume                         |
| <b>MAC<sub>wz</sub> 1 (v+a), Class II</b><br><b>MAC<sub>w</sub> 0.1</b><br>410, 461, 478                                                                   | Intragastric: LD <sub>50</sub> mouse 1270±38, LD <sub>50</sub> rat 760±163, LD <sub>50</sub> guinea pig 417, LD <sub>50</sub> rabbit 500<br>Detection: colorimetry; detection limit 0.1 µg in analytical volume |
| <b>DD</b><br>(mixture of 50% dichloride propane and 50% dichloride propylene)<br>$CH_2ClCHClCH_3 + CH_2ClCH=CHCl$<br><b>MAC<sub>w</sub> 0.4</b><br>85, 464 | Intragastric: LD <sub>50</sub> mouse 302±11, LD <sub>50</sub> rat 1500±118, LD <sub>50</sub> guinea pig 390, LD <sub>50</sub> rabbit 265                                                                        |
| <b>DDB</b><br>(mixture of 50% isobutane and 50% isobutylene)<br><b>MAC<sub>w</sub> 0.4</b><br>85                                                           | Intragastric: LD <sub>50</sub> mouse 200, LD <sub>50</sub> rat 300; LD <sub>100</sub> cat 300; LD <sub>50</sub> dog 500; LD <sub>100</sub> rabbit 600                                                           |
| <b>DDT+</b><br>                                                          | On skin: LD rabbit 1700<br>Inhalation: LC cat <80 6 h<br>Detection: colorimetry; detection limit 0.1 µg in analytical volume                                                                                    |
| <b>MAC<sub>wz</sub> 0.1 (v+a), Class I</b><br><b>MAC<sub>w</sub> 0.1</b><br>51, 464                                                                        | Intragastric: LD <sub>50</sub> mouse 27 000±3000<br>Inhalation: LC <sub>50</sub> mouse 4000±200 2 h<br>Detection: chromatography; detection limit 1 µg in analytical volume                                     |
| <b>Decyl alcohol (1-decanol)</b><br>$CH_3(CH_2)_9OH$<br><b>MAC<sub>wz</sub> 10 (v+a), Class III</b><br>82, 464                                             | Intragastric: LD <sub>50</sub> mouse 9000; LD rat <20 000                                                                                                                                                       |
| <b>4,4-Diacetyldiphenyl oxide</b><br>                                   | <b>TSEL<sub>wz</sub> 7</b><br>158                                                                                                                                                                               |

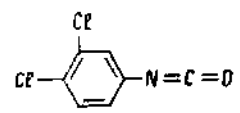
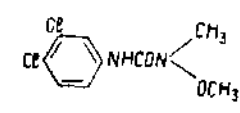
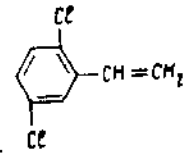
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                               | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                         |
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| <b>Diallylamine+</b><br>$(\text{CH}_2=\text{CHCH}_2)_2\text{NH}$<br>MAC <sub>wz</sub> 1 (v), Class II<br>200, 312                                                                                                                               | Intragastric: LD <sub>50</sub> rat 645 (545—712),<br>LD <sub>50</sub> mouse 355 (236—533)<br>Inhalation: LC <sub>50</sub> rat 2100 (1420—2700)<br>4 h<br>Has irritant properties<br>Detection: colorimetry; detection limit<br>1 µg in analytical volume            |
| <b>4,4-Diaminodiphenyl oxide</b><br><br>MAC <sub>wz</sub> 5 (a), Class III<br>133, 469                                                                         | Intragastric: LD <sub>50</sub> rat 813 (730—896),<br>LD <sub>50</sub> mouse 685±22, LD <sub>50</sub> guinea pig<br>650, LD <sub>50</sub> rabbit 700<br>Detection: colorimetry; detection limit<br>0.5 µg in analytical volume                                       |
| <b>4,4-Diaminodiphenyl sulfide</b><br><br>MAC <sub>wz</sub> 1 (a), Class II<br>129                                                                             | Intragastric: LD <sub>50</sub> mouse 620, LD <sub>50</sub> rat<br>900<br>Inhalation: Lim <sub>ac</sub> rat 30 4 h (1)                                                                                                                                               |
| <b>1,2-Dibromopropane</b><br>$\text{Br}\cdot\text{CH}_2\cdot\text{CH}\cdot\text{Br}\cdot\text{CH}_3$<br>MAC <sub>wz</sub> 5 (v), Class III<br>MAC <sub>w</sub> 0.1<br>84, 466                                                                   | Intragastric: LD <sub>50</sub> rat 1070 (946—1209)<br>Inhalation: LC <sub>50</sub> rat 12 000 (9090—<br>15 840) 4 h<br>Detection: photometry; detection limit<br>3 µg in analytical volume                                                                          |
| <b>1,2-Dibromotetrafluoroethane</b><br>(iron 114B2)<br>$\text{CF}_2\text{BrCF}_2\text{Br}$<br>MAC <sub>wz</sub> 1000 (v), Class IV<br>83, 169                                                                                                   | Intragastric: LD rat <16 000<br>Inhalation: LC <sub>50</sub> mouse 582 000 (506 000—<br>669 000) 2 h; Lim <sub>ac</sub> rabbit 14 000 40 min<br>(2)<br>Narcotic<br>Detection: thermal degradation in quartz<br>tube; detection limit 1.4 µg in analytical<br>volume |
| <b>Dibutylamine</b><br>TSEL <sub>w</sub> 6<br>484                                                                                                                                                                                               | Intragastric: LD <sub>50</sub> mouse 290, LD <sub>50</sub> rat<br>300, LD <sub>50</sub> guinea pig 230                                                                                                                                                              |
| <b>Di-tert-butyl peroxide (tributyl)<br/> peroxide, di-tert-butyl peroxide,<br/> tert-butyl peroxide)</b><br>$(\text{CH}_3)_3\text{C}\cdot\text{O}\cdot\text{O}\cdot\text{C}(\text{CH}_3)_3$<br>MAC <sub>wz</sub> 100 (v), Class IV<br>312, 366 | Intragastric: LD <sub>50</sub> mouse 4572±477, LD <sub>50</sub><br>rat 6750<br>Inhalation: LC rat <30 000 4 h; Lim <sub>ac</sub><br>rat 5000 4 h (1)<br>Detection: photometry; detection limit<br>1 mg/m <sup>3</sup>                                               |

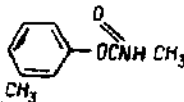
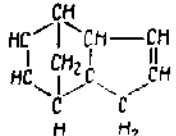
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Dibutyl phthalate</b></p>  <p>MAC<sub>wz</sub> 0.5 (v+a), Class II<br/>MAC<sub>w</sub> 0.2<br/>9, 289, 533</p> <p><b>Dibutyl sebacate</b><br/>C<sub>26</sub>H<sub>54</sub>O<sub>4</sub><br/>TSEL<sub>wz</sub> 20<br/>195, 461</p> <p><b>S-S-S-Dibutyltrithiophosphate</b><br/>(butyphos)<sup>+</sup><br/>(C<sub>4</sub>H<sub>9</sub>S)<sub>3</sub>PO<br/>MAC<sub>wz</sub> 0.2 (v+a), Class II<br/>MAC<sub>w</sub> 0.0003<br/>MAC<sub>hm</sub> 0.01<br/>MAC<sub>ad</sub> 0.01<br/>422, 547</p> | <p>Intragastric: LD<sub>50</sub> mouse 5280 (4840—5720); LD<sub>50</sub> rat 10 100 (8920—11 280); LD guinea pig 20 000<br/>On skin: LD rat 6000<br/>Inhalation: LC<sub>50</sub> mouse 25 000 2 h; Lim<sub>50</sub> rat 200 4 h (1)<br/>Narcotic; has irritant properties<br/>Detection: colorimetry; detection limit 2.5 μg in analytical volume</p> <p>Intragastric: LD<sub>50</sub> rat 27 650<br/>Detection: colorimetry; detection limit 10 μg in analytical volume</p> <p>Intragastric: LD<sub>50</sub> mouse 179 (158—200); LD<sub>50</sub> rat 217 (164—270); LD<sub>50</sub> guinea pig 140 (120—160); LD<sub>50</sub> rabbit 242 (210—258)<br/>On skin: LD<sub>50</sub> rabbit 97 (48—146)<br/>Inhalation: LC rabbit &lt;13 4 h; Lim<sub>50</sub> rat and rabbit 3 4 h (24)<br/>Affects nervous system<br/>Detection: colorimetry; detection limit 2 μg in analytical volume<br/>Intragastric: LD<sub>50</sub> rat 8700</p> |
| <p><b>4,4-Dicarboxylic acid diphenyl oxide dichloroanhydride</b></p>  <p>TSEL<sub>wz</sub> 7<br/>63</p> <p><b>Dichloroacetic acid<sup>+</sup></b></p>  <p>MAC<sub>wz</sub> 4 (v+a), Class III<br/>249</p> <p><b>1,3-Dichloroacetone</b></p>  <p>MAC<sub>wz</sub> 0.05 (v), Class I<br/>296, 469</p>                           | <p>Intragastric: LD<sub>50</sub> rat 17 000 (15 400—18 700)<br/>On skin: LT<sub>50</sub> mouse 50 (34—72)<br/>Inhalation: Lim<sub>50</sub> rat &gt;34 4 h (1, 8, 11); Lim<sub>10</sub> rat 34 4 h (7, 9); Lim<sub>10</sub> man 4—5</p> <p>Inhalation: LC<sub>50</sub> mouse 27 ± 1.4 2 h, LC<sub>50</sub> rat 29 2 h; Lim<sub>10</sub> mouse 6 40 min (1), Lim<sub>10</sub> man 0.5<br/>Has irritant properties<br/>Detection: colorimetry; detection limit 0.25 μg in analytical volume</p>                                                                                                                                                                                                                                                                                                                                                                                                                                          |

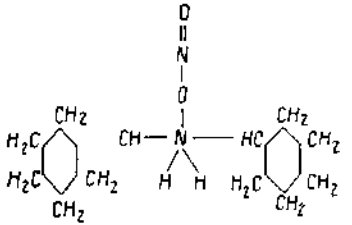
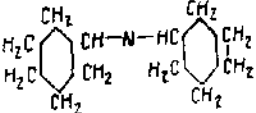
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                     | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| <b>3,4-Dichloroanilide of propionic acid (propanide)</b>                                                                                                                              | Intragastric: LD <sub>50</sub> mouse 675 (478—872), LD <sub>50</sub> rat 2500 (2130—2870)<br>On skin: LD rat and rabbit <2000<br>Inhalation: LC rat and cat <25; Lim <sub>ac</sub> rat and cat 15 4 h (16, 27)<br>Detection: chromatography; detection limit 5 µg in analytical volume                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MAC <sub>wz</sub> 0.1 (a), Class I<br>303                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>3,4-Dichloroaniline</b> <sup>+</sup><br>Cl <sub>2</sub> C <sub>6</sub> H <sub>3</sub> NH <sub>2</sub><br>MAC <sub>wz</sub> 0.5 (v), Class II<br>TSEL <sub>lim</sub> 0.01<br>557    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>o-Dichlorobenzene</b> <sup>+</sup>                                                                                                                                                 | Subcutaneous: LD rat <100<br>Inhalation: LC rat <1 4 h                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MAC <sub>wz</sub> 20 (v), Class IV<br>TSEL <sub>lim</sub> 0.03<br>469, 507                                                                                                            | Inhalation: LC <sub>100</sub> rat 9500 4 h; NC rat 7300 4 h; Lim <sub>ac</sub> rat 350 4 h (4)<br>Affects central nervous system; has irritant properties<br>Detection: colorimetry; detection limit 0.5 µg per 0.1 ml of solution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>1,3-Dichloro-2-butene</b><br>CH <sub>3</sub> CCl=CHCH <sub>2</sub> Cl<br>MAC <sub>wz</sub> 1 (v), Class II<br>MAC <sub>w</sub> 0.05<br>28, 469                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>β,β'-Dichlorodiethyl ether (chlorox)</b> <sup>+</sup><br>ClCH <sub>2</sub> CH <sub>2</sub> -O-CH <sub>2</sub> CH <sub>2</sub> Cl<br>MAC <sub>wz</sub> 2 (v), Class III<br>298, 465 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>3,3-Dichloro-4-diphenylmethane-dimaleimide</b><br>148                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>1,2-Dichloroethane</b> (ethylene chloride, ethylene dichloride) <sup>+</sup><br>MAC <sub>wz</sub> 10 (v), Class II<br>MAC <sub>hm</sub> 3                                          | Inhalation: LC <sub>50</sub> mouse 4400 (3942—4850) 2 h, LC <sub>50</sub> rat 3930 (3650—4225) 4 h; NC <sub>50</sub> mouse 10 600 (8981—11 448) 2 h; Lim <sub>ac</sub> rat 500 2 h (1), Lim <sub>ac</sub> rabbit 800 40 min (7); Lim <sub>ir</sub> man 20; Lim <sub>oil</sub> man 10<br>Narcotic; has irritant properties<br>Intragastric: LD <sub>50</sub> mouse 112 (102—122), LD <sub>50</sub> rat 132 (116—151)<br>Inhalation: LC <sub>50</sub> rat 330 (135—528) 4 h, LC <sub>50</sub> mouse 650 (540—780) 2 h; Lim <sub>ac</sub> rat 80 4 h (1); Lim <sub>ir</sub> rat 17 4 h (9), Lim <sub>ir</sub> rabbit 19 5 min (7), Lim <sub>ir</sub> man 15 2 min<br>Has irritant properties<br>Detection: photometry; detection limit 5 µg in analytical volume<br>Intragastric: LD rat <5000<br>Intragastric: LD <sub>50</sub> mouse 625±50, LD <sub>50</sub> rat 1120±192<br>Inhalation: LC mouse 5000—10 000 2 h; Lim <sub>ac</sub> rabbit 500 400 min (2) |

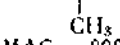
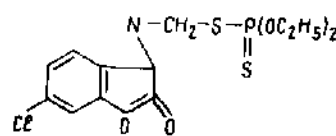
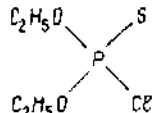
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                             | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                            |
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| MAC <sub>ad</sub> 1<br>MAC <sub>w</sub> 2<br>312, 412                                                                                                                                                                                                                                         | Narcotic; affects liver, kidneys and cardiovascular system<br>Detection: colorimetry; detection limit 10 mg/m <sup>3</sup>                                                                                                                                                             |
| <b>1,1-Dichloroethylene</b> (vinylidene chloride)                                                                                                                                                                                                                                             | Inhalation: LC mouse 15 000 2 h; Lim <sub>ac</sub> rabbit 1000 40 min (2); Lim <sub>ir</sub> man 100<br>Narcotic<br>Detection: colorimetry                                                                                                                                             |
|                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                        |
| MAC <sub>wz</sub> 50 (v), Class IV<br>312, 352                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                        |
| <b>1,1-Dichloro-1-fluoroethane</b> (freon 141)<br>CCl <sub>2</sub> FCH <sub>3</sub><br>MAC <sub>wz</sub> 1000 (v), Class IV<br>169                                                                                                                                                            | Inhalation: LC <sub>50</sub> mouse 151 400 (130 510—175 600) 2 h, LC <sub>50</sub> rat 239 900 (221 100—260 200); Lim <sub>ac</sub> mouse and rat 15 000—18 000 2—4 h (1, 4)<br>Narcotic<br>Detection: thermal degradation in quartz tube; detection limit 1.4 µg in analytical volume |
| <b>α,β-Dichloro-β-formylacrylic acid</b> (mucochloric acid, aldehydodichloromaleic acid, 3,4-dichloro-2-hydroxyacetonolactonic acid, 3,4-dichloro-2-hydroxyacetonolactone)<br>C <sub>4</sub> H <sub>2</sub> O <sub>3</sub> Cl <sub>2</sub><br>MAC <sub>wz</sub> 0.1 (a), Class II<br>256, 468 | Intragastric: LD <sub>50</sub> mouse 84 (59—119), LD <sub>50</sub> rat 190 (162—222)<br>Inhalation: Lim <sub>ir</sub> 3.8 4 h (1), Lim <sub>ir</sub> rabbit 3 (7), Lim <sub>ir</sub> man 0.2<br>Detection: photometry; detection limit 0.1 µg in analytical volume                     |
| <b>Dichlorohydrin</b> (1,3-dichloropropanol-2)<br>CH <sub>2</sub> Cl-CHOH-CH <sub>2</sub> Cl<br>MAC <sub>wz</sub> 5 (v), Class III<br>MAC <sub>w</sub> 1<br>187, 469                                                                                                                          | Intragastric: LD rat 400; LD <sub>50</sub> mouse 100—125<br>Inhalation: LC mouse and rat <300 2 h<br>Has irritant properties<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                      |
| <b>1,2-Dichloroisobutane</b><br>(CH <sub>3</sub> ) <sub>2</sub> CClCH <sub>2</sub> Cl<br>MAC <sub>wz</sub> 20 (v), Class IV<br>MAC <sub>w</sub> 0.4<br>86, 469                                                                                                                                | Inhalation: LC <sub>50</sub> mouse 39 000±7600 2 h; Lim <sub>ac</sub> rabbit 2600±70 40 min (2), Lim <sub>ac</sub> rabbit 3400±1500 40 min (7)<br>Detection: photometry; detection limit 0.1 µg in analytical volume                                                                   |
| <b>1,3-Dichloroisobutylene</b><br>CH <sub>3</sub> C(Cl)=CHCl<br>                                                                                                                                           | Inhalation: LC <sub>50</sub> mouse 4400±5002 h; Lim <sub>ac</sub> rabbit 300 40 min (2), Lim <sub>ac</sub> rabbit 10 40 min (7)<br>Has irritant properties<br>Detection: colorimetry; detection limit 5 µg in analytical volume                                                        |

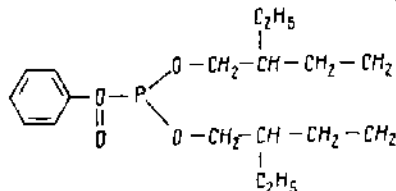
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                               |
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| <b>3,3-Dichloroisobutylene</b><br>$\text{CHCl}_2\text{C}=\text{CH}_2$<br><br>MAC <sub>wz</sub> 0.3 (v), Class II<br>MAC <sub>w</sub> 0.4                                        | Inhalation: LC <sub>50</sub> mouse 1500±250 2 h;<br>Lim <sub>ac</sub> rabbit 300±30 40 min (2), Lim <sub>ac</sub> rabbit 200±20 40 min (7)<br>Has irritant properties<br>Detection: photometry; detection limit 5 µg in analytical volume |
| <b>3,3-Dichloromethoxycyclobutane</b><br><br>MAC <sub>wz</sub> 0.5 (v), Class II<br>162, 468                                                                                    | Intragastric: LD <sub>50</sub> mouse 420<br>Inhalation: LC <sub>50</sub> mouse 200 2 h; NC mouse 100 2 h; LC cat < 250 1 h; Lim <sub>ac</sub> cat 8 40 min (2)<br>Detection: photometry; detection limit 0.1 µg in analytical volume      |
| <b>2,3-Dichloro-1,4-naphthoquinone</b><br><br>MAC <sub>wz</sub> 0.5 (a), Class II<br>MAC <sub>hm</sub> 0.05<br>MAC <sub>ad</sub> 0.05<br>MAC <sub>w</sub> 0.25<br>221, 230, 509 | Intragastric: LD <sub>50</sub> mouse 440±128, LD <sub>50</sub> rat 560±248<br>Subcutaneous: LD rat <30<br>Inhalation: Lim <sub>ir</sub> rabbit 1 15 min (7)<br>Detection: photometry; detection limit 10 µg in analytical volume          |
| <b>3,4-Dichloronitrobenzene+</b><br><br>MAC <sub>wz</sub> 1 (v), Class II<br>TSEL <sub>hm</sub> 0.004<br>MAC <sub>w</sub> 0.1<br>35                                            | Intragastric: LD <sub>50</sub> mouse 1384±57, LD <sub>50</sub> rat 1568±90<br>On skin: LD <sub>50</sub> cat 790±48<br>Inhalation LC rat <35 2 h, LC rat <35 4 h; Lim <sub>ac</sub> rat 10 4 h (19, 20, 23); Lim <sub>or</sub> man 2       |
| <b>2,4-Dichlorophenoxyacetic acid, amine salt (2,4-DA)</b><br><br>MAC <sub>wz</sub> 1 (a), Class II<br>MAC <sub>w</sub> 0.2<br>355, 464                                       | Intragastric: LD <sub>50</sub> mouse 300, LD <sub>50</sub> rat 1200<br>Inhalation: LC rat <8000—10 000 2 h<br>Detection: photometry; detection limit 13.4 µg in analytical volume                                                         |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                      | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                             |
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| <b>3,4-Dichlorophenylisocyanate</b> (3,4-dichlorophenylcarbonimide)<br><br>MAC <sub>wz</sub> 0.3 (v), Class II<br>233 | Inhalation: LC <sub>12</sub> mouse 1442 h, LC <sub>33</sub> rat 140 4 h; Lim <sub>ac</sub> mouse 40 2 h (1), Lim <sub>ac</sub> rabbit 0.4—1 40 min (7); Lim <sub>ir</sub> man 0.66<br>Has irritant properties<br>Detection: photometry; detection limit 1 µg in analytical volume       |
| <b>N,3,4-Dichlorophenyl-N-methoxy-urea</b> (linuron)<br><br>MAC <sub>wz</sub> 1 (a), Class II<br>21                   | Intragastric: LD <sub>50</sub> mouse 2400±129, LD <sub>50</sub> rat 2175±231<br>On skin: LD rat <2000<br>Inhalation: LC rat 48 4 h; Lim <sub>ac</sub> rat 29 (27, 38) 4 h                                                                                                               |
| <b>Dichlorophenyltrichlorosilane</b><br>Cl <sub>2</sub> C <sub>6</sub> H <sub>3</sub> Si·Cl <sub>3</sub><br>MAC <sub>wz</sub> 1 (v), Class II<br>202, 468                                              | Intragastric: LD mouse 100<br>Subcutaneous: LD <sub>100</sub> mouse 100<br>Intraabdominal: LD <sub>100</sub> mouse 100, LD <sub>100</sub> rat 100<br>Inhalation: LC mouse 80—100 2 h, LC mouse <30—40 2 h<br>Detection: photometry; detection limit 0.1 µg in analytical volume         |
| <b>1,3-Dichloropropylene</b><br>CHCl=CH—CH <sub>2</sub> Cl<br>MAC <sub>wz</sub> 5 (v), Class III<br>MAC <sub>w</sub> 0.4<br>317                                                                        | Inhalation: LC <sub>50</sub> mouse 4650 (3220—6080) 2 h; Lim <sub>ac</sub> rabbit 450±45 40 min (2); Lim <sub>ir</sub> rabbit 1000 40 min (7); Lim <sub>ir</sub> man 8<br>Inhibits central nervous system; has irritant action on mucous membranes of upper and lower respiratory tract |
| <b>2,3-Dichloropropylene</b><br>CH <sub>2</sub> =CCl—CH <sub>2</sub> Cl<br>MAC <sub>wz</sub> 3 (v), Class III<br>86                                                                                    | Inhalation: LC <sub>50</sub> mouse 3100±500 2 h; Lim <sub>ac</sub> rabbit 300 40 min (2). Lim <sub>ac</sub> rabbit 100 40 min (7)<br>Inhibits central nervous system; has irritant action on mucous membrane of upper and lower respiratory tract                                       |
| <b>2,5-Dichlorostyrene</b> (2,5-dichloro-vinylbenzene)<br><br>MAC <sub>wz</sub> 50 (v), Class IV<br>347, 468        | Inhalation: Lim <sub>ac</sub> rabbit 1250—2500 40 min (2); Lim <sub>ir</sub> rabbit 310—620, Lim <sub>ir</sub> man 500<br>Has irritant properties<br>Detection: photometry; detection limit 0.1 µg in analytical volume                                                                 |

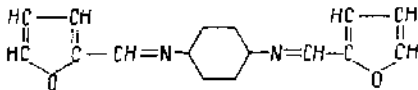
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                           | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                |
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| <b>1,2-Dichlorotetrafluoroethane</b> (iron 114)<br>$\text{CClF}_2 \text{ CClF}_2$<br>MAC <sub>wz</sub> 3000 (v), Class IV<br>169                                                                                            | Inhalation: LC mouse and rat 3000 000 2--4 h; Lim <sub>ac</sub> mouse and rat 90 000 (1, 7, 8)<br>Narcotic<br>Detection: thermal degradation in quartz tube; detection limit 1.4 µg in analytical volume                                                                                                                                                                   |
| <b>Dicobalt octacarbonyl</b><br>$[\text{Co}(\text{CO})_4]_2$<br>MAC <sub>wz</sub> 0.01 (v+a), Class I<br>423, 165                                                                                                           | Inhalation: LC <sub>50</sub> mouse 26.9±5.3 2 h, LC <sub>10</sub> rat 15.2 2 h, LC <sub>50</sub> rat 19.7 4 h; Lim <sub>ac</sub> rat 8.1 30 min (27)<br>Detection: photometry; detection limit 0.5 µg in analytical volume                                                                                                                                                 |
| <b>Dicresyl N-methylcarbamate</b> (dicresyl)<br><br>MAC <sub>wz</sub> 0.5 (v+a), Class II<br>52                                            | Intragastric: LD <sub>50</sub> mouse 271 (221--320), LD <sub>50</sub> rat 471 (289--661)<br>On skin: LD <sub>50</sub> rat 896 (568--1223)<br>Inhalation: LC rat and cat 45 6 h; Lim <sub>ac</sub> rat and cat 11 6 h (24)<br>Detection: light absorption; detection limit 5 µg per 1 ml of solution                                                                        |
| <b>Dicyclopentadiene</b> <sup>+</sup><br><br>MAC <sub>wz</sub> 1 (v), Class II<br>381, 462                                                 | Inhalation: LC <sub>50</sub> mouse 740 (690--790) 2 h, LC <sub>50</sub> rat 1520 (1370--1690) 2 h; Lim <sub>ac</sub> rat 100--200 2 h (1, 11); Lim <sub>ac</sub> man 1--7.5; Lim <sub>17</sub> man 16--23<br>Damages central nervous system<br>Detection: colorimetry; detection limit 5 µg in analytical volume                                                           |
| <b>Didodecyl phthalate</b><br>$\text{C}_6\text{H}_4(\text{COOC}_{12}\text{H}_{25})_2$<br>TSEL <sub>wz</sub> 5<br><b>Diethanolamine</b><br>$(\text{CH}_2\text{CH}_2\text{OH})_2\text{NH}$<br>MAC <sub>w</sub> 0.8<br>78, 408 | Intragastric: LD mouse and rat 1500--15 000<br>Intragastric: LD <sub>50</sub> mouse 3300; LD <sub>50</sub> rat 3460; LD <sub>50</sub> guinea pig 2200; LD <sub>50</sub> rabbit 2200<br>Subcutaneous: LD <sub>50</sub> rat 2200<br>Intramuscular: LD <sub>50</sub> rat 1500<br>Intraabdominal: LD <sub>50</sub> rat 120<br>Has cauterizing action<br>Detection: colorimetry |
| <b>Diethanoldiaminoisopropanol</b><br>$\text{CH}_3\text{NHCH}_2\text{CH}_2\text{OH}$<br>$\text{CHOH}$<br>$\text{CH}_2\text{NHCH}_2\text{CH}_2\text{OH}$<br>404                                                              | Intragastric: LD <sub>50</sub> rat 7200<br>Intravenous: LD <sub>50</sub> rat 830                                                                                                                                                                                                                                                                                           |

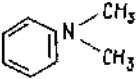
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                  | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                              |
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| <b>Dicumylmethane<sup>+</sup></b><br>$(CH_3)_2CHC_6H_4CH_2C_6H_4CH(CH_3)_2$<br>MAC <sub>wz</sub> 5 (a), Class III<br>132, 537                                                                                      | Intragastric: LD <sub>50</sub> mouse 15 000; LD rat <15 000<br>Inhalation: LC <sub>50</sub> mouse 122 2 h; LC rat <122 2 h; Lim <sub>ac</sub> rat 80—90 2 h (7), Lim <sub>ac</sub> mouse 38—40 1 h (15)                                                                                                                  |
| <b>Dicyclohexylamine nitrite (NDA inhibitor)</b><br><br>MAC <sub>wz</sub> 0.5 (v), Class II<br>MAC <sub>hm</sub> 0.02<br>451, 468 | Intragastric: LD <sub>50</sub> mouse 80 (63—99), LD <sub>50</sub> rat 325 (233—437); LD cat 50<br>On skin: LD rat 2000<br>Inhalation: LC rat and mouse <30—90 4 h; Lim <sub>ac</sub> rat 30 4 h (16)<br>Methemoglobin former; affects nervous system<br>Detection: photometry; detection limit 1 µg in analytical volume |
| <b>Dicyclohexylamine, oil-soluble salt (MSDA-11)</b><br>                                                                          | Intragastric: LD <sub>50</sub> rat 940, LD <sub>50</sub> mouse 980<br>On skin: LD <sub>50</sub> rat 1367 (1035—1805)<br>Inhalation: LC <sub>50</sub> rat 1480 (897—2440) 4 h; Lim <sub>ac</sub> rat 17 4 h (22, 31)<br>Detection: colorimetry; detection limit 10 µg in analytical volume                                |
| $HCOOHC_nH_{2n+1}$<br>MAC <sub>wz</sub> 1 (a), Class II<br>MAC <sub>hw</sub> 0.008<br>MAC <sub>w</sub> 0.01<br>306, 469                                                                                            | Intragastric: LD <sub>50</sub> mouse 648 (554—758)<br>Inhalation: LC <sub>50</sub> mouse 5000 2 h; Lim <sub>ac</sub> rat 300 1 h (4)<br>Affects nervous system; has irritant properties                                                                                                                                  |
| <b>Diethylamine</b><br>$(C_2H_5)_2NH$<br>MAC <sub>wz</sub> 30 (v), Class IV<br>MAC <sub>hw</sub> 0.05<br>MAC <sub>ad</sub> 0.05<br>MAC <sub>w</sub> 2<br>136, 464, 513                                             | Intragastric: LD <sub>50</sub> mouse 648 (554—758)<br>Inhalation: LC <sub>50</sub> mouse 5000 2 h; Lim <sub>ac</sub> rat 300 1 h (4)<br>Affects nervous system; has irritant properties                                                                                                                                  |
| <b>β-Diethylaminoethyl mercaptan</b><br>$(C_2H_5)_2NC_2H_4SH$<br>MAC <sub>wz</sub> 1 (v), Class II<br>MAC <sub>hw</sub> 0.6<br>MAC <sub>ad</sub> 0.6<br>312, 331                                                   | Intragastric: LD <sub>50</sub> mouse 231 (215—248)<br>Inhalation: LC <sub>50</sub> mouse 42 500 (27 400—65 900) 2 h; Lim <sub>ac</sub> rat 20 4 h (1)<br>Has irritant properties<br>Detection: colorimetry; detection limit 5 µg in analytical volume                                                                    |

| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                                                                                                                                         | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                       |
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| <b><math>\beta</math>-Diethylaminoethyl methacrylate</b><br>$\text{CH}_2=\text{C}(\text{COOCH}_2\text{CH}_2\text{N}(\text{C}_2\text{H}_5)_2)$<br><br>MAC <sub>w2</sub> 800 (v), Class IV<br>334, 392                        | Intragastric: LD <sub>50</sub> rat 4696 (4249—5142)<br>Inhalation: LC <sub>50</sub> mouse 12 100 (9640—14 560) 2 h, LC <sub>50</sub> rat 11 000 (7433—16 280) 4 h; Lim <sub>LT</sub> man 600 2 min; Lim <sub>alt</sub> 100<br>Detection: colorimetry; detection limit 5 $\mu\text{g}$ in analytical volume                                                                                                           |
| <b>Diethylbenzene</b><br>$(\text{C}_2\text{H}_5)_2\text{C}_6\text{H}_4$<br>MAC <sub>w2</sub> 10 (v), Class III<br>TSEL <sub>hw</sub> 0.005<br>252, 312                                                                                                                                                       | Inhalation: NC mouse 3000—4000 2 h; Lim <sub>ac</sub> rat 50 4 h (1)<br>Detection: colorimetry; detection limit 10 $\text{mg}/\text{m}^3$                                                                                                                                                                                                                                                                            |
| <b>O,O-Diethyl-S-(6-chloro-2-oxoben-zoxazoliny-3-methyl)dithiophospha-te (fozalon)</b><br><br>MAC <sub>w2</sub> 0.5 (v), Class II<br>MAC <sub>w</sub> 0.001<br>MAC <sub>hw</sub> 0.01<br>MAC <sub>ad</sub> 0.01<br>252, 467 | Intragastric: LD <sub>50</sub> mouse 88 (82—95), LD <sub>50</sub> rat 108 (90—125), LD <sub>50</sub> cat 112; Lim <sub>ac</sub> rat 5 (24)<br>On skin: LD rat <2000, LD rabbit <1000; Lim <sub>ac</sub> rat 79 (24)<br>Inhalation: LC rat and cat <280 4 h; Lim <sub>ac</sub> rat 89 4 h (24), Lim <sub>ac</sub> cat 11 4 h (24)<br>Detection: chromatography; detection li-mit 5 $\mu\text{g}$ in analytical volume |
| <b>Diethyl chlorothiophosphate</b><br><br>MAC <sub>w2</sub> 1 (v), Class II<br>286                                                                                                                                         | Intragastric: LD <sub>50</sub> mouse 800 $\pm$ 47<br>On skin: LD rabbit <880<br>Inhalation: LC <sub>50</sub> mouse 725 $\pm$ 37 2 h; LC rat <260 2 h; Lim <sub>ac</sub> mouse 210 2 h (1)                                                                                                                                                                                                                            |
| <b>Diethylene glycol bis(chloroacryla-te)</b><br>$\text{CH}_2\text{C}(\text{Cl})\text{COOCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{O}(\text{Cl})=\text{CH}_2$<br>398                                                                                                                                      | Intragastric: LD <sub>50</sub> mouse 105 (95—115), LD <sub>50</sub> rat 130 (106—158)                                                                                                                                                                                                                                                                                                                                |
| <b>Diethylene glycol diacrylate</b><br>$\text{CH}_2=\text{CHCOOCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OOCCH}=\text{CH}_2$<br>398                                                                                                                                                                       | Intragastric: LD <sub>50</sub> rat 400 (276—580)                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Diethylene glycol divinyl ether</b><br>$(\text{CH}_2=\text{CHOCH}_2\text{CH}_2)_2$<br>TSEL <sub>w2</sub> 30<br>160, 346                                                                                                                                                                                   | Intragastric: LD <sub>50</sub> mouse 2570 $\pm$ 129, LD <sub>50</sub> rat 6390 $\pm$ 198                                                                                                                                                                                                                                                                                                                             |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| <b>Diethylene glycol vinyl ether</b><br>$\text{CH}_2=\text{CH}(\text{OCH}_2\text{CH}_2)_2\text{OH}$<br>TSEL <sub>wz</sub> 30<br>160, 346<br><b>Diethyl ethanolamine</b><br>$(\text{C}_2\text{H}_5)_2\text{NC}_2\text{H}_4\text{OH}$<br>MAC <sub>wz</sub> 5 (v), Class III<br>234 | Intragastric: LD <sub>50</sub> mouse 4450±129, LD <sub>50</sub> rat 4930±193<br><br>Inhalation: LC <sub>50</sub> mouse 5000 2h; LC rat 4500 4 h; Lim <sub>ac</sub> mouse 1100 2 h (1); Lim <sub>oi</sub> man 4<br>Irritates skin<br>Detection: photometry; detection limit 10 µg in analytical volume<br>Inhalation: Lim <sub>ac</sub> rabbit 5000—20 000 40 min (2)<br>Narcotic<br>Detection: colorimetry; detection limit 50 mg/m <sup>3</sup><br><br>Intragastric: LD <sub>50</sub> mouse <8, LD <sub>50</sub> rat 4<br>On skin: LD <sub>100</sub> rabbit 20; Lim <sub>ac</sub> rabbit 2—5 (24)<br>Inhalation LC rat and cat 15 4 h<br>Detection: photometry; detection limit 0.5 µg in analytical volume<br><br>Intragastric: LD <sub>50</sub> mouse 9333±354; LD rat <15 000<br>Intraabdominal: LD <sub>50</sub> mouse 473±52, LD <sub>50</sub> rat 1178±117<br>On skin: LD rat, rabbit and guinea pig <1870<br>Inhalation: LC mouse 20 2 h, LC rat 18 4 h |
| <b>Diethyl ether (ethyl ether)</b><br>$\text{C}_2\text{H}_5\text{O-C}_2\text{H}_5$<br>MAC <sub>wz</sub> 300 (v), Class IV<br>MAC <sub>w</sub> 0.3<br>244, 312                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>0,0-Diethyl-O-ethylmercaptoethyl-thiophosphate+0,0-diethyl-S-ethylmercaptoethylphosphate (mercapto-phos)+</b><br>MAC <sub>wz</sub> 0.02 (v+a), Class I<br>MAC <sub>w</sub> 0.01<br>139, 464                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Di(2-ethylhexyl)phenyl phosphate+</b>                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| MAC <sub>wz</sub> 1 (v), Class II<br>141<br><b>Diethylmercury+</b><br>$\text{Hg}(\text{C}_2\text{H}_5)_2$<br>MAC <sub>wz</sub> 0.005 (v), Class I<br>MAC <sub>w</sub> 0.0001<br>349, 463, 549                                                                                    | Intragastric: LD <sub>50</sub> mouse 44, LD <sub>50</sub> rat 51<br>Inhalation: LC <sub>50</sub> mouse 91±15 2 h; Lim <sub>ac</sub> mouse 1 2 h (1); Lim <sub>oi</sub> man 2<br>Affects central nervous system<br>Detection: colorimetry; detection limit 0.08 µg in analytical volume                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>0,0-Diethyl-O-p-nitrophenyl thio-phosphate (thiophos)+</b>                                                                                                                                                                                                                    | Intragastric: LD <sub>100</sub> mouse 18, LD <sub>100</sub> cat 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                    | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                 |
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| $(C_2H_5O)_2POC_6H_4NO_2 \cdot n$<br>$\parallel$<br>$S$<br>MAC <sub>wz</sub> 0.05 (a), Class I<br>MAC <sub>w</sub> 0.003<br>439, 464                                                 | Inhalation: LC rat and mouse 15–20;<br>Limac rat 10 1 h (4), Limac cat 10 4 h (4)<br>Detection: colorimetry; detection limit 2 µg in analytical volume<br>Intragastric: LD rat <8400                                                                                                                                                                                                                        |
| <b>Diethyl perfluoroadipate</b><br>$CF_2-CF_2-C-OC_2H_5$<br>$\parallel$<br>$O$<br>$CF_2-CF_2-C-OC_2H_5$<br>$\parallel$<br>$O$<br>MAC <sub>wz</sub> 0.1 (v), Class I<br>167, 461      | Inhalation: LC mouse <1000 2 h, LC rat <1000 4 h; Limac rat 30–50 4 h (1, 7, 8)<br>Detection: photometry; detection limit 1.4 µg in analytical volume<br>Intragastric: LD <sub>50</sub> rat 5000, LD <sub>50</sub> mouse 4200 (2950–5960)<br>Inhalation: LC mouse 10 000 2 h; LC <sub>50</sub> rat 1300 4 h; Limac mouse 1250 2 h (4)<br>Detection: photometry; detection limit 1.4 µg in analytical volume |
| <b>Diethyl perfluoroglutarate</b><br>$C_3F_5(COOC_2H_5)_2$<br>MAC <sub>wz</sub> 0.1 (v), Class I<br>461                                                                              | Inhalation: LC <sub>50</sub> mouse 1 758 000 (1 540 000–2 004 000) 2 h, LC <sub>50</sub> rat 2 050 400 (1 801 000–2 159 000) 4 h; Limac mouse and rat 70 000 2–4 h (1, 4)<br>Narcotic<br>Detection: thermal degradation in quartz tube; detection limit 1.4 µg in analytical volume                                                                                                                         |
| <b>1,1-Difluoro-1-chloroethane</b> (iron 142)<br>$CF_2ClCH_3$<br>MAC <sub>wz</sub> 300 (v), Class IV<br>169                                                                          | Inhalation: LC <sub>50</sub> mouse 1 000 000 (924 000–1 082 000) 2 h; Limac rabbit 54 000 40 min (2)<br>Detection: thermal degradation in quartz tube; detection limit 1.4 µg in analytical volume                                                                                                                                                                                                          |
| <b>Difluorochloromethane</b> (iron 22)<br>$CHClF_2$<br>MAC <sub>wz</sub> 3000 (v), Class IV<br>MAC <sub>hw</sub> 10<br>MAC <sub>w</sub> 100<br>MAC <sub>ad</sub> 10, Class IV<br>169 | Inhalation: LC <sub>50</sub> mouse 610 2 h, LC <sub>50</sub> rat 580 (470–720) 4 h; Limac rat 30 4 h (1, 7, 15)<br>Narcotic<br>Detection: liquid gas chromatography; detection limit 10 <sup>-6</sup> mg. Thermal degradation in quartz tube; detection limit 1.4 µg in analytical volume<br>Intragastric: LD <sub>50</sub> rat 3600                                                                        |
| <b>Difluorodichloroethylene</b><br>$CF_2CCl_2$<br>MAC <sub>wz</sub> 1 (v), Class II<br>460                                                                                           | Inhalation: LC mouse 39 800 2 h; LC <sub>50</sub> rat 33 500 4 h; Limac rat 1800 4 h (1)                                                                                                                                                                                                                                                                                                                    |
| <b>Difluoro-2,2-dichloroethylmethyl ether</b> (inhalan)<br>$CHC_2F_2OCH_3$<br>MAC <sub>wz</sub> 200 (v), Class IV<br>169                                                             |                                                                                                                                                                                                                                                                                                                                                                                                             |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                             | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                        |
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| <b>Difluoroethane</b> (freon 152)<br>$C_2H_2F_2$<br>MAC <sub>wz</sub> 3000 (v), Class IV<br>144, 169                                                                                          | Inhalation: LC <sub>50</sub> mouse 977 200 (896 000—1 065 000) 2 h<br>Narcotic<br>Detection: thermal degradation in quartz tube; detection limit 1.4 µg in analytical volume                                                                                       |
| <b>Difluorodichloromethane</b> (freon 12)<br>$CCl_2F_2$<br>MAC <sub>wz</sub> 3000 (v), Class IV<br>MAC <sub>hw</sub> 100<br>MAC <sub>w</sub> 10<br>MAC <sub>ad</sub> 10, Class IV<br>144, 169 | Inhalation: LC <sub>50</sub> mouse 3 650 000 2 h; Lim <sub>ac</sub> rat 170 000—210 000 4 h (7, 15), Lim <sub>ac</sub> rabbit 120 000 40 min (2)<br>Narcotic<br>Detection: thermal degradation in quartz tube; detection limit 1.4 µg in analytical volume         |
| <b>1,2-Difluorotetrachloroethane</b> (freon 112)<br>$CFC_2Cl_2F$<br>MAC <sub>wz</sub> 1000 (v), Class IV<br>144, 460                                                                          | Intragastric: LD <sub>50</sub> mouse 800<br>Inhalation: LC <sub>50</sub> mouse 123 000 (105 120—143 910) 2 h; Lim <sub>ac</sub> rabbit 30 000 40 min (2)<br>Narcotic<br>Detection: thermal degradation in quartz tube; detection limit 1.4 µg in analytical volume |
| <b>N,N-Difurfural-n-phenylenediamine</b>                                                                                                                                                      | Intragastric: LD <sub>50</sub> mouse 400 (380—410), LD <sub>50</sub> rat 1220 (1180—1260)<br>Inhalation: LC rat 70 4 h; Lim <sub>ac</sub> rat 53 4 h (1, 8)<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume                                 |
|                                                                                                             |                                                                                                                                                                                                                                                                    |
| MAC <sub>wz</sub> 2 (v+a), Class II<br>469                                                                                                                                                    |                                                                                                                                                                                                                                                                    |
| <b>Diisopropylamine</b><br>$(iso-C_3H_7)_2NH$<br>MAC <sub>wz</sub> 5 (v), Class II<br>MAC <sub>w</sub> 0.5<br>45, 127                                                                         | Intragastric: LD <sub>50</sub> rat 500<br>Inhalation: LC <sub>50</sub> mouse 4200 2 h, LC <sub>50</sub> rat 4800 2 h; Lim <sub>ir</sub> rat 10 4 h (7)<br>Has irritant properties<br>Detection: colorimetry; detection limit 5 µg in analytical volume             |
| <b>Diisopropylbenzene</b><br>(mixture of m- and p-isomers)<br>$C_6H_4(C_3H_7-iso)_2$<br>MAC <sub>wz</sub> 50 (v), Class IV<br>MAC <sub>w</sub> 0.05<br>309, 464                               | Intragastric: LD <sub>50</sub> mouse 3100±310 (m-isomer), LD <sub>50</sub> mouse 3400±307 (p-isomer), LD <sub>50</sub> rat 7400±660 (m-isomer)<br>Intraabdominal: LD <sub>50</sub> mouse 1650±160 (m-isomer)                                                       |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                         | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| <b>m-Diisopropylbenzene dihydroperoxide</b><br>$C_6H_4(CH_3)_2(COOH)_2$<br>130<br><b>Diisopropyl ether</b><br>$C_3H_7-O-C_3H_7$<br>TSEL <sub>wz</sub> 100<br>289, 310                                                     | Inhalation: LC mouse and rat 5300 2—4 h; Lim <sub>ac</sub> mouse and rat 800—1600 40 min (1, 2); Lim <sub>air</sub> man 25—50<br>Narcotic<br>Detection: colorimetry; detection limit 10 µg in analytical volume<br>Intragastric: LD <sub>50</sub> mouse 700 (466—1050), LD <sub>50</sub> rat 1500 (1000—2250)<br><br>Intragastric: LD <sub>50</sub> mouse 3600±360, LD <sub>50</sub> rat 5880±680<br>Inhalation: NC <sub>50</sub> mouse 50 000±2470 2 h, NC <sub>50</sub> rat 91 700±3060, 4 h; LC <sub>50</sub> mouse 130 800±8500 2 h, LC <sub>50</sub> rat 161 700±10 300 4 h; LC <sub>50</sub> rabbit 120 600±12 400 4 h; Lim <sub>ac</sub> rat 14 000 4 h (1, 12); Lim <sub>air</sub> man 120; Lim <sub>ir</sub> man 1000<br>Detection: colorimetry; detection limit 7.5 µg per 4 ml of solution<br>Intragastric: LD <sub>50</sub> mouse 146±18, LD <sub>50</sub> rat 475±56, LD <sub>50</sub> cat 410±56; Lim <sub>ac</sub> rat 40 (24)<br><br>On skin: LD <sub>50</sub> rat 375 (354—396)<br>Inhalation: LC rat 40 4 h; Lim <sub>ac</sub> rat 10 4 h (24)<br>Detection: colorimetry |
| <b>O,O-Dimethyl-S-2(acetylamino)-ethylthiophosphate (amiphos) +</b><br>$\begin{array}{c} S \\    \\ P \\ (CH_3O)_2PSCH_2CH_2NHCOCH_3 \end{array}$ MAC <sub>wz</sub> 0.5 (v-a), Class II<br>209, 531                       | On skin: LD <sub>50</sub> rat 375 (354—396)<br>Inhalation: LC rat 40 4 h; Lim <sub>ac</sub> rat 10 4 h (24)<br>Detection: colorimetry                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Dimethylamine</b><br>$(CH_3)_2NH$<br>MAC <sub>wz</sub> 0.005<br>MAC <sub>hw</sub> 0.005<br>MAC <sub>ad</sub> 0.005<br>MAC <sub>w</sub> 0.1<br>81, 183, 462                                                             | Intragastric: LD <sub>50</sub> mouse 316, LD <sub>50</sub> rat 698, LD <sub>50</sub> guinea pig 240, LD <sub>50</sub> rabbit 240<br>Inhalation: LC <sub>50</sub> mouse 70 2 h; Lim <sub>ac</sub> mouse 5 2 h (12), Lim <sub>ac</sub> rat 5 4 h (4)<br>Has irritant properties<br>Detection: colorimetry; detection limit 2 µg in analytical volume                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Dimethylaminoethyl methacrylate</b><br>$CH_2=C(CH_3)COOCH_2CH_2N(CH_3)_2$<br>TSEL <sub>wz</sub> 100<br>398                                                                                                             | Intragastric: LD <sub>50</sub> rat 1751 (1308—2194)<br>Inhalation: LC <sub>50</sub> mouse 1800 (1600—2010) 2 h, LC <sub>50</sub> rat 620 (590—650) 4 h<br>Detection: colorimetry; detection limit 10 µg in analytical volume                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>N-N-Dimethylaniline +</b><br><br>MAC <sub>wz</sub> 0.2 (v), Class II<br>MAC <sub>hw</sub> 0.0055<br>MAC <sub>ad</sub> 0.0055<br>415 | Subcutaneous: LD rat 100<br>Inhalation: LC <sub>100</sub> rat 4420; Lim <sub>ac</sub> rat 250 4 h (16); Lim <sub>ir</sub> rabbit 10 15 min (7)<br>Methemoglobin former                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                          | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                        |
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| <b>Dimethylbenzylamine</b><br>$C_6H_5CH_2N(CH_3)_2$<br>MAC <sub>wz</sub> 5 (v), Class III<br>439, 467                                                                                                      | Inhalation: LC <sub>50</sub> mouse 1800 2 l;<br>Has irritant properties<br>Detection: chromatography; detection limit 0.5 µg in analytical volume                                                                                                                                                                                                                                                                                                  |
| <b>O,O-Dimethyl-S-(carboethoxymethyl)thiophosphate</b> (methylacetophos) <sup>1</sup><br>$CH_3-O-P(=O)(S-CH_2OCC_2H_5)(OCH_3)$<br>MAC <sub>wz</sub> 1 (v+a), Class II<br>MAC <sub>w</sub> 0.03<br>464, 535 | Intragastric: LD <sub>50</sub> mouse 1020 (568—1472), LD <sub>50</sub> mouse 390 (293—487) <sup>1</sup> , LD <sub>50</sub> rat 241 (176—305) <sup>1</sup><br>On skin: LD rat <1000; LD <sub>50</sub> rat 220 (119—321) <sup>1</sup><br>Inhalation: LC cat <30 4 h, LC rat <20 4 h; LC <sub>50</sub> rat 30 4 h; Lim <sub>ac</sub> cat 10 4 h (24)<br>Affects nervous system<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume |
| <b>O,O-Dimethyl-S-(1-carboethoxy-1-phenylmethyl)dithiophosphate</b> (cydeal)<br>$(CH_3O)_2P(=S)(SCH_2COOC_2H_5)(SC_6H_5)$<br>MAC <sub>wz</sub> 0.15 (v+a), Class II<br>556                                 | Intragastric: LD <sub>50</sub> mouse 138, LD <sub>50</sub> rat 172<br>On skin: LD <sub>50</sub> rat 1850<br>Inhalation: LC <sub>50</sub> rat 59 4 h; Lim <sub>ac</sub> rat 1.5 4 h (24)                                                                                                                                                                                                                                                            |
| <b>Dimethylchlorothiophosphate</b><br>$(CH_3O)_2P(=S)Cl$<br>MAC <sub>wz</sub> 0.5 (v), Class II<br>464                                                                                                     | Intragastric: LD <sub>50</sub> mouse 1800<br>On skin: LD rabbit <1500<br>Inhalation: LC <sub>50</sub> rat 340 4 h, LC <sub>50</sub> mouse 320 2 h; Lim <sub>ac</sub> mouse 110 2 h (1)<br>Detection: photometry; detection limit 0.1 µg in analytical volume                                                                                                                                                                                       |
| <b>O,O-Dimethyl-O(1,2-dibromo-2,2-dichloroethyl)phosphate</b> (dibrom) <sup>1</sup><br>$CH_3-O-P(=O)(O-CH_2-CH(Br)-CH_2-CH_2-Cl)(OCH_3)$<br>MAC <sub>wz</sub> 0.5 (v), Class II<br>301, 469                | Intragastric: LD <sub>50</sub> mouse 440±17, LD <sub>50</sub> rat 465±16<br>Intraabdominal: LD <sub>50</sub> mouse 84±6.5, LD <sub>50</sub> rat 104±3<br>On skin: LD <sub>50</sub> rat 1234±70, LD <sub>50</sub> rabbit 1200±63<br>Inhalation: Lim <sub>ac</sub> rat 3.4 4 h (1, 7, 24); Lim <sub>ac</sub> man 0.2—0.4<br>Detection: colorimetry; detection limit 10 µg in analytical volume                                                       |
| <b>O,O-Dimethyl-S-1,2-dicarboethoxyethylthiophosphate</b> (carbophos) <sup>1</sup><br>$(CH_3O)_2P(=S)(SC_2H_4COOC_2H_5)(SC_2H_4COOC_2H_5)$                                                                 | Intragastric: LD <sub>50</sub> mouse 200, LD <sub>50</sub> mouse 190 <sup>1</sup> , LD <sub>50</sub> rat 420, LD <sub>50</sub> rat 290 <sup>1</sup><br>On skin: LD rabbit 5000<br>Inhalation: LC rat 1.2 4 h, LC cat 10—12 4 h; Lim <sub>ac</sub> cat 1.3—2 4 h (24)<br>Detection: photometry; detection limit 0.5 µg in analytical volume                                                                                                         |

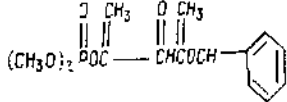
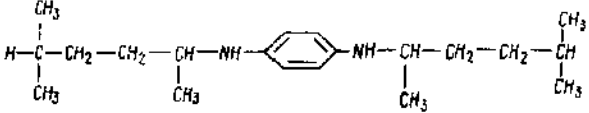
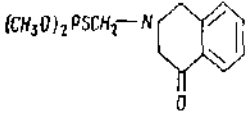
<sup>1</sup> Technical — grade product

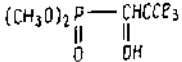
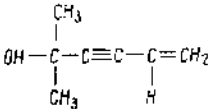
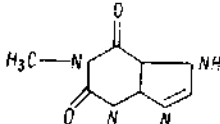
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| <p>MAC<sub>wz</sub> 0.5 (v+a), Class II<br/> MAC<sub>hw</sub> 0.015<br/> MAC<sub>w</sub> 0.06<br/> 139, 464</p> <p><b>O,O-Dimethyl-O(2,2-dichlorovinyl)phosphate (DDVP) +</b></p> $\begin{array}{c} \text{CH}_3\text{O} \quad \text{O} \\ \quad \quad \parallel \\ \text{CH}_3\text{O} \quad \text{P}-\text{OCH}=\text{CCl}_2 \end{array}$ <p>MAC<sub>wz</sub> 0.2 (v), Class II<br/> MAC<sub>w</sub> 1<br/> 369, 463</p> <p><b>4,4-Dimethyl-1,4-dioxane</b></p> $\begin{array}{c} \text{CH}_2 \\   \\ \text{CH}_3-\text{C}-\text{CH}_2-\text{CH}_2 \\   \quad   \\ \text{O}-\text{CH}_2-\text{O} \end{array}$ <p>MAC<sub>wz</sub> 10 (v), Class III<br/> MAC<sub>w</sub> 0.005<br/> MAC<sub>hw</sub> 0.01<br/> 159</p> <p><b>N-N-Dimethyldiphenylacetamide</b><br/> (diamide, diphenamide)<br/> C<sub>16</sub>H<sub>17</sub>NO<br/> TSEL<sub>w</sub> 6<br/> 288</p> <p><b>Dimethyl disulfide</b><br/> CH<sub>3</sub>S-SCH<sub>3</sub><br/> TSEL<sub>wz</sub> 1.5<br/> MAC<sub>w</sub> 0.04<br/> 375</p> <p><b>Dimethylethanolamine</b><br/> (CH<sub>3</sub>)<sub>2</sub>NC<sub>2</sub>H<sub>4</sub>OH<br/> MAC<sub>wz</sub> 5 (v), Class III<br/> 234, 312</p> <p><b>O,O-Dimethyl-S-[2-(ethylmercapto)-ethyl]dithiophosphate (M-81) +</b></p> $\begin{array}{c} \text{S} \\ \parallel \\ (\text{CH}_3\text{O})_2\text{P} \\ \quad \quad \text{SCH}_2\text{CH}_2\text{SC}_2\text{H}_5 \end{array}$ | <p>Intragastric: LD<sub>50</sub> mouse 86 (73—99), LD<sub>50</sub> rat 65 (50—80), LD<sub>50</sub> rabbit 22 (9—37)</p> <p>On skin: LD<sub>50</sub> rat 113 (99—127), LD<sub>50</sub> rabbit 205 (143—266); Lim<sub>ac</sub> rabbit 10 (24)</p> <p>Inhalation: LC<sub>50</sub> mouse 13 4 h, LC<sub>50</sub> rat 15 4 h; Lim<sub>ac</sub> rat 1 4 h (24)</p> <p>Detection: photometry; detection limit 5 µg in analytical volume</p> <p>Intragastric: LD<sub>100</sub> mouse 3000; LD mouse &lt;800</p> <p>Has irritant properties; affects liver and kidneys</p> <p>Intragastric: LD<sub>50</sub> rat 1250</p> <p>Intragastric: LD<sub>50</sub> mouse 138 (108—177)<br/> Inhalation: LC<sub>50</sub> 15.8 (12.2—20.6) 2 h</p> <p>Inhalation: LC<sub>50</sub> mouse 3250±280 2 h; LC rat 4500 4 h; Lim<sub>ac</sub> mouse 1200 2 h (1); Lim<sub>alt</sub> man 1.3</p> <p>Detection: colorimetry; detection limit 5 µg in analytical volume</p> <p>Inhalation: LC<sub>50</sub> 37<sup>1</sup>, LD<sub>50</sub> rat 53<sup>1</sup>, LD<sub>50</sub> cat 20<sup>1</sup></p> <p>On skin: LD<sub>50</sub> rabbit 100<sup>1</sup>; Lim<sub>ac</sub> rabbit 10 (24)</p> <p>Inhalation: LC rat 20—25<sup>1</sup> 4 h; Lim<sub>ac</sub> cat 1—3<sup>1</sup> 4 h (24)</p> <p>Detection: colorimetry; detection limit 0.5 µg in analytical volume</p> |

<sup>1</sup> Technical — grade product

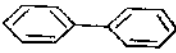
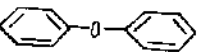
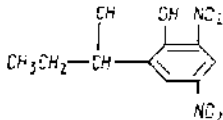
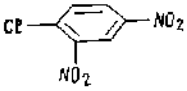
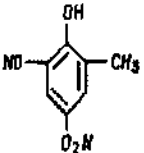
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                  |
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| MAC <sub>wz</sub> 0.1 (v+a), Class I<br>MAC <sub>hw</sub> 0.001<br>MAC <sub>ad</sub> 0.001<br>MAC <sub>w</sub> 0.001<br>138, 460                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Dimethyl formamide</b><br><chem>HCON(CH3)2</chem><br>MAC <sub>wz</sub> 10 (v), Class II<br>MAC <sub>hw</sub> 0.03<br>MAC <sub>ad</sub> 0.03<br>MAC <sub>w</sub> 10<br>436, 464                                                                                | Intragastric: LD <sub>50</sub> mouse 4200±800, LD <sub>50</sub> rat 5800±1200<br>Inhalation: LC <sub>50</sub> mouse 10 000±1430 2 h; Lim <sub>ac</sub> rat 1200 2 h (4)<br>Exerts local irritant and systemic toxic actions<br>Detection: colorimetry; detection limit 5 µg in analytical volume                                                                                             |
| <b>O,O-Dimethyl-S-methylcarbamido-methylidithiophosphate</b> (phosphamidel) <sup>+</sup><br><chem>COP(=S)(OC)SCC(=O)NC</chem><br>MAC <sub>wz</sub> 0.5 (a+v), Class II<br>MAC <sub>w</sub> 0.03<br>MAC <sub>hw</sub> 0.003<br>MAC <sub>ad</sub> 0.003<br>45, 301 | Intragastric: LD <sub>50</sub> mouse 135 (112—158), LD <sub>50</sub> rat 230 (206—254), LD <sub>50</sub> cat 100 <sup>1</sup><br>On skin: LD <sub>50</sub> rat 3320 <sup>1</sup><br>Inhalation: LC cat <80 4 h; Lim <sub>ac</sub> cat 5 4 h (24)<br>Detection: colorimetry; detection limit 25 µg in analytical volume                                                                       |
| <b>O,O-Dimethyl-S-(N-methyl-N-formylcarbamylmethyl)dithiophosphate</b> (anthio) <sup>+</sup><br><chem>COP(=S)(OC)SCC(=O)NCC(=O)NC</chem><br>MAC <sub>wz</sub> 0.5 (v+a), Class II<br>126, 460                                                                    | Intragastric: LD <sub>50</sub> mouse 90 (85—95), LD <sub>50</sub> rat 360, LD <sub>50</sub> guinea pig 150<br>On skin: LD <sub>50</sub> mouse 400 (344—464)<br>Inhalation: LC <sub>50</sub> mouse 27 (21—35) 2 h; Lim <sub>ac</sub> mouse 2.5 2 h (1), Lim <sub>ac</sub> rat 5 4 h (1, 24); Lim <sub>air</sub> man 10<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume |
| <b>O,O-Dimethyl-(3-methyl-4-nitrophenyl)thiophosphate</b> (methylnitro-phos) <sup>+</sup><br><chem>COP(=S)(OC)c1ccc(C)cc1[N+](=O)[O-]</chem><br>MAC <sub>wz</sub> 0.1 (v+a), Class I<br>MAC <sub>w</sub> 0.25<br>261, 466                                        | Intragastric: LD <sub>50</sub> mouse 715 (521—898), LD <sub>50</sub> rat 516 (437—605)<br>On skin: LD <sub>50</sub> rat 1250 (791—1506)<br>Inhalation: LC cat <70 4 h<br>Detection: photometry; detection limit 6 µg per 5 ml of solution                                                                                                                                                    |

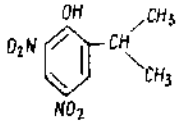
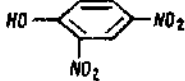
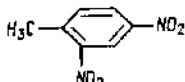
<sup>+</sup> Technical — grade product

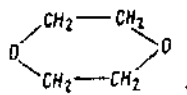
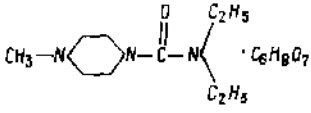
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                                                                                                                                                                                  | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                               |
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| <b>O,O-Dimethyl-O-nitrophenylthio-phosphate (metaphos)<sup>++</sup></b><br>$(\text{CH}_3\text{O})_2\text{POC}_6\text{H}_4\text{NO}_2\text{-n}$<br><br><b>MAC<sub>wz</sub> 0.1 (v+a), Class I</b><br><b>MAC<sub>hw</sub> 0.008</b><br><b>MAC<sub>w</sub> 0.02</b><br><b>42, 464</b><br><b>O,O-Dimethyl-O-1-methyl-2-phenyl-carboethoxy)vinyl phosphate ciodrin</b> | Intragastric: LD <sub>50</sub> mouse 18, LD <sub>50</sub> rat 13<br>Inhalation: LC cat <24 4 h; Lim <sub>ac</sub> cat 3.6 4 h (24)<br><br>Detection: colorimetry; detection limit 2 μg in analytical volume<br><br>Intragastric: LD <sub>50</sub> mouse 39±10, LD <sub>50</sub> rat 33±3, LD <sub>50</sub> cat 802±9; Lim <sub>ac</sub> rat 05 (24)                                                       |
| <br><br><b>TSEL<sub>wz</sub> 0.05</b><br><b>530</b><br><b>N,N-Di-(1,4-dimethylpentyl)-p-phenylenediamine (santoflex)</b>                                                                                                                                                                                                                                          | Intragastric: LD <sub>50</sub> rat 750±200, LD <sub>50</sub> mouse 1700±500; Lim <sub>ac</sub> rat 250 (1, 11)<br>Inhalation: LC rat <530 4 h; Lim <sub>ac</sub> rat 400 4 h (1, 8, 11)<br>Affects central nervous system<br>Detection: colorimetry; detection limit 1 μg in analytical volume                                                                                                            |
| <br><br><b>MAC<sub>wz</sub> 5 (v+a), Class III</b><br><b>447, 465</b><br><b>Dimethylphenylcarbinol</b><br>$\text{C}_6\text{H}_5\text{C}(\text{CH}_3)_2\text{OH}$<br><b>MAC<sub>w</sub> 0.05</b><br><b>399</b>                                                                                                                                                     | Intragastric: LD <sub>50</sub> mouse 1950 (1690—2210); LD rat 2250 (1990—2510)<br><br>Intragastric: LD <sub>50</sub> mouse 167 (142—167), LD <sub>50</sub> rat 92 (75—109)<br>On skin: LD <sub>50</sub> rat 1326<br>Inhalation: LC <sub>50</sub> rat 54 (21—86) 4 h, LC <sub>50</sub> cat 65 4 h; Lim <sub>ac</sub> rat 6 4 h (24)<br>Detection: colorimetry; detection limit 0.1 μg in analytical volume |
| <b>O,O-Dimethyl-S-(phthalimidomethyl)dithiophosphate (phthalophos)</b><br>$(\text{CH}_3\text{O})_2\text{PSCH}_2\text{-N}$ <br><br><b>MAC<sub>wz</sub> 0.3 (v+a), Class II</b><br><b>MAC<sub>w</sub> 0.2</b><br><b>64, 460</b>                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                           |

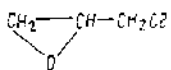
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                                    | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                            |
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| <b>Dimethyl sulfide+</b><br>$\text{CH}_3\text{-S-CH}_3$<br>MAC <sub>wz</sub> 50 (v), Class IV<br>MAC <sub>bm</sub> 0.08<br>MAC <sub>w</sub> 0.01<br>95, 167, 312                                                                                                                                     | Intragastric: LD <sub>50</sub> mouse 3700 (3140—4270), LD <sub>50</sub> rat 3300 (2490—4070)<br>Inhalation: LC <sub>50</sub> mouse 43 000 (40 000—46 000) 2 h; NC <sub>50</sub> mouse 4000 2 h; Lim <sub>ac</sub> mouse 2000 2 h (15); Lim <sub>ir</sub> man 104—110; Lim <sub>oil</sub> 267<br>Detection: nephelometry; detection limit 0.002 mg in analytical volume |
| <b>Dimethyl terephthalate</b><br><br>MAC <sub>wz</sub> 0.1 (v+a), Class I<br>MAC <sub>w</sub> 1.5<br>289, 362                                                                                                       | Intragastric: LD mouse <10 000<br>Inhalation: LC rat <1000—6000 2 h<br>Has irritant properties; affects kidneys and liver<br>Detection: colorimetry; detection limit 2.5 µg in analytical volume                                                                                                                                                                       |
| <b>0,0-Dimethyl-(2,2,2-trichloro-1-hydro-xyethyl)phosphate (chloro-phos)+</b><br><br>MAC <sub>wz</sub> 0.5 (v+a), Class II<br>MAC <sub>lv</sub> 0.04<br>MAC <sub>ad</sub> 0.02<br>MAC <sub>w</sub> 0.05<br>460, 491 | Intragastric: LD <sub>50</sub> mouse 730 (340—1120), LD <sub>50</sub> rat 850 (579—1125), LD <sub>50</sub> cat 97 (68—126) <sup>1</sup><br>On skin: LD <sub>50</sub> rabbit 1500 <sup>1</sup><br>Inhalation: LC rat <6—13 4 h; Lim <sub>ac</sub> rat and cat 2 (24)<br>Affects nervous system<br>Detection: colorimetry; detection limit 5 µg in analytical volume     |
| <b>Dimethylvinylethynylcarbinol</b><br><br>MAC <sub>wz</sub> 0.05 (v), Class I<br>312                                                                                                                              | Intragastric: LD <sub>50</sub> mouse 590 (450—760), LD <sub>50</sub> rat 600, LD <sub>50</sub> guinea pig 600, LD <sub>50</sub> rabbit 800<br>Inhalation: LC <sub>50</sub> mouse 30 2 h; Lim <sub>ac</sub> rat 1.7 4 h (1)<br>Detection: colorimetry; detection limit 6 mg/m <sup>3</sup>                                                                              |
| <b>1,3-Dimethylxanthine (theophylline)</b><br><br>MAC <sub>wz</sub> 0.5 (a), Class II<br>287                                                                                                                      | Intragastric: LD <sub>50</sub> mouse 252±15, LD <sub>50</sub> rat 244±13<br>Inhalation: LC rat <36 4 h; Lim <sub>ac</sub> rat 17 4 h (1)<br>Affects central nervous system                                                                                                                                                                                             |

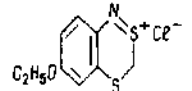
<sup>1</sup> Technical — grade product

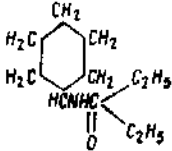
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                         | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                        |
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| <b>3,7-Dimethyl xanthine</b> (theobromine)<br>$C_7H_8N_4O_2$<br>$MAC_{wz}$ 1 (a), Class 287                                                                                                                                               | Intragastric: $LD_{50}$ mouse $876 \pm 175$ , $LD_{50}$ rat $1265 \pm 178$<br>Inhalation: LC rat $<120$ 4 h; $Lim_{ac}$ rat 60 4 h (1)                                                                                                                                                                                                             |
| <b>Dinil</b><br>(mixture of 25% diphenyl and 75% diphenyloxide)<br><br> | Intragastric: $LD_{50}$ mouse 3210 (2623—3884), $LD_{50}$ rat 5480 (4567—6576), $LD_{50}$ guinea pig 3000, $LD_{50}$ rabbit 4200<br>Inhalation: LC mouse $<1000$ 2 h; $Lim_{ir}$ rabbit 7.9 15 min (7); $Lim_{ac}$ rat 62 1 h (1, 11, 21); $Lim_{ir}$ man $6.1 \pm 0.2$<br>Detection: photometry; detection limit 0.1 $\mu$ g in analytical volume |
| $MAC_{wz}$ 10 (v+a), Class III<br>$MAC_{hw}$ 0.01<br>$MAC_{ad}$ 0.01<br>37, 254, 467                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                    |
| <b>Dinitrobenzene</b> (mixture of isomers)<br>$C_6H_4(NO_2)_2$<br>$TSEL_{wz}$ 0.01<br>$MAC_{wz}$ 0.5<br>103, 464                                                                                                                          | Inhalation: LC cat $<100$ 7.5 h<br>Narcotic<br>Detection: colorimetry; detection limit 1 $\mu$ g in analytical volume                                                                                                                                                                                                                              |
| <b>Dinitro-sec-butylphenol+</b><br>                                                                                                                     | Intragastric: $LD_{50}$ mouse 16 (8—24), $LD_{50}$ rat 87 (64—110)<br>On skin: $LD_{75}$ rat 300; LD rabbit 500<br>Inhalation: LC cat 45 3 h<br>Detection: colorimetry; detection limit 5 $\mu$ g in analytical volume                                                                                                                             |
| $MAC_{wz}$ 0.05 (v+a), Class I<br>49, 461                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                    |
| <b>Dinitrochlorobenzene+</b><br>                                                                                                                       | Intragastric: $LD_{50}$ rat 350 (ortho isomer), $LD_{50}$ rat 300 (meta isomer), $LD_{50}$ rat 350 (para isomer)<br>Methemoglobin former<br>Has irritant properties                                                                                                                                                                                |
| $MAC_{wz}$ 1 (v), Class II<br>$TSEL_{wz}$ 0.002<br>68, 289                                                                                                                                                                                | Detection: colorimetry; detection limit 0.2 $\mu$ g per 0.1 ml of solution                                                                                                                                                                                                                                                                         |
| <b>Dinitro-o-cresol+</b><br>                                                                                                                           | Intragastric: $LD_{50}$ mouse 47, $LD_{50}$ rat 85, $LD_{50}$ cat 50<br>On skin: $LD_{50}$ rabbit 1000                                                                                                                                                                                                                                             |

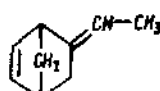
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                          | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                    |
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| MAC <sub>wz</sub> 0.05 (v+a), Class I<br>TSEL <sub>hw</sub> 0.002<br>50, 459                                                                                                               | Inhalation: LC <sub>50</sub> cat 100 4 h<br>Inhibits phosphorylation<br>Detection: colorimetry; detection limit 3 µg in analytical volume                                                                                                                                                                                      |
| <b>2,4-Dinitro-p-hydroxydiphenylamine</b><br>C <sub>6</sub> H <sub>5</sub> N <sub>3</sub> H <sub>2</sub> O <sub>3</sub> C <sub>6</sub> H <sub>5</sub><br>528                               | Intragastric: LD <sub>50</sub> mouse 2500 (2610—3800)                                                                                                                                                                                                                                                                          |
| <b>4,6-Dinitro-2-isopropylphenol</b> <sup>+</sup><br>                                                     | Intragastric: LD <sub>50</sub> mouse 45 (37—52), LD <sub>50</sub> rat 63 (43—83), LD <sub>66</sub> cat 30<br>On skin: LD <sub>60</sub> rabbit 100, LD <sub>90</sub> rat 300<br>Inhalation: LC <sub>39</sub> cat 325 4 h<br>Detection: colorimetry; detection limit 5 µg in analytical volume                                   |
| MAC <sub>wz</sub> 0.05 (v+a), Class I<br>TSEL <sub>hw</sub> 0.002<br>50, 459                                                                                                               |                                                                                                                                                                                                                                                                                                                                |
| <b>2,4-Dinitrophenol</b> <sup>+</sup><br>                                                                 | Intragastric: LD <sub>50</sub> mouse 47 (40—53), LD <sub>50</sub> rat 32 (25—39), LD <sub>50</sub> rabbit 30, LD <sub>50</sub> guinea pig 81, LD <sub>50</sub> cat 75<br>Inhalation: LC dog 300—400 30—60 min, LC cat <10 4 h<br>Inhibits phosphorylation<br>Detection: colorimetry; detection limit 5 µg in analytical volume |
| MAC <sub>wz</sub> 0.05 (v+a), Class I<br>MAC <sub>w</sub> 0.03<br>TSEL <sub>hw</sub> 0.004<br>319, 461                                                                                     |                                                                                                                                                                                                                                                                                                                                |
| <b>Dinitrothiocyanobenzene</b> <sup>+</sup><br>C <sub>6</sub> H <sub>3</sub> (NO <sub>2</sub> ) <sub>2</sub> (NCS)<br>MAC <sub>wz</sub> 2 (a), Class II<br>MAC <sub>w</sub> 0.5<br>46, 462 | Intragastric: LD <sub>50</sub> mouse 3570±143, LD <sub>50</sub> guinea pig 1650±45<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                                                                                                        |
| <b>Dinitrotoluene</b> <sup>+</sup><br>                                                                  | Intragastric: LD <sub>50</sub> mouse 1000; LD mouse <600<br>Detection: colorimetry; detection limit 5 µg in analytical volume                                                                                                                                                                                                  |
| MAC <sub>wz</sub> 1 (v+a), Class II<br>MAC <sub>w</sub> 0.5<br>TSEL <sub>hw</sub> 0.004<br>107, 464                                                                                        |                                                                                                                                                                                                                                                                                                                                |
| <b>Diethyl sebacate</b><br>C <sub>26</sub> H <sub>50</sub> O <sub>4</sub><br>MAC <sub>wz</sub> 10 (v+a), Class III<br>54                                                                   | Intragastric: LD <sub>50</sub> mouse 9500±98, LD <sub>50</sub> rat 17 000±60<br>Inhalation: LC rat <800 4 h; Lim <sub>ac</sub> rat 600 4 h (1); Lim <sub>ir</sub> man 60<br>Detection: colorimetry; detection limit 10 µg in analytical volume                                                                                 |

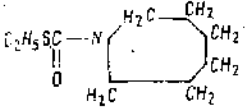
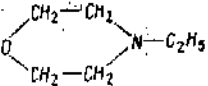
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| <b>1,4-Dioxane</b> (diethylene ether, diethylene dioxide)<br><br>MAC <sub>wz</sub> 10 (v), Class III<br>197, 465<br><b>Diphenylamine</b> (anilinobenzene)<br>C <sub>6</sub> H <sub>5</sub> NHC <sub>6</sub> H <sub>5</sub><br>MAC <sub>w</sub> 0.05<br>528<br><b>4,4-Diphenylmethane diisocyanate</b><br>CH <sub>2</sub> (C <sub>6</sub> H <sub>4</sub> NCO) <sub>2</sub><br>TSEL <sub>wz</sub> 1<br>479<br><b>4,4-Diphenylmethane dimaleimide</b><br>148<br><b>Di-n-propylamine</b><br>(CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> ) <sub>2</sub> NH<br>MAC <sub>wz</sub> 2 (v), Class II<br>MAC <sub>w</sub> 0.5<br>208, 312<br><b>Di-thio-bis(N-phenylmaleimide)</b><br>148<br><b>Ditolyl methane</b><br>(CH <sub>3</sub> C <sub>6</sub> H <sub>4</sub> ) <sub>2</sub> CH <sub>2</sub><br>MAC <sub>wz</sub> 1 (v+a), Class II<br>132, 463<br><b>Ditrazine citrate</b> (1-methyl-4-diethylcarbamoylpiperazine citrate)<br><br>MAC <sub>wz</sub> 5 (a), Class III<br>62<br><b>Divinyl</b> (1,3-butadiene)<br>CH <sub>2</sub> =CH-CH=CH <sub>2</sub><br>MAC <sub>wz</sub> 100 (v), Class IV<br>MAC <sub>hw</sub> 3<br>MAC <sub>ad</sub> 1<br>31, 45 | Inhalation: LC <sub>50</sub> mouse 37 000 2 h; Lim <sub>ac</sub> rat 10 2 h (4)<br>Has irritant properties; affects liver and kidneys<br>Detection: colorimetry; detection limit 5 µg in analytical volume<br>Intragastric: LD <sub>50</sub> mouse 3200 (2800—3800)<br>Intragastric: LD <sub>50</sub> mouse 2200±100<br>Inhalation: LC mouse and rat <17 2—4 h<br>Detection: colorimetry<br>Intragastric: LD mouse and rat <5000<br>Intragastric: LD <sub>50</sub> rat 460<br>Inhalation: LC <sub>50</sub> mouse 3070 2 h; LC <sub>50</sub> rat 4400 4 h; Lim <sub>ac</sub> rat (7, 30, 20) 4 h; Lim <sub>ir</sub> man 2; Lim <sub>ir</sub> 0.4<br>Intragastric: LD rat and mouse <5000<br>Intragastric: LD <sub>50</sub> mouse 500<br>Inhalation: LC <sub>50</sub> mouse 12 3 h; Lim <sub>ac</sub> mouse 4—6 1 h (15)<br>Has irritant properties<br>Detection: colorimetry; detection limit 5 µg in analytical volume<br>Intragastric: LD <sub>50</sub> mouse 5080 (4490—5740), LD <sub>50</sub> rat 12 000 (10 160—14 160)<br>Intraabdominal: LD <sub>50</sub> mouse 819 (700—958)<br>Inhalation: LC <sub>50</sub> rat 309±57 4 h; Lim <sub>ac</sub> rat 41 4 h (I, 11)<br>Inhalation: LC <sub>50</sub> mouse 259 000±12 000<br>Narcotic<br>Has irritant properties<br>Detection: burning in a special torch |

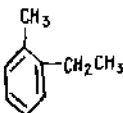
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                      | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                            |
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| <b>N-Dodecylguanidine acetate</b> (mel-<br>prex)<br>$C_{12}H_{25}NH-C(NH_2)CH_3COO$<br>$\parallel$<br>$NH$<br>MAC <sub>wz</sub> 0.1 (a), Class II<br>476                                                                                                               | Intragastric: LD <sub>50</sub> mouse 266, LD <sub>50</sub> rat 1118, LD <sub>50</sub> guinea pig 176, LD <sub>50</sub> rabbit 535<br>On skin: LD rat <2000, LD guinea pig 2000<br>Inhalation: LC <sub>50</sub> mouse 129 2 h; Limac cat 4.8 4 h (4)                                                                                                                                                                                                    |
| <b>tert-Dodecyl mercaptan</b><br>$CH_3(CH_2)_{11}SH$<br>MAC <sub>wz</sub> 5 (v), Class III<br>391                                                                                                                                                                      | Intragastric: LD rat <5000<br>Intraabdominal: LD <sub>50</sub> rat 1833±197<br>Inhalation: LC mouse <30—50 8 h; Limac man 30—50 5 min (13); Limac 0.1—0.5<br>Affects central nervous system                                                                                                                                                                                                                                                            |
| <b>Epichlorohydrin</b> (3-chloro-1,2-epoxypropane)<br><br>MAC <sub>wz</sub> 1 (v), Class II<br>MAC <sub>w</sub> 0.01<br>MAC <sub>bw</sub> 0.2<br>MAC <sub>d</sub> 0.2<br>92, 186, 460 | Intragastric: LD <sub>50</sub> mouse 194±17, LD <sub>50</sub> rat 141±13, LD <sub>50</sub> guinea pig 280, LD <sub>50</sub> rabbit 345±10<br>On skin: LD <sub>50</sub> mouse 250<br>Inhalation: LC <sub>50</sub> mouse 2500—400 2 h<br>Has irritant properties<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                                                    |
| <b>Ethanolamine</b> (calamine)<br>$(CH_2CH_2OH)NH_2$<br>MAC <sub>wz</sub> 0.5 (v+a), Class II<br>MAC <sub>w</sub> 0.5<br>370, 408                                                                                                                                      | Intragastric: LD <sub>50</sub> mouse 1475, LD <sub>50</sub> rat 2050, LD <sub>50</sub> guinea pig 620, LD <sub>50</sub> rabbit 1000<br>On skin: LD <sub>50</sub> rat 1500<br>Intramuscular: LD <sub>50</sub> rat 1750<br>Intravenous: LD <sub>50</sub> rat 225<br>Intraabdominal: LD <sub>50</sub> rat 67<br>Inhalation: LC rat and cat <2420 2 h<br>Detection: colorimetry and thin-layer chromatography; detection limit 0.5 µg in analytical volume |
| <b>Ethanoethylene diamine</b><br>$OHCH_2CH_2NHCH_2CH_2NH_2$<br>MAC <sub>wz</sub> 3 (v+a), Class III<br>408                                                                                                                                                             | Intragastric: LD <sub>50</sub> mouse 3550, LD <sub>50</sub> rat 3600, LD <sub>50</sub> guinea pig 1500, LD <sub>50</sub> rabbit 2000<br>On skin: LD <sub>50</sub> rat 2250<br>Intramuscular: LD <sub>50</sub> rat 2000<br>Intravenous: LD <sub>50</sub> rat 417<br>Intraabdominal: LD <sub>50</sub> rat 120<br>Inhalation: LC rat and cat <13 2 h                                                                                                      |

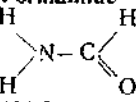
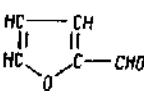
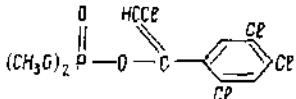
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                              | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                 |
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| <b>5-Ethoxyphenyl-1,2-thiazothionium chloride</b>                                                                                              | On skin: LD <sub>50</sub> rat 1750<br>Inhalation: Lim <sub>17</sub> rabbit 400 15 min (7)<br>Detection: photometry; detection limit 5 µg in analytical volume                                                                                                                                                                                               |
|                                                               |                                                                                                                                                                                                                                                                                                                                                             |
| MAC <sub>wz</sub> 0.2 (a), Class II<br>280, 468                                                                                                |                                                                                                                                                                                                                                                                                                                                                             |
| <b>β-Ethoxypropionitrile</b><br>$C_2H_5OCH_2CH_2CN$<br>MAC <sub>wz</sub> 50 (v), Class IV<br>340                                               | Intragastric: LD <sub>50</sub> rat 2865 (2330—3600)<br>Inhalation: LC rat <8000 4 h; Lim <sub>10</sub> rat 470 4 h (1)                                                                                                                                                                                                                                      |
| <b>Ethyl acetate</b><br>$CH_3COOCH_2CH_3$<br>MAC <sub>wz</sub> 200 (v), Class IV<br>MAC <sub>hw</sub> 0.1<br>MAC <sub>ad</sub> 0.1<br>207, 467 | Inhalation: LC <sub>50</sub> mouse 45 000 2 h;<br>Lim <sub>10</sub> rat 500 1 h (4)<br>Narcotic<br>Detection: gas-liquid chromatography;<br>detection limit 0.1 µg in analytical volume                                                                                                                                                                     |
| <b>Ethyl alcohol (ethanol)</b><br>$C_2H_5OH$<br>MAC <sub>wz</sub> 1000 (v), Class IV<br>MAC <sub>hw</sub> 5<br>MAC <sub>ad</sub> 5<br>353, 467 | Intragastric: LD <sub>50</sub> mouse 6500±387<br>Inhalation: Lim <sub>10</sub> rabbit 2000—10 000 4 min (2)<br>Narcotic<br>Detection: gas-liquid chromatography;<br>detection limit 1 µg in analytical volume                                                                                                                                               |
| <b>Ethyl benzoyl acetate</b><br>$COCH_2COOC_2H_5$<br>        | Intragastric: LD <sub>50</sub> mouse 6800<br>Inhalation: LC mouse <140 000 2 h                                                                                                                                                                                                                                                                              |
| 403                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                             |
| <b>Ethyl bromide (bromoethane)</b><br>$C_2H_5Br$<br>MAC <sub>wz</sub> 5 (v), Class III<br>142, 289                                             | Intragastric: LD <sub>50</sub> rat 1350 (1100—1660)<br>Inhalation: LC <sub>50</sub> mouse 36 000 (28 500—45 400) 2 h, LD <sub>50</sub> rat 53 000 (48 100—58 300) 2 h; Lim <sub>10</sub> rat and rabbit 650—1800 40 min 4 h (1, 2)<br>Narcotic; causes general damage to nervous system<br>Detection: photometry; detection limit 1 µg in analytical volume |
| <b>Ethyl butyl amine</b><br>$C_2H_5 \cdot NH \cdot C_4H_9$<br>469, 550                                                                         | Intragastric: LD <sub>50</sub> mouse 417 (315—514),<br>LD <sub>50</sub> rat 310 (273—347)<br>Detection: colorimetry                                                                                                                                                                                                                                         |

| Substance, MAC or TSFL, Hazard Class Reference(s)                                                                                      | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <b>Ethyl chloride</b> (chloroethane)<br>$\text{CH}_3\text{-CH}_2\text{Cl}$<br>MAC <sub>wz</sub> 50 (v), Class IV<br>23, 289            | Inhalation: LD <sub>50</sub> mouse 145 700 (121 300—153 700) 2 h, LC <sub>50</sub> rat 160 000 (150 000—169 000) 2 h; Lim <sub>ac</sub> rat and cat 1200 4 h (4)<br>Narcotic<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Ethylcyclohexylthiocarbamate</b> (ronit)                                                                                            | Intragastric: LD <sub>50</sub> mouse 2285 (1999—2571), LD <sub>50</sub> rat 2323 (1845—2800)<br>On skin: LD rat and rabbit <3000<br>Inhalation: LC rat and cat <500; Lim <sub>ac</sub> rat 70 4 h (39)<br>Affects nervous system and parenchymatous organs<br>Detection: thin-layer chromatography; detection limit 5—10 mg                                                                                                                                                                                                                                                                                                                                             |
| <br>MAC <sub>wz</sub> 1 (v+a), Class II<br>338, 469   | Intragastric: LD <sub>50</sub> mouse 91 (84—98), LD <sub>50</sub> rat 71 (64—78)<br>Subcutaneous: LD <sub>50</sub> mouse 98, LD <sub>50</sub> rat 82, LD <sub>50</sub> guinea pig 75, LD <sub>50</sub> rabbit 100<br>On skin: LD <sub>50</sub> rabbit 700, LD <sub>50</sub> rat 84 (78—90), LD <sub>50</sub> mouse 18—20<br>Inhalation: LC <sub>50</sub> mouse 740 2 h, LC <sub>50</sub> rat 510 4 h, LC <sub>50</sub> guinea pig 870 4 h; Lim <sub>ac</sub> rat 30 4 h (1), Lim <sub>ac</sub> rabbit 20 40 min (2)<br>Affects nervous system, heart, liver and kidneys; has irritant properties<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume |
| <b>Ethylene cyanohydrin</b> (hydroacrylonitrile)<br>$\text{HOCH}_2\text{CH}_2\text{CN}$<br>MAC <sub>wz</sub> 10 (v+a), Class III<br>16 | On skin: LD rabbit <60<br>Inhalation: LC <sub>50</sub> mouse 300 2 h, LC rat <332 4 h; Lim <sub>ac</sub> mouse 98 40 min (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Ethylene diacetate</b><br>$\text{CH}_3\text{CH}(\text{OCOCH}_3)_2$<br>MAC <sub>wz</sub> 30 (v), Class IV<br>194                     | Inhalation: LC mouse and rat <3600 2 h, LC cat <3600 4 h; Lim <sub>ac</sub> rabbit 860 40 min (2); Lim <sub>ir</sub> cat 57 40 min (28), Lim <sub>ir</sub> man 50<br>Has irritant properties                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Ethylenediamine</b> (1,2-diaminoethane)<br>$(\text{NH}_2)_2\text{C}_2\text{H}_4$<br>MAC <sub>wz</sub> 2 (v), Class III<br>462, 482  | Intragastric: LD <sub>50</sub> rat 500<br>Subcutaneous: LD <sub>50</sub> rat 300<br>Inhalation: LC <sub>50</sub> mouse 300<br>Has irritant properties<br>Detection: colorimetry; detection limit 10 µg in analytical volume                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                                                                                     | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                               |
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| <b>Ethylene glycol demethacrylate</b><br>$\text{CH}_2=\text{C}(\text{CH}_3)\text{COOCH}_2\text{CH}_2\text{OCC}(\text{CH}_3)=\text{CH}_2$<br>398                                                                                                          | Intragastric: $\text{LD}_{50}$ mouse 8600 (6935—10 664), $\text{LD}_{50}$ rat 10 000 (7042—14 200)                                                                                                                                                                                                                                                           |
| <b>Ethylene glycol isopropyl ether</b><br>(isopropyl cellosolve)<br>$(\text{CH}_3)_2\text{CHOC}_2\text{H}_4\text{OH}$<br>TSEL <sub>wz</sub> 15<br>238                                                                                                    | Intragastric: $\text{LD}_{50}$ mouse 4900<br>Intraabdominal: $\text{LD}_{50}$ mouse $1860 \pm 20$ , $\text{LD}_{50}$ rat 800<br>Inhalation: LC mouse <8000 2 h; $\text{LC}_{50}$ rat $3100 \pm 350$ 4 h; $\text{Lim}_{ac}$ mouse 1580 2—4 h (1.27)                                                                                                           |
| <b>Ethylene glycol monobutyl ether</b><br>$\text{C}_4\text{H}_9\text{OC}_2\text{H}_4\text{OH}$<br>TSEL <sub>wz</sub> 5<br>238                                                                                                                            | Intragastric: $\text{LD}_{50}$ mouse 1500<br>Intraabdominal: $\text{LD}_{50}$ mouse $730 \pm 40$ , $\text{LD}_{50}$ rabbit and rat 220<br>Inhalation: LC mouse <3980 2 h; $\text{Lim}_{ac}$ mouse and rat 75—83 2—4 h (1)                                                                                                                                    |
| <b>Ethylene glycol vinyl ether</b><br>$\text{CH}_2=\text{CHOCH}_2\text{CH}_2\text{OH}$<br>TSEL <sub>wz</sub> 30<br>346                                                                                                                                   | Intragastric: $\text{LD}_{50}$ mouse $2900 \pm 169$ , $\text{LD}_{50}$ rat $3910 \pm 182$<br>Inhalation: $\text{LC}_{50}$ mouse $29 000 \pm 1600$ 2 h; $\text{Lim}_{ca}$ mouse and rat 5000 2—4 h (1); $\text{Lim}_{ir}$ man 600<br>Detection: chromatography                                                                                                |
| <b>Ethylene oxide</b><br>$\text{CH}_2-\text{CH}_2$<br><br>MAC <sub>wz</sub> 1 (v), Class II<br>MAC <sub>hw</sub> 0.3<br>MAC <sub>ad</sub> 0.03<br>289, 290              | Inhalation: $\text{LC}_{50}$ mouse 1500 4 h, $\text{LC}_{50}$ rat 2630 4 h, $\text{LC}_{50}$ guinea pig 1500 4 h, $\text{LC}_{50}$ dog 1730 4 h<br>Narcotic; disturbs cardiac activity and causes acidosis<br>Detection: colorimetry; detection limit 0.25 $\mu\text{g}$ in analytical volume                                                                |
| <b>Ethylene sulfide+</b><br>$\text{CH}_2-\text{CH}_2$<br><br>MAC <sub>wz</sub> 0.1 (v), Class I<br>MAC <sub>hw</sub> 0.5<br>332                                       | Intragastric: $\text{LD}_{50}$ mouse 35 (28—44)<br>Inhalation: $\text{LC}_{50}$ mouse 1400 (980—1990); $\text{Lim}_{ac}$ rat 2 4 h (1)<br>Narcotic with convulsive and irritant actions                                                                                                                                                                      |
| <b>Ethylenimine+</b><br>$\text{H}_2\text{C}-\text{CH}_2$<br><br>MAC <sub>wz</sub> 0.02 (v), Class I<br>MAC <sub>hw</sub> 0.001<br>MAC <sub>ad</sub> 0.001<br>312, 542 | On skin: $\text{LD}_{50}$ rabbit; LD rabbit <10, LD guinea pig <0.6; $\text{LT}_{50}$ mouse 7.5 sec<br>Inhalation: $\text{LC}_{100}$ rabbit 100 2 h; $\text{LC}_{50}$ mouse 400 2 h, $\text{LC}_{50}$ rat 100 2 h; $\text{Lim}_{ac}$ rat 10—40 4 h (1, 4, 18)<br>Has irritant properties<br>Detection: colorimetry; detection limit 1 $\text{mg}/\text{m}^3$ |
| <b>Ethylidene norbornene</b><br>                                                                                                                                      | Intragastric: $\text{LD}_{50}$ mouse 3250 (3040—3460)<br>Intraabdominal: $\text{Lim}_{ac}$ mouse 1.13 (0.70—1.82) (1)                                                                                                                                                                                                                                        |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                  | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                        |
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| TSEL <sub>wz</sub> 20<br>74                                                                                                                                        | Inhalation: LC <sub>50</sub> mouse 16 900 (10 900—22 900) 2 h; Lim <sub>ac</sub> mouse 69±6.3 40 min (1); Lim <sub>ir</sub> man 60; Lim <sub>ol</sub> 2.3                                                                                                          |
| <b>S-Ethyl-N,N-hexamethylenethiocarbamate</b> (yalan)                                                                                                              | Intragastric: LD <sub>50</sub> mouse 530 (371—683). LD <sub>50</sub> rat 675 (436—878)                                                                                                                                                                             |
|                                                                                   | On skin: LD <sub>50</sub> rat 1167<br>Inhalation: LC rat 200 4 h; LC cat <200 4 h; Lim <sub>ac</sub> rat and cat 6 4 h (34)<br>Disturbs oxidative processes and damages parenchymatous organs<br>Detection: photometry; detection limit 15 µg in analytical volume |
| MAC <sub>wz</sub> 0.5 (v+a), Class II<br>79                                                                                                                        | Intragastric: LD rat <10 000<br>Inhalation: NC mouse 70 000 2 h; LD <sub>50</sub> 250 000 mouse 2 h                                                                                                                                                                |
| <b>2-Ethyl-1-hexane</b><br>CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> C-CH <sub>3</sub><br> <br>C <sub>2</sub> H <sub>5</sub> | Intraabdominal: LD <sub>50</sub> mouse 560 (459—683). LD <sub>50</sub> rat 330 (277—392). LD <sub>50</sub> guinea pig 322 (271—381)                                                                                                                                |
| TSEL <sub>wz</sub> 325<br>405                                                                                                                                      | Affects central nervous system<br>Detection: colorimetry; detection limit 5 µg per 6 ml of analytical volume                                                                                                                                                       |
| <b>Ethyl iodide</b><br>C <sub>2</sub> H <sub>5</sub> I<br>397                                                                                                      | Inhalation: LC <sub>50</sub> mouse 13 800±610 2 h; Lim <sub>ol</sub> man 0.03—0.006                                                                                                                                                                                |
| <b>Ethyl mercaptan</b> (thioethyl alcohol)<br>CH <sub>3</sub> CH <sub>2</sub> SH<br>MAC <sub>wz</sub> 1 (v), Class II<br>39, 463                                   | Affects nervous system<br>Detection: nephelometry; detection limit 5 µg in analytical volume                                                                                                                                                                       |
| <b>Ethyl mercury chloride</b><br>C <sub>2</sub> H <sub>5</sub> HgCl<br>MAC <sub>wz</sub> 0.005 (v+a), Class I<br>463, 549                                          | Intragastric: LD <sub>50</sub> mouse 56, LD <sub>50</sub> rat 105<br>Affects central nervous system, blood vessels and activity of major enzymic systems<br>Detection: colorimetry; detection limit 0.08 µg in analytical volume                                   |
| <b>N-Ethylmorpholine</b><br>                                                    | Intragastric: LD <sub>50</sub> rat 1200<br>Inhalation: LC <sub>50</sub> mouse 18 000 2 h; Lim <sub>ac</sub> rat 90 4 h (1); Lim <sub>ir</sub> man 220                                                                                                              |
| MAC <sub>wz</sub> 5 (v), Class III<br>269                                                                                                                          | Intragastric: LD <sub>50</sub> mouse 750, LD <sub>50</sub> rat 1660, LD <sub>50</sub> cat 112                                                                                                                                                                      |
| <b>S-Ethyl-N,N-propyl thiocarbamate</b> (eptam)                                                                                                                    |                                                                                                                                                                                                                                                                    |

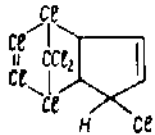
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                     | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                   |
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| $(C_2H_5)_2NCOSC_2H_5$<br>MAC <sub>wz</sub> 2 (v+a), Class III<br>MAC <sub>w</sub> 0.1<br>263, 469                                                                                                    | On skin: LD <sub>50</sub> rat 3200 (2340—4060)<br>Inhalation: LC cat <400 4 h; Lim <sub>ac</sub> cat 70 4 h (35, 36)<br>Detection: photometry; detection limit 5 µg in analytical volume                                                                                                                                                                                      |
| <b>Ethylthioethyl acrylate</b><br>$CH_2=CHCOOCH_2CH_2SC_2H_5$<br>398                                                                                                                                  | Intragastric: LD <sub>50</sub> mouse 1100 (934—1243), LD <sub>50</sub> rat 2500 (2183—2862)                                                                                                                                                                                                                                                                                   |
| <b>Ethylthioethyl methacrylate</b><br>$CH_2=C(CH_3)COOCH_2CH_2SC_2H_5$<br>398                                                                                                                         | Intragastric: LD <sub>50</sub> mouse 6490 (5210—7770), LD <sub>50</sub> rat 7400 (6666—8214)                                                                                                                                                                                                                                                                                  |
| <b>Ethyltoluene</b> (methylethylbenzene)<br><br>MAC <sub>wz</sub> 50 (v), Class IV<br>TSEL <sub>hw</sub> 0.03<br>388 | Inhalation: LD <sub>50</sub> mouse 54 000 4 h, LC <sub>50</sub> cat 50 000 2 h; Lim <sub>ir</sub> cat 10 000 2 h; Lim <sub>ac</sub> rabbit 1000—2000 40 min (2); Lim <sub>ir</sub> man 100 2 min; Lim <sub>air</sub> 30<br>Narcotic; affects hematopoiesis; has irritant properties<br>Detection: chromatography; detection limit 0.2 µg in analytical volume                 |
| <b>Euphylline</b> (double salt of theophylline and ethylenediamine)<br>MAC <sub>wz</sub> 0.5 (a), Class II<br>287                                                                                     | Intragastric: LD <sub>50</sub> mouse 307±21, LD <sub>50</sub> rat 350±19<br>Has irritant properties; damages blood vessels                                                                                                                                                                                                                                                    |
| <b>Extralin</b> (mixture of 88% methylaniline $C_6H_5NHCH_3$ , 7% aniline $C_6H_5NH_2$ and 5% dimethylaniline $C_6H_5N(CH_3)_2$ )<br>MAC <sub>wz</sub> 3 (v), Class III<br>462, 546                   | Inhalation: Lim <sub>ac</sub> rabbit 30—40 40 min (2)<br>On skin: Lim <sub>ac</sub> rabbit 2—3 40 min (2)<br>Methemoglobin former<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                                                                                                        |
| <b>Floromycin</b> (visomycin)<br>$C_{18}H_{31}-32O_8N_9$<br>MAC <sub>wz</sub> 0.1 (a), Class II<br>305                                                                                                | Intragastric: LD <sub>50</sub> mouse 1637<br>Subcutaneous: LD <sub>50</sub> mouse 1183, LD <sub>50</sub> rat 1750<br>Intraabdominal: LD <sub>50</sub> mouse 975, LD <sub>50</sub> rat 1075<br>Intravenous: LD <sub>50</sub> mouse 150<br>On skin: LD rat and rabbit <2000<br>Inhalation: LC rat <62 4 h<br>Detection: colorimetry; detection limit 50 µg in analytical volume |
| <b>Formaldehyde</b> (methanal)<br>                                                                                 | Inhalation: LC <sub>50</sub> mouse 400 2 h; LC <sub>100</sub> cat 400 2 h; Lim <sub>ir</sub> rabbit 290 40 min (28); Lim <sub>ac</sub> rabbit 160 40 min (2); Lim <sub>ir</sub> rabbit 7.5 40 min (7), Lim <sub>ir</sub> man 1 10 min (3,5); Lim <sub>air</sub> 0.07                                                                                                          |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                  | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                 |
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| MAC <sub>wz</sub> 0.5 (v), Class II<br>MAC <sub>hw</sub> 0.035<br>MAC <sub>ad</sub> 0.012<br>MAC <sub>w</sub> 0.01<br>265, 377, 458, 543<br><b>Formal glycol (1,3-dioxalane) +</b> | Has irritant properties; affects central nervous system, kidneys and liver<br>Detection: colorimetry; detection limit 2 µg in analytical volume                                                                                                                                                                                             |
|                                                                                                   | Intragastric: LD <sub>50</sub> mouse 3200 (1830—4983), LD <sub>50</sub> rat 6607 (4931—8853)<br>Inhalation: LC <sub>50</sub> mouse 10 500 (9000—12 400) 2 h, LC <sub>50</sub> rat 20650 (18 400—23 120) 4 h; Lim <sub>ac</sub> rat 3200 4 h (1, 11)<br>Narcotic; has irritant properties                                                    |
| MAC <sub>wz</sub> 50 (v), Class IV<br>449                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                             |
| <b>Formamide</b><br><br>MAC <sub>wz</sub> 3 (v), Class III<br>312, 540                            | Intragastric: LD <sub>50</sub> mouse 3150 (2245—4054), LD <sub>50</sub> rat 5570 (4790—4054)<br>Intraabdominal: LD <sub>50</sub> guinea pig 1250<br>Inhalation: Lim <sub>ac</sub> rat 70 4 h (1, 4)<br>Affects nervous system, parenchymatous organs and blood vessels<br>Detection: colorimetry; detection limit 2 µg in analytical volume |
| <b>Furan</b>                                                                                                                                                                       | Inhalation: LC <sub>50</sub> mouse 300 ± 240; Lim <sub>ac</sub> rat 100 4 h (1)                                                                                                                                                                                                                                                             |
|                                                                                                   | Affects central nervous system and liver<br>Detection: photometry; detection limit 5 µg in analytical volume                                                                                                                                                                                                                                |
| MAC <sub>wz</sub> 0.5 (v), Class II<br>MAC <sub>w</sub> 0.2<br>448, 464                                                                                                            |                                                                                                                                                                                                                                                                                                                                             |
| <b>Furfural (furfural, 2-furanyluran, 2-furylaldehyde)</b>                                                                                                                         | Intragastric: LD <sub>50</sub> mouse 125 ± 7, LD <sub>50</sub> rat 126 ± 2                                                                                                                                                                                                                                                                  |
|                                                                                                 | Inhalation: LC 3000—5000 2 h; Lim <sub>ac</sub> rabbit 200—300 40 min (2); Lim <sub>ic</sub> cat 50 1—2 min (28)                                                                                                                                                                                                                            |
| MAC <sub>wz</sub> 10 (v), Class III<br>MAC <sub>hw</sub> 0.05<br>MAC <sub>ad</sub> 0.05<br>MAC <sub>w</sub> 1<br>218, 225, 461                                                     | Affects nervous system and has irritant properties<br>Detection: colorimetry; detection limit 0.2 µg in analytical volume                                                                                                                                                                                                                   |
| <b>Gardona[trans-isomer-2-chloro-1(2,4,5-trichlorophenyl)vinyl]</b>                                                                                                                | Intragastric: LD <sub>50</sub> mouse 1865, LD <sub>50</sub> rat 2955                                                                                                                                                                                                                                                                        |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                             |

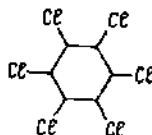
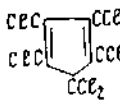
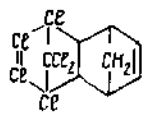
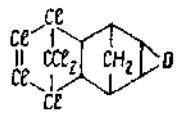
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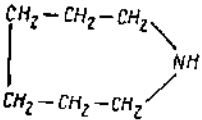
| Substance, MAC or TSEL, Hazard Glass Reference(s)                                                                                                                                                                                                                                                                                                                                                                                        | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Heptyl alcohol</b> (1-heptanol)<br>$\text{CH}_3(\text{CH}_2)_6\text{OH}$<br>MAC <sub>wz</sub> 10 (v), Class III<br>MAC <sub>w</sub> 0.005<br>82, 467                                                                                                                                                                                                                                                                                  | Intragastric: LD <sub>50</sub> mouse 4350±1650<br>Inhalation: LC <sub>50</sub> mouse 6600±2900 2 h<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                                                                                                                                                           |
| <b>Heptyl alcohol, tertiary</b><br>$\text{CH}_3\text{CH}_2\text{CH}_2\text{C}(\text{CH}_3)_2\text{OH}$<br>399                                                                                                                                                                                                                                                                                                                            | Intragastric: LD <sub>50</sub> rat 820 (756—890)                                                                                                                                                                                                                                                                                                                                                  |
| <b>γ-Hexachloran</b> (γ-isomer of hexachlorocyclohexane) <sup>+</sup><br>MAC <sub>wz</sub> 0.05 (v+a), Class I<br>MAC <sub>w</sub> 0.02<br>48                                                                                                                                                                                                                                                                                            | Intragastric: LD <sub>50</sub> mouse 100, LD <sub>50</sub> rat 200, LD <sub>50</sub> cat 25<br>On skin: LD rat 500, LD rabbit 200<br>Detection: photometry; detection limit 5 µg per 5 ml of solution                                                                                                                                                                                             |
| <b>Hexachloroacetone</b><br>$\begin{array}{c} \text{Cl}_3-\text{C}-\text{CCl}_3 \\    \\ \text{O} \end{array}$<br>MAC <sub>wz</sub> 0.5 (v), Class II<br>295, 469                                                                                                                                                                                                                                                                        | Intragastric: LD <sub>50</sub> rat 240<br>Inhalation: LC <sub>50</sub> mouse 920±60 2 h; Lim <sub>ac</sub> mouse 17—20 2 h (f); Lim <sub>ir</sub> man 0.9<br>Narcotic; has irritant properties<br>Detection: photometry; detection limit 0.25 µg in analytical volume                                                                                                                             |
| <b>Hexachlorobenzene<sup>+</sup></b><br>$\begin{array}{c} \text{Cl} \\   \\ \text{Cl}-\text{C}_6\text{H}_2-\text{Cl} \\   \\ \text{Cl} \end{array}$<br>MAC <sub>wz</sub> 0.9 (v+a), Class II<br>MAC <sub>w</sub> 0.05<br>TSEL <sub>hw</sub> 0.013<br>370, 468                                                                                                                                                                            | Intragastric: LD <sub>50</sub> mouse 4000, LD <sub>50</sub> rat 3500, LD <sub>50</sub> rabbit 2600, LD <sub>50</sub> cat 1700<br>Inhalation: LC <sub>50</sub> mouse 4000, LC <sub>50</sub> rat 3600, LC <sub>50</sub> rabbit 1800, LC <sub>50</sub> cat 1600; Lim <sub>ac</sub> rabbit and cat 90<br>Has irritant properties<br>Detection: photometry; detection limit 10 µg in analytical volume |
| <b>1,2,3,4,7,7-Hexachlorobicyclo(2,2,1)-2-heptene-5,6-bisoxymethyl sulfite</b> (thiodan) <sup>+</sup><br>$\begin{array}{c} \text{Cl} \quad \text{CH}_2-\text{O} \\   \quad \quad \quad   \\ \text{Cl}-\text{C}_2-\text{C}_2-\text{C}_2-\text{C}_2-\text{C}_2-\text{C}_2 \\   \quad \quad \quad   \\ \text{Cl} \quad \quad \quad \text{CH}_2-\text{O} \end{array} \quad \text{S}=\text{O}$<br>MAC <sub>wz</sub> 0.1 (v+a), Class I<br>431 | Intragastric: LD <sub>50</sub> mouse 75±10, LD <sub>50</sub> rat 105±14<br>On skin: LD <sub>50</sub> rat 34±3.4<br>Inhalation: LC <sub>50</sub> cat 90 4 h; Lim <sub>ac</sub> cat 8 4 h (4, 27)                                                                                                                                                                                                   |

## Продолжение

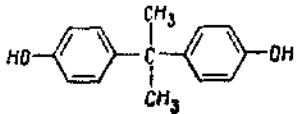
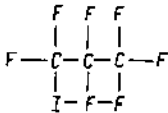
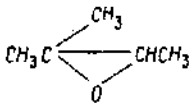
| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                             | Toxicometric Parameters, Test Conditions<br>Action(s), Method (s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MAC <sub>wz</sub> 1 (a), Class II<br>MAC <sub>w</sub> 0.3<br>40                                                                                                  | On skin: LD rat and rabbit <2500<br>Inhalation: LC mouse, rat and cat<br><290 4 h; Lim <sub>ac</sub> rat 98 4 h (24)                                                                                                                                                                                                                                                                                                                                                                                                      |
| Germanium dioxide<br>GeO <sub>2</sub><br>MAC <sub>wz</sub> 2 (a), Class III<br>364, 464                                                                          | Intragastric: LD <sub>50</sub> mouse 1250; Lim <sub>ac</sub><br>mouse 30 (8)<br>Detection: colorimetry; detection limit<br>0.25 µg in analytical volume                                                                                                                                                                                                                                                                                                                                                                   |
| Germanium hydride<br>GeH <sub>4</sub><br>MAC <sub>wz</sub> 5 (v), Class III<br>128                                                                               | Intragastric: LD <sub>50</sub> mouse 1250<br>Inhalation: LC <sub>50</sub> mouse 1380 (1110—1730)<br>2 h; Lim <sub>ac</sub> rat 225 4 h (31, 41)                                                                                                                                                                                                                                                                                                                                                                           |
| Germanium tetrachloride<br>GeCl <sub>4</sub><br>MAC <sub>wz</sub> 1 (a), Class II<br>212, 464                                                                    | Inhalation: LC <sub>50</sub> mouse 44 000 (32 000—<br>54 000) 2 h<br>Detection: colorimetry; detection limit<br>0.25 µg in analytical volume                                                                                                                                                                                                                                                                                                                                                                              |
| Glass-reinforced plastic (maleic<br>acid polyester-based) (MTU-6-11-<br>50-66)<br>MAC <sub>wz</sub> 5 (a), Class III<br>65, 461                                  | Inhalation: Lim <sub>ir</sub> rabbit 100 15 min (7)<br>Detection: weighing method                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Gliftor<br>(mixture of 1,3-difluoro-2-propanol<br>and 1-fluoro-3-chloro-2-propanol)<br>MAC <sub>wz</sub> 0.05 (v), Class I<br>MAC <sub>w</sub> 0.006<br>469, 475 | Intragastric: LD <sub>50</sub> mouse 165±16, LD <sub>50</sub><br>rat 96±13, LD <sub>50</sub> rabbit 7.6±1.8<br>On skin: LD <sub>50</sub> rat 66±10; Lim <sub>ac</sub> rat<br>10 (11)<br>Inhalation: LC <sub>50</sub> mouse 1260±150 2 h,<br>LC <sub>50</sub> rat 580±65 4 h; Lim <sub>ac</sub> rat 50 4 h<br>(1, 37)<br>Detection: colorimetry; detection limit<br>1 µg in analytical volume<br>Intragastric: LD <sub>50</sub> rat 714 (637—792)<br>Detection: colorimetry; detection limit<br>10 µg in analytical volume |
| Glycidyl methacrylate<br>CH <sub>2</sub> -C(CH <sub>3</sub> )COOCH <sub>2</sub> CH—CH <sub>2</sub><br>398                                                        | Intragastric: LD <sub>50</sub> rat 2362<br>Detection: chromatography                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Hafnium chloride<br>HfCl <sub>4</sub><br>425                                                                                                                     | Intragastric: LD <sub>50</sub> mouse 180, LD <sub>50</sub> rat<br>350, LD <sub>50</sub> cat 67 <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                               |
| 1,4,5,6,7,8-Heptachloro-4,7-endo-<br>methylene-3a,7a-tetrahydroindene<br>(heptachlor)                                                                            | On skin: LD <sub>50</sub> rabbit 500 <sup>1</sup> , LD <sub>50</sub> guinea<br>pig 627 <sup>1</sup><br>Inhalation: LC cat 150 4 h; Lim <sub>ac</sub> cat<br>0.5—2 4 h (4, 22)<br>Detection: colorimetry, detection limit<br>4 µg per 1 ml of analytical volume; gas-<br>liquid chromatography                                                                                                                                                                                                                             |
| <br>MAC <sub>wz</sub> 0.01 (v), Class I<br>MAC <sub>w</sub> 0.05<br>289, 292  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

<sup>1</sup> Technical-grade product

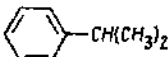
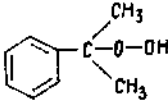
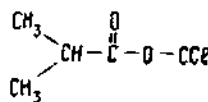
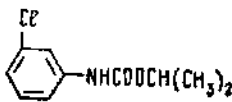
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                   | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                              |
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| <b>1,2,3,4,5,6-Hexachlorocyclohexane</b><br>(mixture of stereoisomers)+<br><br>MAC <sub>wz</sub> 0.1 (v+a), Class I<br>MAC <sub>hw</sub> 0.03<br>MAC <sub>nd</sub> 0.03<br>48                      | Intragastric: LD <sub>50</sub> mouse 500, LD <sub>50</sub> rat 400; LD cat 300<br>On skin: LD rabbit <1000, LD rat <5000<br>Inhalation: LC cat 20 6 h<br>Detection: colorimetry; detection limit 0.1 µg in analytical volume                                                                                                             |
| <b>Hexachlorocyclopentadiene+</b><br><br>MAC <sub>wz</sub> 0.01 (v), Class I<br>MAC <sub>w</sub> 0.001<br>296, 464                                                                                 | Intragastric: LD <sub>50</sub> rat 200<br>On skin: LD rabbit <300<br>Inhalation: LC <sub>50</sub> rat 23 2 h; LC <sub>100</sub> rat 30 4 h<br>Affects nervous system; has irritant properties<br>Detection: colorimetry, detection limit 0.5 µg in analytical volume; photometry, detection limit 0.1 µg in analytical volume            |
| <b>1,2,3,4,10-Hexachloro-1,4,5,8-dien-<br/>do-methylene-1,4,4a,5,8,8a-hexa-<br/>hydronaphthalene (aldrin)+</b><br><br>MAC <sub>wz</sub> 0.01 (v+a), Class I<br>MAC <sub>w</sub> 0.002<br>431, 464 | Intragastric: LD <sub>50</sub> mouse 18±3, LD <sub>50</sub> rat 42±3; Lim <sub>ac</sub> rat 10<br>Subcutaneous: LD rabbit 100; LD <sub>50</sub> rat 62±27<br>Inhalation: LC rat 5.8±2 4 h<br>Affects nervous system, liver and kidneys<br>Detection: colorimetry, detection limit 0.1 µg in analytical volume; gas-liquid chromatography |
| <b>1,3,4,10,10-Hexachloro-6,7-epoxy-<br/>1,4,5,8-di-endomethylene-1,4,4a,5,-<br/>8,8a-hexahydronaphthalene (dieldrin)+</b><br><br>MAC <sub>wz</sub> 0.01 (v+a), Class I<br>431, 464              | Intragastric: LD <sub>50</sub> mouse 24±3.5, LD <sub>50</sub> rat 40±3.1<br>Subcutaneous: LD rabbit 150; LD <sub>50</sub> rat 49±8<br>Inhalation: CL <sub>50</sub> rat 13±5 4 h<br>Detection: colorimetry; detection limit 0.1 µg in analytical volume; gas-liquid chromatography                                                        |

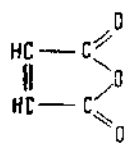
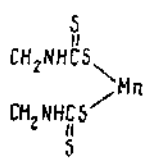
| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                                    | Toxicometric Parameters, Test Conditions,<br>Action (s), Method (s) of Detection                                                                                                                                                                                                                                                           |
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| <b>Hexafluoropropylene</b><br>$\text{CF}_2=\text{CFCl}_3$<br>MAC <sub>wz</sub> 5 (v), Class III<br>417, 468                                                                                             | Inhalation: LC <sub>50</sub> mouse 9300 (1600—13 000), 2 h, LC <sub>50</sub> rat 56 000 (40 400—79 200), 1 h, LC <sub>50</sub> rat 27 400 (21 400—35 000), 2 h, LC <sub>50</sub> rat 11 200 (9900—12 600), 4 h; Lim <sub>ac</sub> rat 920 610—1380), 4 h (1)<br>Detection: photometry; detection limit 1.4 µg in analytical volume         |
| <b>Hexamethylene diamine</b><br>$\text{NH}_2(\text{CH}_2)_6\text{NH}_2$<br>MAC <sub>wz</sub> 1 (v), Class II<br>MAC <sub>hw</sub> 0.001<br>MAC <sub>ad</sub> 0.001<br>MAC <sub>w</sub> 0.01<br>254, 464 | Subcutaneous: LD <sub>50</sub> mouse 1300<br>Inhalation: LC mouse <300<br>Has irritant properties<br>Detection: colorimetry; detection limit 2.5 µg in analytical volume                                                                                                                                                                   |
| <b>Hexamethylene diisocyanate+</b><br>$\text{O}=\text{C}=\text{N}(\text{CH}_2)_6\text{N}=\text{C}=\text{O}$<br>MAC <sub>wz</sub> 0.05 (v), Class I<br>237, 464                                          | Inhalation: LC <sub>50</sub> mouse 30 (14—46)<br>Limit <sub>r</sub> rabbit 2.9; Lim <sub>ac</sub> mouse 1 2 h (1)<br>Detection: photometry; detection limit 0.5 µg in analytical volume                                                                                                                                                    |
| <b>N,N-Hexamethylene dimaleimide</b><br>148                                                                                                                                                             | Intragastric: LD <sub>50</sub> mouse 215, LD <sub>50</sub> rat 550                                                                                                                                                                                                                                                                         |
| <b>Hexamethylenimine+</b><br>                                                                                          | Intragastric: 18% solution; LD <sub>50</sub> rat 360 (320—417)<br>On skin: LT <sub>50</sub> mouse 128 (90—180)<br>Inhalation: LC <sub>50</sub> mouse 10 800 (6500—17 800), 2 h; Lim <sub>ac</sub> rat 90 4 h (1); Limit <sub>r</sub> man 7<br>Has irritant properties<br>Detection: colorimetry; detection limit 5 µg in analytical volume |
| <b>Hexanitrodiphenyl sulfide</b><br>$[(\text{NO}_2)_2\text{C}_6\text{H}_4]_2\text{S}$<br>473                                                                                                            | Intragastric: LD <sub>50</sub> mouse 470; LD <sub>50</sub> rat 1200                                                                                                                                                                                                                                                                        |
| <b>Hexyl alcohol (1-hexanol)</b><br>$\text{CH}_3(\text{CH}_2)_5\text{OH}$<br>MAC <sub>wz</sub> 10 (v), Class III<br>467, 539                                                                            | Intragastric: LD <sub>50</sub> mouse 4000<br>Inhalation: LC rat <180—350 2 h<br>Detection: chromatography; detection limit 1 µg in analytical volume                                                                                                                                                                                       |
| <b>Hexyl alcohol, tertiary</b><br>$\text{CH}_3(\text{CH}_2)_3\text{C}(\text{CH}_3)_2\text{OH}$<br>399                                                                                                   | Intragastric: LD <sub>50</sub> mouse 350 (280—423), LD <sub>50</sub> rat 500 (400—625)                                                                                                                                                                                                                                                     |
| <b>Hydrazine+</b><br>$\text{H}_2\text{N}\cdot\text{NH}_2$<br>MAC <sub>wz</sub> 0.1 (v), Class I<br>MAC <sub>w</sub> 0.01<br>199, 464                                                                    | Intragastric: LD <sub>50</sub> mouse 80<br>Inhalation: LC <sub>50</sub> mouse and rat LC 1000—2000 2 h, LC mouse and rat <500—800 2 h<br>Detection: colorimetry; detection limit 0.1 µg in analytical volume                                                                                                                               |

| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                                      | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                   |
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| <b>Hydrogen arsenide (arsine)</b><br>$\text{AsH}_3$<br>MAC <sub>wz</sub> 0.1 (v), Class II<br>239, 345, 461                                                                                               | Inhalation: LC cat 700 15 min; LC <sub>100</sub> rabbit and rat 400—500 15 min<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume                                                                                                                                                                                                                                            |
| <b>Hydrogen bromide</b><br>$\text{HBr}$<br>534                                                                                                                                                            | Intraabdominal: LD <sub>50</sub> rat 76 (71—81)                                                                                                                                                                                                                                                                                                                                                  |
| <b>Hydrogen chloride</b><br>$\text{HCl}$<br>MAC <sub>wz</sub> 5 (v), Class II<br>15, 464                                                                                                                  | Inhalation: LC <sub>50</sub> mouse 2350 2 h<br>Has irritant properties<br>Detection: colorimetry; detection limit 3 µg in analytical volume                                                                                                                                                                                                                                                      |
| <b>Hydrogen cyanide+</b><br>$\text{HCN}$<br>MAC <sub>wz</sub> 0.3 (v), Class II<br>556                                                                                                                    | Inhalation: LC <sub>100</sub> rabbit 400 4—5 min, LC <sub>100</sub> cat 200 4—5 min, LC <sub>100</sub> dog 300 4—5 min, LC man 400—700 2—5 min<br>Blocks tissue respiration                                                                                                                                                                                                                      |
| <b>Hydrogen fluoride</b><br>$\text{HF}$<br>MAC <sub>wz</sub> * 0.5 (v), Class II<br>112, 353                                                                                                              | Inhalation: Lim <sub>1r</sub> man 0.52; Lim <sub>01r</sub> 0.03                                                                                                                                                                                                                                                                                                                                  |
| <b>Hydrogen phosphide</b><br>$\text{PH}_3$<br>MAC <sub>wz</sub> 0.1 (v), Class I<br>97, 464                                                                                                               | Inhalation: LC mouse 380 2 h 20 min, LC rat, rabbit and guinea pig 140—280 4 h, LC cat 70 1 h 45 min<br>Affects central nervous system, lungs, liver, kidneys and blood vessels<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume                                                                                                                                           |
| <b>Hydrogen sulfide+</b><br>$\text{H}_2\text{S}$<br>MAC <sub>wz</sub> 10 (v), Class II<br>MAC <sub>hw</sub> 0.008<br>MAC <sub>ad</sub> 0.008<br>96, 458                                                   | Inhalation: LC <sub>50</sub> mouse 1200 (1080—1300) 2 h; Lim <sub>46</sub> rabbit 60 40 min (2)<br>Affects central nervous system; has irritant properties<br>Detection: colorimetry detection limit 2 µg in analytical volume                                                                                                                                                                   |
| <b>Hydrogen sulfide, mixture with C<sub>1</sub>—C<sub>5</sub> hydrocarbons</b> (hydrogen sulfide concentration in the mixture is 700 mg/m <sup>3</sup> )<br>MAC <sub>wz</sub> 3 (v), Class III<br>94, 460 | Inhalation of butane: CL <sub>50</sub> mouse 410 000 (350 000—479 000) 2 h<br>Inhalation of ethylene: LC <sub>50</sub> mouse 210 000 (139 000—319 000) 2 h<br>Inhalation of propylene: LC <sub>50</sub> mouse 165 000 (123 000—221 000) 2 h<br>Inhalation of butylene: LC <sub>50</sub> mouse 145 000 (111 000—188 000) 2 h<br>Detection: colorimetry; detection limit 1 µg in analytical volume |
| <b>β-Hydroxyethyl mercaptan+</b><br>$\text{SHCH}_2\text{CH}_2\text{OH}$<br>MAC <sub>wz</sub> 1 (v), Class II<br>334                                                                                       | Intragastric: LD <sub>50</sub> mouse 190 (164—239), LD <sub>50</sub> rat 224 (185—258)<br>On skin: LT <sub>50</sub> mouse 18 (15—20)<br>Inhalation: LC <sub>50</sub> mouse 13 200 (10 800—15 500) 2 h; Lim <sub>ac</sub> rat 10 4 h (1, 12)                                                                                                                                                      |

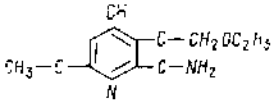
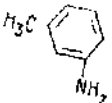
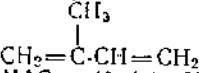
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                           | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                            |
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| <b>p-Hydroxydiphenylamine</b><br>$C_{12}H_9NHOH$<br>MAC <sub>wz</sub> 0.5 (v), Class II<br>467, 527                                                                                         | Intragastric: LD <sub>50</sub> mouse 2310 (1820—2800), LD <sub>50</sub> rat 3130 (2880—3880)<br>Inhalation: Limit rabbit 10±0.7 15 min (7); Lim <sub>ac</sub> rat 2.8±0.3 4 h (16)<br>Detection: polarography; detection limit 1 µg/ml |
| <b>Hydroxyethylated tetraalkylphosphonate pentaerythritol (phosteroil)</b><br>$C \begin{array}{c}   \\ CH_2O-P-R \\   \\ O(CH_2CH_2O)_n \cdot H \end{array} \cdot n$ Where n=1.5—2.0<br>146 | Intragastric: LD <sub>50</sub> mouse 33 300±3022                                                                                                                                                                                       |
| <b>2,2-Di(4-hydroxyphenyl)propane</b><br>(diphenylpropane)<br>                                             | Intragastric: LD <sub>50</sub> mouse 2500<br>Inhalation: LC mouse <500—1700 2 h<br>Has irritant properties; affects liver and kidneys<br>Detection: colorimetry; detection limit 2 µg in analytical volume                             |
| MAC <sub>wz</sub> 5 (a), Class III<br>37, 402, 462                                                                                                                                          | Inhalation: LC rat 800—1200 1 h<br>Has irritant properties<br>Detection: colorimetry; detection limit 10 µg in analytical volume                                                                                                       |
| <b>Iodine</b><br>I <sub>2</sub><br>MAC <sub>wz</sub> 1 (v), Class II<br>26, 45                                                                                                              | Inhalation: LC <sub>50</sub> mouse 404 000 2 h; Lim <sub>ac</sub> mouse and rat 140 000 2 h and 4 h (1)                                                                                                                                |
| <b>1-Iodoheptafluoropropane</b><br>                                                                      | Detection: thermal degradation in a quartz tube; detection limit 0.002 mg per 5 ml of solution                                                                                                                                         |
| MAC <sub>wz</sub> 1000 (v), Class IV<br>312                                                                                                                                                 | Intragastric: LD <sub>50</sub> mouse 2600 (2501—2699), LD <sub>50</sub> rat 2650 (2495—2805)<br>Intraabdominal: LD <sub>50</sub> mouse 1607 (1508—1706), LD <sub>50</sub> rat 1400 (1301—1499)                                         |
| <b>Isoamylene oxide</b><br>                                                                              | Intraabdominal: LD <sub>50</sub> mouse 13 750, LD <sub>50</sub> rat 6150<br>Detection: colorimetry                                                                                                                                     |
| 44<br><b>Isoamyl bromide</b><br>$(CH_3)_2CHCH_2CH_2Br$<br>45, 174                                                                                                                           |                                                                                                                                                                                                                                        |



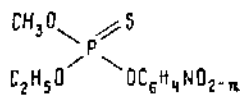
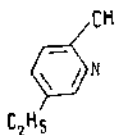
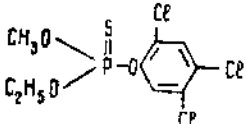
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                              | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                    |
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| <b>Isopropylbenzene (cumol)</b><br><br>MAC <sub>wz</sub> 50 (v), Class IV<br>MAC <sub>hw</sub> 0.014<br>MAC <sub>ad</sub> 0.014<br>MAC <sub>w</sub> 0.1<br>61                 | Inhalation: LC <sub>50</sub> mouse 24 700 (15 300—39 500) 2 h; NC <sub>50</sub> mouse 11 500 (5150—25 600) 2 h; Lim <sub>ac</sub> rabbit 500—1000 40 min (2)<br>Narcotic<br>Detection: gas chromatography; detection limit 0.1 µg in analytical volume                                         |
| <b>Isopropylbenzene hydroperoxide</b><br><br>MAC <sub>wz</sub> 1 (v), Class II<br>MAC <sub>hw</sub> 0.007<br>MAC <sub>ad</sub> 0.007<br>MAC <sub>w</sub> 0.5<br>311, 418, 420 | Intragastric: LD <sub>50</sub> mouse 342<br>Subcutaneous: LD <sub>50</sub> mouse 490<br>Intraabdominal: LD <sub>50</sub> mouse 270±38, LD <sub>50</sub> rat 235±30<br>Inhalation: LC mouse <100 2 h<br>Has irritant properties<br>Detection: photometry; detection limit 0.5 mg/m <sup>3</sup> |
| <b>Isopropyl chlorocarbonate (isopropylchloroformate)</b><br><br>MAC <sub>wz</sub> 0.1 (v), Class I<br>153, 466                                                               | Intragastric: LD <sub>50</sub> mouse 558<br>On skin: LD rabbit <20<br>Inhalation: LC <sub>50</sub> mouse 230 (190—270); Lim <sub>ac</sub> mouse 40 min (1)<br>Has irritant properties<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                     |
| <b>Isopropyl-N-(3-chlorophenyl)carbamate</b><br><br>MAC <sub>wz</sub> 2 (v+a), Class III<br>177, 469                                                                        | Intragastric: LD <sub>50</sub> mouse 3200±529, LD <sub>50</sub> mouse 2925±421, LD <sub>50</sub> rat 3695±434<br>Inhalation: LC mouse <64 6 h<br>Detection: colorimetry; detection limit 10 µg in analytical volume                                                                            |
| <b>Isopropyl iodide (2-iodopropane)</b><br>(CH <sub>3</sub> ) <sub>2</sub> CHI<br>45, 397                                                                                                                                                                      | Intraabdominal: LD <sub>50</sub> mouse 1300 (986—1614), LD <sub>50</sub> rat 1850 (1707—1993)<br>Detection: colorimetry; detection limit 5 µg per 6 ml of analytical volume                                                                                                                    |
| <b>Isopropyl nitrate</b><br>(CH <sub>3</sub> ) <sub>2</sub> CHONO <sub>2</sub><br>MAC <sub>wz</sub> 5 (v), Class III<br>363, 462                                                                                                                               | Inhalation: LC <sub>50</sub> mouse 65 000 2 h; Lim <sub>ac</sub> rat 5 2 h (4)<br>Narcotic; has irritant properties<br>Detection: colorimetry; detection limit 20 µg in analytical volume                                                                                                      |

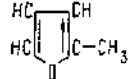
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                    | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                               |
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| <b>Isopropyl nitrite</b><br>$(\text{CH}_3)_2\text{CHONO}$<br>MAC <sub>wz</sub> 1 (v), Class II<br>462, 469                                                                                                           | Inhalation: LC <sub>50</sub> mouse 2800 (2490—3210) 2 h, LC <sub>50</sub> 2900 (2090—3710) 2 h, LC <sub>50</sub> rat 1250 (1210—1290) 4 h; Lim <sub>ac</sub> rat 300 4 h (16)                                                                                                                                                                                                                                                                             |
| <b>Isopropyl N-phenylcarbamate</b><br>$(\text{CH}_3)_2\text{CHOCONHC}_6\text{H}_5$<br>MAC <sub>wz</sub> 2 (v+a), Class III<br>MAC <sub>w</sub> 0.2<br>177                                                            | Intragastric: LD <sub>50</sub> mouse 2160±330, LD <sub>50</sub> rat 2780±313<br>On skin: LD rabbit <5000<br>Inhalation: LC rat <55 6 h<br>Detection: chromatography; detection limit 10 µg in analytical volume                                                                                                                                                                                                                                           |
| <b>Maleic anhydride</b><br><br>MAC <sub>wz</sub> 1 (v+a), Class II<br>MAC <sub>hw</sub> 0.2<br>MAC <sub>ad</sub> 0.05<br>55, 465    | Intragastric: LD <sub>50</sub> mouse 465 (428—503), LD <sub>50</sub> rat 625±53, LD <sub>50</sub> guinea pig 390, LD <sub>50</sub> rabbit 875<br>Intraabdominal: LD <sub>50</sub> rat 97±7<br>Inhalation: Lim <sub>ac</sub> rat 47 4 h (1, 11, 21); Lim <sub>ir</sub> rabbit 10—12 1 h (7), Lim <sub>ir</sub> man 5 15 min, Lim <sub>ir</sub> man 1.2±0.1<br>Has irritant properties<br>Detection: photometry; detection limit 20 µg in analytical volume |
| <b>N-Maleimide</b><br>148                                                                                                                                                                                            | Intragastric: LD <sub>50</sub> mouse 80                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Manganese, cyclopentadienyl tri-carbonyl</b><br>$\text{C}_5\text{H}_5\text{Mn}(\text{CO})_3$<br>MAC <sub>wz</sub> 0.1 (v), Class I<br>13, 464                                                                     | Intragastric: LD <sub>50</sub> rat 80<br>Inhalation: LC <sub>50</sub> rat 120 2 h<br>Detection: colorimetry; detection limit 10 µg in analytical volume                                                                                                                                                                                                                                                                                                   |
| <b>Manganese, ethylene-1,2-bis-dithiocarbamate (maneb)</b><br><br>MAC <sub>wz</sub> 0.5 (a), Class II<br>258, 469                 | Intragastric: LD <sub>50</sub> mouse 2600 (1795—3445), LD <sub>50</sub> rat 3000 (2063—3937)<br>On skin: LD rat <2000, LD rabbit <2000<br>Inhalation: LC cat and rat <700; Lim <sub>ac</sub> rat and cat 15 4 h (27, 35)<br>Affects central nervous system<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                                                           |
| <b>β-Mercaptoethylcapronate</b><br>$\text{C}_6\text{H}_{13}\text{C}_2\text{SH}$<br>TSEL <sub>wz</sub> 0.5<br>459                                                                                                     | Intraabdominal: LD <sub>50</sub> rat 180<br>Inhalation: Lim <sub>ac</sub> mouse 40 2 h (1); Lin <sub>air</sub> man 0.5                                                                                                                                                                                                                                                                                                                                    |
| <b>Mercuran+</b><br>(mixture of ethylmercuriochloride $\text{C}_2\text{H}_5\text{Hg}$ and γ-isomer of hexachlorocyclohexane $\text{C}_6\text{H}_9\text{Cl}_6$ )<br>MAC <sub>wz</sub> 0.005 (v+a), Class I<br>26, 463 | Intragastric: LD <sub>50</sub> mouse 137, LD <sub>50</sub> rat 207, LD <sub>50</sub> rabbit 95<br>Detection: colorimetry; detection limit 0.08 µg in analytical volume                                                                                                                                                                                                                                                                                    |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                                                                                       | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                |
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| <b>Mercury bichloride</b><br>$\text{HgCl}_2$<br>MAC <sub>wz</sub> 0.1 (a), Class I<br>372, 463                                                                                                                                                                                                                                                          | Intragastric: LD <sub>50</sub> mouse 17.5±2, LD <sub>50</sub> rat 80±13.6<br>Affects kidneys and liver<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume                                                                                                                              |
| <b>Mesityl oxide</b> (4-methyl-3-pentene-2-one, isopropylidenacetone)+<br>$\text{CH}_3\text{C}(\text{CH}_3)=\text{C}(\text{CH}_3)\text{CH}_3$<br>$\begin{array}{c} \text{O} \quad \text{CH}_3 \\    \quad   \\ \text{C} \quad \text{C} \\ / \quad \backslash \\ \text{CH}_3 \quad \text{CH}_3 \end{array}$<br>MAC <sub>wz</sub> 1 (v), Class III<br>465 | Intragastric: LD <sub>50</sub> mouse 710±85<br>Inhalation: LC <sub>50</sub> mouse 10 000±270 2 h, LC <sub>50</sub> rat 9000±600 4 h; Lim <sub>ac</sub> rabbit 60 40 min (2), Lim <sub>ac</sub> rabbit 50 40 min (7)<br>Detection: photometry; detection limit 1 µg in analytical volume                    |
| <b>Methacryl chloride</b><br>$\text{CH}_2=\text{C}(\text{CH}_3)\text{COCl}$<br>MAC <sub>wz</sub> 0.3 (v), Class II<br>14, 468                                                                                                                                                                                                                           | Inhalation: LC <sub>50</sub> mouse 115 (99—133) 2 h, LC <sub>50</sub> rat 60 4 h; Lim <sub>ac</sub> mouse 4.1 2 h (1); Lim <sub>ir</sub> man 3.8<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                      |
| <b>Methacrylic acid</b><br>$\text{CH}_2=\text{C}(\text{CH}_3)\text{COOH}$<br>MAC <sub>wz</sub> 10 (v), Class III<br>MAC <sub>w</sub> 1<br>19, 465                                                                                                                                                                                                       | Intragastric: LD <sub>50</sub> rat 60<br>Inhalation: Lim <sub>ac</sub> mouse 250 (1); Lim <sub>ir</sub> cat 170—200<br>Has local cauterizing action<br>Detection: colorimetry; detection limit 1 µg per 2 ml of analytical volume                                                                          |
| <b>Methacrylic acid anhydride</b><br>$\begin{array}{c} \text{CH}_3 \quad \text{O} \\   \quad // \\ \text{H}_2\text{C}=\text{C}-\text{C} \\ \backslash \quad // \\ \text{H}_2\text{C}=\text{C}-\text{C} \\   \quad \backslash \\ \text{CH}_3 \quad \text{O} \end{array}$<br>MAC <sub>wz</sub> 1 (v), Class II<br>14, 468                                 | Inhalation: LC <sub>50</sub> mouse 450 (410—490) 2 h; Lim <sub>ac</sub> mouse 9.8 2 h (1); Lim <sub>ir</sub> man 6, Lim <sub>olr</sub> man 2<br>Has local cauterizing action<br>Detection: photometry; detection limit 2 µg in analytical volume                                                           |
| <b>Methyl acrylate</b><br>$\text{CH}_2=\text{CHCOOCH}_3$<br>MAC <sub>wz</sub> 20 (v), Class IV<br>MAC <sub>w</sub> 0.02<br>143, 459                                                                                                                                                                                                                     | Inhalation: LC mouse 9300; Lim <sub>ir</sub> cat 1300—1500; Lim <sub>ac</sub> rabbit 130—150 40 min (2); Lim <sub>ir</sub> man 250—500; Lim <sub>olr</sub> 130<br>Narcotic with systemic toxic and strongly marked irritant actions<br>Detection: colorimetry; detection limit 2.5 µg in analytical volume |
| <b>Methyl alcohol</b> (methanol)+<br>$\text{CH}_3\text{OH}$<br>MAC <sub>wz</sub> 5 (v), Class III<br>MAC <sub>hw</sub> 1<br>MAC <sub>ad</sub> 0.5<br>MAC <sub>w</sub> 3<br>244, 467                                                                                                                                                                     | Inhalation: LC mouse 50 000—60 000 2 h; Lim <sub>ac</sub> rabbit 2500—5000 40 min (2)<br>Affects nervous and vascular systems, optic nerve and retina, as well as respiratory and ocular mucous membranes<br>Detection: chromatography; detection limit 1 µg in analytical volume                          |

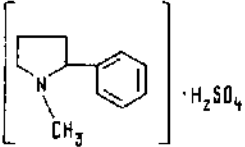
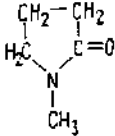
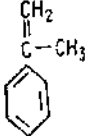
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                               | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                        |
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| <b>Methylamine</b><br>$\text{CH}_3\text{NH}_2$<br>MAC <sub>wz</sub> 1 (v), Class II<br>MAC <sub>w</sub> 1<br>117, 463                                                                                                           | Inhalation: $\text{CL}_{50}$ mouse 2400 2 h; $\text{Lim}_{ir}$ cat 200 30 min (28), $\text{Lim}_{ir}$ rabbit 130 40 min (7), $\text{Lim}_{ir}$ man 10; $\text{Lim}_{oir}$ 1<br>Has irritant properties<br>Detection: photometry; detection limit 1 $\mu\text{g}$ in analytical volume                                                                                                                                                                              |
| <b>2-Methyl-4-amino-5-ethoxymethyl-pyrimidine (aminopyrimidine)</b><br><br>MAC <sub>wz</sub> 1 (v+a), Class II<br>62                           | Intragastric: $\text{LD}_{50}$ mouse 239 (198—279), $\text{LD}_{50}$ rat 1450 (1283—1617)<br>Inhalation: LC mouse and rat <77 4 h; $\text{Lim}_{oe}$ rat 62 4 h (1), $\text{Lim}_{oe}$ rat 22 4 h (32)                                                                                                                                                                                                                                                             |
| <b>m-Methylaniline (m-toluidine)</b><br><br>MAC <sub>wz</sub> 3 (v), Class III<br>MAC <sub>hw</sub> 0.04<br>MAC <sub>hd</sub> 0.04<br>412, 545 | On skin: $\text{Lim}_{oe}$ rabbit 2—4 (2)<br>Inhalation: $\text{Lim}_{oe}$ rabbit 40 40 min (2)<br>Methemoglobin former<br>Detection: colorimetry; detection limit 2 $\text{mg}/\text{m}^3$                                                                                                                                                                                                                                                                        |
| <b>Methyl bromide (bromomethyl, bromomethane)</b><br>$\text{CH}_3\text{Br}$<br>MAC <sub>wz</sub> 1 (v), Class I<br>25, 466                                                                                                      | Inhalation: $\text{LC}_{50}$ mouse 1540 2 h, $\text{LC}_{50}$ rat 2250 2 h; $\text{Lim}_{oe}$ rabbit 70 40 min (2)<br>Affects central nervous system; has irritant properties<br>Detection: photometry; detection limit 0.3 $\mu\text{g}$ in analytical volume                                                                                                                                                                                                     |
| <b>2-Methyl-1,3-butadiene (isoprene)</b><br><br>MAC <sub>wz</sub> 40 (v), Class IV<br>MAC <sub>w</sub> 0.005<br>120, 465                     | Inhalation: $\text{LC}_{50}$ mouse 150 000 2 h; $\text{NC}_{50}$ mouse 100 000 2 h; $\text{Lim}_{oe}$ rabbit 4100 40 min (2), $\text{Lim}_{oe}$ mouse 2200 40 min (1), $\text{Lim}_{oe}$ cat 400 1 h (4), $\text{Lim}_{oe}$ rat 300—500 1 h (1), $\text{Lim}_{oe}$ rabbit 190—750 40 min (7); $\text{Lim}_{ir}$ man 160; $\text{Lim}_{oir}$ 10<br>Narcotic; has irritant properties<br>Detection: photometry; detection limit 3 $\mu\text{g}$ in analytical volume |
| <b>Methyl butyrate</b><br>$\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-COOCH}_3$<br>MAC <sub>wz</sub> 5 (v), Class III<br>217, 461                                                                                                | Inhalation: $\text{LC}_{50}$ mouse $18\,000 \pm 1600$ 2 h; $\text{Lim}_{oe}$ rat 87 4 h (1); $\text{Lim}_{ir}$ man 70<br>Detection: colorimetry; detection limit 10 $\mu\text{g}$ in analytical volume                                                                                                                                                                                                                                                             |

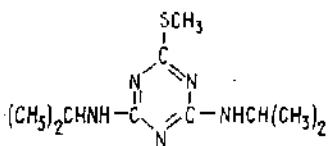
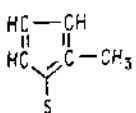
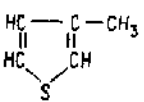
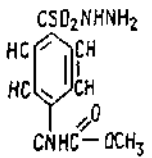
| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                                                                                              | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                              |
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| <b>Methyl caproate</b> <sup>+</sup><br>$C_6H_{11}COOCH_3$<br>MAC <sub>wz</sub> 1 (v), Class III<br>217, 461                                                                                                                                                       | Inhalation: LC <sub>50</sub> mouse 14 000 2 h;<br>Lim <sub>ac</sub> rat 80 4 h (1)<br>Detection: colorimetry; detection limit<br>10 µg in analytical volume                                                                                                                                 |
| <b>Methyl chloride</b> (chloromethane)<br>$CH_3Cl$<br>MAC <sub>wz</sub> 5 (v), Class II<br>88, 466                                                                                                                                                                | Inhalation: LC <sub>50</sub> rat 5300 (4454—6307)<br>4 h; Lim <sub>ac</sub> rat 230 4 h (4)<br>Affects central nervous system<br>Detection: colorimetry; detection limit<br>1 µg in analytical volume                                                                                       |
| <b>Methyl chloroacetate</b><br>$CH_2ClCOOCH_3$<br>MAC <sub>wz</sub> 5 (v), Class III<br>461                                                                                                                                                                       | Intragastric: LD <sub>50</sub> mouse 240 (220—259)<br>Subcutaneous: LD <sub>50</sub> rat 560<br>Inhalation: LC <sub>50</sub> mouse 1000 (700—<br>1450) 2 h; Lim <sub>ac</sub> rat 24 4 h (1)<br>Detection: colorimetry; detection limit<br>10 µg in analytical volume                       |
| <b>Methylchloroform</b> (1,1,1-trichloro-<br>ethane)<br>$\begin{array}{c} H\ Cl \\   \quad   \\ H-C-C-Cl \\   \quad   \\ H\ Cl \end{array}$<br>MAC <sub>wz</sub> 20 (v), Class IV<br>340, 492                                                                     | Intragastric: LD rat <5000, LD mouse<br><5000<br>Inhalation: LC <sub>50</sub> rat 31 000 4 h; LC <sub>100</sub><br>mouse 24 000 60 min; Lim <sub>ac</sub> rat 980<br>4 h (4)<br>Narcotic; damages internal organs<br>Detection: colorimetry; detection limit<br>0.5 µg in analytical volume |
| <b>Methylcyclohexane</b><br>$\begin{array}{c} CH_2 \quad CH_2 \\ \diagup \quad \diagdown \\ H_2C \quad CH_2 \\ \diagdown \quad \diagup \\ CH_2 \quad CH \\   \\ CH_3 \end{array}$<br>MAC <sub>wz</sub> 50 (v), Class IV<br>213                                    | Intragastric: LD <sub>50</sub> mouse 2250 (1200<br>3900)<br>Inhalation: LC <sub>50</sub> mouse 41 500 (38 900—<br>45 200) 2 h; Lim <sub>ac</sub> rat 500 4 h (1)<br>Narcotic; irritates respiratory and ocular<br>mucous membranes                                                          |
| <b>4-Methyl-5,6-dihydro-α-pyran</b> (me-<br>thylidihydropyran) <sup>+</sup><br>$\begin{array}{c} CH_2 \quad CH_2 \\ \diagup \quad \diagdown \\ O \quad C-CH_3 \\ \diagdown \quad \diagup \\ CH_2 \quad CH \end{array}$<br>MAC <sub>wz</sub> (v), Class III<br>421 | Intragastric: LD <sub>50</sub> mouse 1950±75<br>Inhalation: LC <sub>50</sub> mouse 6500±3000 2 h;<br>Lim <sub>ac</sub> rat 120 (1), Lim <sub>ac</sub> rabbit 30—60<br>(7); Lim <sub>ir</sub> man 150; Lim <sub>oit</sub> 15<br>Affects cerebral cortex, autonomous cen-<br>tres and kidneys |
| <b>2-Methyl-1,3-dioxolane</b> (acetal)<br>$\begin{array}{c} CH_3CH \\ \diagup \quad \diagdown \\ OCH_2CH_3 \\ \diagdown \quad \diagup \\ OCH_2CH_3 \end{array}$<br>TSEL <sub>wz</sub> 30<br>346                                                                   | Intragastric: LD <sub>50</sub> mouse 3500±16, LD <sub>50</sub><br>rat 4700±22<br>Inhalation: CL <sub>50</sub> mouse 59 000±6600 2 h,<br>LC <sub>50</sub> rat 80 000±5900 4 h; Lim <sub>ac</sub> mouse<br>and rat 5000 2—4 h (1); Lim <sub>ir</sub> man 400                                  |

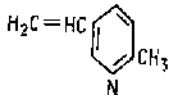
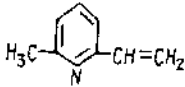
| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                                                                         | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                           |
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| <b>Methylene-bis-(N-carbomylmaleimide)</b><br>148                                                                                                                                                                                            | Intragastric: LD <sub>50</sub> mouse 710, LD <sub>50</sub> rat 1420                                                                                                                                                                                                      |
| <b>Methylene bromide</b> (dibromomethane)<br>CH <sub>2</sub> Br <sub>2</sub><br>MAC <sub>wz</sub> 50 (v), Class III<br>312, 526                                                                                                              | Inhalation: LC <sub>100</sub> rat 70 000 2 h; LC <sub>50</sub> rat 40 000 2 h; Lim <sub>ac</sub> rat 1000—1200 4 h (4)<br>Narcotic; affects kidneys and liver<br>Detection: nephelometry; detection limit 5 µg in analytical volume                                      |
| <b>Methylene chloride</b> (dichloromethane, methylene dichloride)<br>CH <sub>2</sub> Cl <sub>2</sub><br>MAC <sub>wz</sub> 50 (v), Class IV<br>462, 496                                                                                       | Inhalation: LC <sub>50</sub> mouse 50 000 2 h; Lim <sub>ac</sub> rat 1000 4 h (4)<br>Narcotic; damages liver and kidneys<br>Detection: colorimetry; detection limit 2.5 µg in analytical volume                                                                          |
| <b>Methyl ethyl ketone</b><br>CH <sub>3</sub> -C(=O)-CH <sub>2</sub> CH <sub>3</sub><br>MAC <sub>wz</sub> 200 (v), Class IV<br>MAC <sub>w</sub> 1<br>189, 461                                                                                | Inhalation: LC <sub>50</sub> mouse 40 000 2 h; NC <sub>50</sub> mouse 20 000 2 h<br>Has irritant properties<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                         |
| <b>O-Methyl-O-ethyl-O-p-nitrophenyl thiophosphate</b> (methylethylthiophos) <sup>+</sup><br>                                                                | Intragastric: LD <sub>50</sub> mouse 4.2 (3.4—5), LD <sub>50</sub> rat 2.8 (2—3), LD <sub>50</sub> cat 5.6 (2.8—8.4)<br>On skin: LD rabbit 200<br>Inhalation: LC rat <3 4 h<br>Detection: colorimetry; detection limit 5 µg in analytical volume                         |
| MAC <sub>wz</sub> 0.03 (v+a), Class I<br>452, 462<br><b>2-Methyl-5-ethylpiperidine<sup>+</sup></b><br>                                                    | Intragastric: LD <sub>50</sub> mouse 282, LD <sub>50</sub> rat 368<br>Subcutaneous: LD <sub>50</sub> mouse 294, LD <sub>50</sub> rat 826<br>Affects central nervous system; has irritant properties<br>Detection: photometry; detection limit 20 µg in analytical volume |
| MAC <sub>wz</sub> 2 (v), Class III<br>357, 465<br><b>O-Methyl-O-ethyl-O-(2,4,5-trichlorophenyl)thiophosphate</b> (trichloro-3-methaphos) <sup>+</sup><br> | Intragastric: LD <sub>50</sub> rat 314 (223—405); LD rabbit <100; LD <sub>100</sub> rabbit 400; Lim <sub>ac</sub> rat 10 (24)                                                                                                                                            |

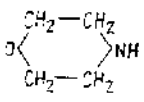
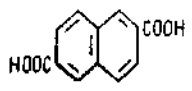
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                  | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                      |
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| MAC <sub>wz</sub> 0.3 (v+a), Class II<br>MAC <sub>w</sub> 0.4<br>460, 548                                                                                          | On skin: LD rabbit <1500<br>Inhalation: LC rat and cat <20 4 h;<br>Lim <sub>ac</sub> rat and cat 2--5 4 h (24)<br>Detection: colorimetry; detection limit 0.1 µg in analytical volume                                                                                                                                                                            |
| <b>Methylfluorophenyldichlorosilane</b><br><chem>CH3FC6H4SiCl2</chem><br>MAC <sub>wz</sub> 1 (v), Class II<br>201                                                  | Subcutaneous: LD <sub>50</sub> mouse 2000; LD mouse <1000<br>Inhalation: LC <sub>50</sub> mouse 500 2 h                                                                                                                                                                                                                                                          |
| <b>2-Methylfuran</b> (sylvan)<br>                                                 | Subcutaneous: LC <sub>50</sub> rat 10 000 2 h;<br>Lim <sub>ac</sub> rat 50 2 h (4)                                                                                                                                                                                                                                                                               |
| MAC <sub>wz</sub> 1 (v), Class II<br>323                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Methyl iodide</b> (iodomethane)<br><chem>CH3I</chem><br>45, 397                                                                                                 | Intraabdominal: LD <sub>50</sub> mouse 172 (162--182); LD <sub>50</sub> rat 101 (96--105); LD <sub>50</sub> guinea pig 51 (39--63)<br>Detection: colorimetry; detection limit 5 µg per 6 ml of analytical volume                                                                                                                                                 |
| <b>Methyl isobutyl ketone</b><br><chem>CH3COCH2CH2(CH3)2</chem><br>TSEL <sub>wz</sub> 5<br>32                                                                      | Intragastric: LD <sub>50</sub> mouse 2850 (2638--3078); LD <sub>50</sub> rat 4600 (3932--5382)<br>Inhalation: LC <sub>50</sub> mouse 15 000 2 h; LC <sub>50</sub> mouse 23 300 (18 490--29 360) 2 h;<br>Lim <sub>ac</sub> rat 200 4 h (4); Lim <sub>ir</sub> cat 250--500 15 min (28); Lim <sub>ir</sub> man 30--100                                             |
| <b>Methyl isobutyrate</b> <sup>+</sup><br><chem>(CH3)2=CH=COOCH3</chem><br>MAC <sub>wz</sub> 10 (v), Class III<br>217, 461                                         | Inhalation: LC <sub>50</sub> mouse 25 500±2370 2 h;<br>Lim <sub>ac</sub> rat 210 4 h (1)<br>Detection: colorimetry; detection limit 10 µg in analytical volume                                                                                                                                                                                                   |
| <b>Methyl isocyanate</b><br><chem>CH3N=C=O</chem><br>MAC <sub>wz</sub> 0.05 (v), Class I<br>461                                                                    | Inhalation: LC <sub>50</sub> mouse 43.5±6.8 2 h;<br>Lim <sub>ac</sub> mouse 5 2 h (1); Lim <sub>ir</sub> man 0.55                                                                                                                                                                                                                                                |
| <b>Methyl isovalerate</b> <sup>+</sup><br><chem>(CH3)2=CH=CH=COOH</chem><br>MAC <sub>wz</sub> 5 (v), Class III<br>217, 461                                         | Inhalation: LC <sub>50</sub> mouse 20 250±980 2 h;<br>Lim <sub>ac</sub> rat 109 4 h (1)<br>Detection: colorimetry; detection limit 10 µg in analytical volume                                                                                                                                                                                                    |
| <b>Methyl mercaptan</b><br><chem>CH3SH</chem><br>MAC <sub>wz</sub> 0.8 (v), Class II<br>MAC <sub>hw</sub> 9·10 <sup>-6</sup><br>MAC <sub>w</sub> 0.002<br>289, 395 | Inhalation: LC <sub>50</sub> mouse 1700 (1170--2460) 2 h; LC <sub>50</sub> rat 1200 (770--1860) 4 h; Lim <sub>ac</sub> rat 9.5 4 h (4); Lim <sub>ir</sub> rabbit 9.2 15 min (7); Lim <sub>ac</sub> man 1--2 30 min (12); Lim <sub>ol</sub> man 0.1--0.3<br>Affects central nervous system<br>Detection: colorimetry; detection limit 2.5 µg in analytical volume |

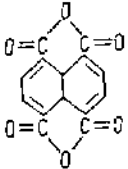
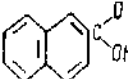
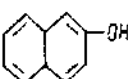
| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                                                                                                                                                         | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| <b>Methylmercaptophos+</b><br>(mixture of O,O-dimethyl-O-ethyl-<br>mercaptoethylthiophosphate and<br>O,O-dimethylethylmercaptoethylthio-<br>phosphate)<br>$MAC_{wz}$ 0.1 (v+a), Class I<br>456, 464                                                                                                                          | Intragastric: $LD_{50}$ mouse 46, $LD_{50}$ rat<br>75; LD cat 30-50<br>On skin: $LD_{50}$ rabbit 100<br>Inhalation: LC cat 20-33 4 h; $Lim_{ae}$<br>cat 1 4 h (21)<br>Detection: photometry; detection limit<br>0.5 $\mu$ g in analytical volume<br>Inhalation: $NC_{50}$ mouse 16 200 (13 300-<br>19 100) 2 h; $LC_{50}$ mouse 18 500 (15 200-<br>21 800) 2 h; $Lim_{ae}$ mouse 2000 2 h (1);<br>$Lim_{ar}$ rabbit 1680 40 min (7), $Lim_{ar}$<br>man 284; $Lim_{oit}$ 85<br>Detection: colorimetry; detection limit<br>2 $\mu$ g in analytical volume |
| <b>Methyl methacrylate</b><br>$\begin{array}{c} CH_2=C-COOCH_3 \\   \\ CH_3 \end{array}$<br>$MAC_{wz}$ 10 (v), Class III<br>$MAC_w$ 0.01<br>416, 422                                                                                                                                                                         | Intragastric: $LD_{50}$ mouse $700 \pm 160$ , $LD_{50}$<br>rat $2000 \pm 280$<br>On skin: LD rabbit <500                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>2-Methylthio-4-methylamino-6-iso-<br/>           propylamino-sym-triazine (seme-<br/>           ron)</b><br>$\begin{array}{c} SCH_3 \\   \\ C \\ // \quad \backslash \\ N \quad \quad N \\   \quad \quad   \\ CH_3HN-C \quad C-NHCH(CH_3)_2 \\ \backslash \quad / \\ N \end{array}$<br>$MAC_{wz}$ 2 (a), Class III<br>486 | Intragastric: $LD_{50}$ rat $1960 \pm 117$<br>Inhalation: $LC_{50}$ mouse 25 200 2 h;<br>$Lim_{ae}$ rat 100 4 h (1); $Lim_{ar}$ man 200<br>Detection: colorimetry; detection limit<br>5 $\mu$ g in analytical volume                                                                                                                                                                                                                                                                                                                                    |
| <b>m-Methylmorpholine</b><br>$\begin{array}{c} CH_2-CH_2 \\ \diagup \quad \diagdown \\ O \quad \quad N-CH_3 \\ \diagdown \quad \diagup \\ CH_2-CH_2 \end{array}$<br>$MAC_{wz}$ 5 (v), Class III<br>269, 469                                                                                                                  | Intragastric: $LD_{50}$ rat $1840 \pm 226$<br>Affects nervous system, blood, kidneys,<br>gastrointestinal tract; causes irritation of<br>skin and upper respiratory tract and<br>opacification of lens<br>Detection: photometry; detection limit<br>10 $\mu$ g in analytical volume                                                                                                                                                                                                                                                                     |
| <b>1-Methylnaphthalene</b><br>$C_{11}H_{10}$<br>$MAC_{wz}$ 20 (v), Class IV<br>339, 465                                                                                                                                                                                                                                      | Intragastric: $LD_{50}$ rat $1630 \pm 224$<br>Affects nervous system, blood, kidneys<br>and gastrointestinal tract; causes irrita-<br>tion of skin and upper respiratory tract<br>and opacification of lens<br>Detection: colorimetry; detection limit<br>10 $\mu$ g in analytical volume                                                                                                                                                                                                                                                               |
| <b>2-Methylnaphthalene</b><br>$C_{11}H_{10}$<br>$MAC_{wz}$ 20 (v), Class IV<br>339, 465                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

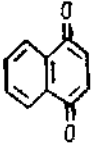
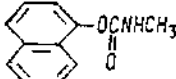
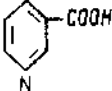
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                           | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                        |
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| <b>Methyl propionate</b><br>$\text{CH}_3=\text{CH}_2=\text{COOCH}_3$<br>MAC <sub>wz</sub> 10 (v), Class III<br>217, 461                                                                                                                                     | Intragastric: LD <sub>50</sub> mouse 3500 ± 230, LD <sub>50</sub> rat 5300 ± 430<br>Inhalation: LC <sub>50</sub> mouse 27 500 ± 2200 2 h; Lim <sub>ac</sub> rat 1100 4 h (1); Lim <sub>ac</sub> rat 600 4 h (4); Lim <sub>ir</sub> rabbit 520 40 min; Lim <sub>air</sub> 420<br>Detection: colorimetry; detection limit 10 µg in analytical volume |
| <b>1-Methyl-2-(3-pyridyl)-pyrrolidine sulfate (nicotine sulfate)</b><br><br>MAC <sub>wz</sub> 0.1 (v + a), Class I<br>MAC <sub>w</sub> 0.5<br>223, 461                     | Intragastric: LD <sub>50</sub> mouse 8.5, LD <sub>50</sub> rat 56<br>Intraabdominal: LD <sub>50</sub> cat 20<br>Inhalation: LC <sub>50</sub> rat 22<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                                                           |
| <b>3-(5)-Methyl pyrazol</b><br>C <sub>5</sub> H <sub>5</sub> N<br>TSEL <sub>w</sub> 10<br>123, 456                                                                                                                                                          | Intragastric: LD <sub>50</sub> mouse 933 ± 40<br>Detection: gas—liquid chromatography                                                                                                                                                                                                                                                              |
| <b>N-Methyl-α-pyrrolidone</b><br><br>MAC <sub>wz</sub> 100 (v + a), Class IV<br>MAC <sub>w</sub> 0.5<br>266, 442                                                          | Intragastric: LD <sub>50</sub> mouse 5320 ± 1040, LD <sub>50</sub> rat 7900, LD <sub>50</sub> guinea pig 4400, LD <sub>50</sub> rabbit 3500<br>Inhalation: LC mouse <180—200 2 h                                                                                                                                                                   |
| <b>α-Methylstyrene (isopropenylbenzene)</b><br><br>MAC <sub>wz</sub> 5 (v), Class III<br>MAC <sub>hw</sub> 0.04<br>MAC <sub>ad</sub> 0.04<br>MAC <sub>w</sub> 0.1<br>467 | Inhalation: LC mouse <400 2 h; Lim <sub>ac</sub> cat 40 (4)<br>Has irritant properties<br>Detection: gas chromatography; detection limit 5 µg in analytical volume                                                                                                                                                                                 |

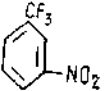
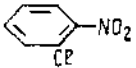
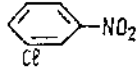
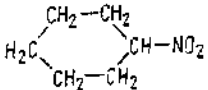
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Toxicometric Parameters. Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <p><b>2-Methylthio-4,6-bis(isopropylamino)sym-triazine (prometryne)</b></p>  <p>MAC<sub>wz</sub> 5 (a), Class III<br/>ALAC<sub>w</sub> 3<br/>485</p> <p><b>Methylthioethyl acrylate</b><br/>CH<sub>2</sub>=CHCOOCH<sub>2</sub>CH<sub>2</sub>SCH<sub>3</sub><br/>398</p> <p><b>2-Methylthiophene</b></p>  <p>MAC<sub>wz</sub> 20 (v), Class IV<br/>469, 494</p> <p><b>3-Methylthiophene</b></p>  <p>MAC<sub>wz</sub> 20 (v), Class IV<br/>469, 503</p> <p><b>Methyl p-toluate</b><br/>p-CH<sub>3</sub>C<sub>6</sub>H<sub>4</sub>COOCH<sub>3</sub><br/>MAC<sub>wz</sub> 10 (v), Class II<br/>193, 461</p> <p><b>n-Methylurethanebenzenesulfonylhydrazine (porofor ChKhZ-5)</b></p>  <p>MAC<sub>wz</sub> 0.05 (a), Class I<br/>3</p> | <p>Intragastric: LD<sub>50</sub> mouse 2000 (1750—2370), LD<sub>50</sub> rat 1800 (1470—2120)<br/>On skin: LD mouse and rabbit &lt;1000<br/>Inhalation: LC mouse &lt;2500 2 h; LC rat &lt;4400 4 h; Lim<sub>ac</sub> rat 1100 4 h (27)<br/>Detection: spectrophotometry; detection limit 5 µg in analytical volume; gas chromatography</p> <p>Intragastric: LD<sub>50</sub> mouse 3730 (3057—4500), LD<sub>50</sub> rat 1340 (1126—1594)</p> <p>Intragastric: LD<sub>50</sub> mouse 1460 (1200—1700) LD<sub>50</sub> rat 3200 (2100—4500)<br/>Intraabdominal: LD<sub>50</sub> rat 1000<br/>Inhalation: LC<sub>50</sub> mouse 11 500 (8900—14 800) 2 h; Lim<sub>ac</sub> rat 100 2 h (4)<br/>Narcotic; irritates respiratory tract mucous membranes<br/>Detection: nephelometry; detection limit 2 µg in analytical volume<br/>Intragastric: LD<sub>50</sub> mouse 1800 (1500—2100)<br/>Inhalation: LC<sub>50</sub> mouse 18 000 (14 100—22 800) 2 h; Lim<sub>ac</sub> rat 1000 2 h (4)<br/>Narcotic; irritates respiratory tract mucous membranes<br/>Detection: nephelometry; detection limit 2 µg in analytical volume</p> <p>Intragastric: LD<sub>50</sub> mouse 3800, LD<sub>50</sub> rat 4855<br/>Intraabdominal: LD<sub>50</sub> mouse 1250<br/>Inhalation: LC rat &lt;250 6 h; Lim<sub>air</sub> man 0.9<br/>Detection: colorimetry; detection limit 10 µg in analytical volume<br/>Intragastric: LD<sub>50</sub> mouse 350<br/>Inhalation: LC<sub>50</sub> rat 20—30 1 h, LC<sub>50</sub> rat 7—10 2 h<br/>Damages central nervous system and hematopoiesis</p> |

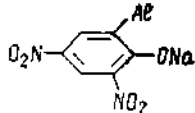
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                       | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                  |
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| <b>Methyl valerate+</b><br>$\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-COOCH}_3$<br>MAC <sub>wz</sub> 1 (v), Class III<br>217, 461                           | Inhalation: LC <sub>50</sub> mouse 6600±160 2 h;<br>Lim <sub>ac</sub> rat 23 4 h (1); Lim <sub>lr</sub> man 20<br>Detection: colorimetry; detection limit<br>10 µg in analytical volume                                                                                                                                                                                                                                      |
| <b>Methyl vinyl ketone+</b><br>$\text{CH}_2=\text{CHCOCH}_3$<br>MAC <sub>wz</sub> 0.1 (v), Class I<br>253, 469                                                          | Intragastric: LD <sub>50</sub> mouse 33 (26—41),<br>LD <sub>50</sub> rat 31 (21—40)<br>Inhalation: LC <sub>50</sub> rat 7±0.6 4 h, LC <sub>50</sub><br>mouse 8±0.1 2 h; Lim <sub>lr</sub> rabbit 4—8<br>40 min (2); Lim <sub>lr</sub> rabbit 2—4 40 min<br>(7); Lim <sub>lr</sub> cat (28, 29), Lim <sub>lr</sub> man 5;<br>Lim <sub>otr</sub> 0.5<br>Detection: colorimetry; detection limit<br>0.1 µg in analytical volume |
| <b>2-Methyl-5-vinylpyridine+</b><br><br>MAC <sub>wz</sub> 2 (v), Class III<br>357, 469 | Intragastric: LD <sub>50</sub> mouse 775±96, LD <sub>50</sub><br>rat 2050±210<br>Subcutaneous: LD <sub>50</sub> mouse 532±41, LD <sub>50</sub><br>rat 1290±340<br>Inhalation: LC <sub>50</sub> mouse 213±19 2 h,<br>LC <sub>50</sub> rat 189±13 2 h; Lim <sub>ac</sub> rat 10 4 h<br>(1); Lim <sub>otr</sub> man 1.25<br>Detection: colorimetry; detection limit<br>2.5 µg in analytical volume                              |
| <b>6-Methyl-2-vinylpyridine+</b><br><br>MAC <sub>wz</sub> 0.5 (v), Class II<br>77, 469 | Intragastric: LD <sub>50</sub> mouse 510<br>Inhalation: LC <sub>50</sub> mouse 150 2 h; Lim <sub>ac</sub><br>rat 1 4 h (1)<br>Detection: colorimetry; detection limit<br>2.5 µg in analytical volume                                                                                                                                                                                                                         |
| <b>Molybdenum boride</b><br>$\text{Mo}_2\text{B}_5$<br>MAC <sub>wz</sub> 4 (a), Class III<br>277, 461                                                                   | Intraabdominal: LD <sub>50</sub> mouse 1377<br>(1243—1501)<br>Detection: colorimetry; detection limit<br>1 µg in analytical volume                                                                                                                                                                                                                                                                                           |
| <b>Molybdenum (metallic)</b><br>$\text{Mo}$<br>276, 461                                                                                                                 | Inhalation: LC rat <25 000—30 000 1 h<br>Detection: colorimetry; detection limit<br>1 µg in analytical volume                                                                                                                                                                                                                                                                                                                |
| <b>Molybdenum trioxide</b><br>$\text{MoO}_3$<br>MAC <sub>wz</sub> 4 (a), Class III<br>276, 461                                                                          | Inhalation: LC rat 12 000—15 000 1 h<br>Detection: colorimetry; detection limit<br>1 µg in analytical volume                                                                                                                                                                                                                                                                                                                 |
| <b>Monochlorodibromotrifluoroethane</b><br>$\text{CF}_2\text{Br-CFBrCl}$<br>MAC <sub>wz</sub> 50 (v), Class IV<br>281, 461                                              | Inhalation: LC <sub>50</sub> mouse 22 000 (17 800—<br>27 000) 2 h; Lim <sub>ac</sub> rabbit 500—1000<br>40 min (2); Lim <sub>otr</sub> man 200—300<br>Detection: photometry; detection limit<br>0.1 µg in analytical volume                                                                                                                                                                                                  |

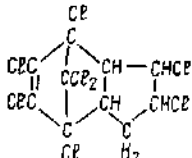
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                  | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                           |
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| <b>Monochlorodimethyl ether</b><br>$\text{CH}_3\text{OCH}_2\text{Cl}$<br>$\text{MAC}_{wz}$ 0.5 (v), Class III<br>119, 469                                                                                          | Inhalation: $\text{LC}_{50}$ mouse 1030 2 h; $\text{Lim}_{ac}$ rabbit 25–28 40 min (2); $\text{Lim}_{ir}$ rabbit 2–9 40 min (7)<br>Detection: photometry; detection limit 0.5 $\mu\text{g}$ in analytical volume                                                                                                                                                                      |
| <b>Monochloromonofluoroethane</b> (freon 151)<br>$\text{C}_2\text{H}_5\text{FCl}$<br>$\text{MAC}_{wz}$ 1000 (v), Class IV<br>169, 460                                                                              | Inhalation: $\text{LC}_{50}$ mouse 124 500 (116 000–135 000) 2 h<br>Narcotic<br>Detection: thermal degradation in a quartz tube; detection limit 1.4 $\mu\text{g}$ in analytical volume                                                                                                                                                                                               |
| <b>Monochlorostyrene</b><br>$\text{C}_6\text{H}_5\text{CH}=\text{CHCl}$<br>$\text{MAC}_{wz}$ 50 (v), Class IV<br>312, 348                                                                                          | Inhalation: $\text{Lim}_{ac}$ rabbit 1250–2500 40 min (2); $\text{Lim}_{ir}$ man 1000<br>Detection: colorimetry; detection limit 30 $\text{mg}/\text{m}^3$                                                                                                                                                                                                                            |
| <b>Monomer FA</b><br>(condensation product of furfural and acetone; composition: 55% monofurfurylidenacetone, 44% difurfurylidenacetone and 1% acetone and furfural)<br>$\text{MAC}_{wz}$ 0.1 (v), Class II<br>488 | Intragastric: $\text{LD}_{50}$ mouse 980, $\text{LD}_{50}$ rat 1070, $\text{LD}_{50}$ rabbit 285<br>On skin: $\text{LD}_{50}$ rat 2600, $\text{LD}_{50}$ rabbit 900<br>Inhalation: $\text{Lim}_{ac}$ rat 225 4 h (24, 27), $\text{Lim}_{ac}$ rabbit 184 4 h (24, 27)                                                                                                                  |
| <b>Morpholine+</b><br><br>$\text{MAC}_{wz}$ 0.5 (v), Class II<br>$\text{MAC}_{wz}$ 0.04<br>269, 469                               | Intragastric: $\text{LD}_{50}$ rat $1200 \pm 140$<br>On skin: $\text{LT}_{50}$ mouse $27.1 \pm 3.6$<br>Inhalation: LC mouse 10 000 2 h; $\text{Lim}_{ac}$ rat 280 4 h (1); $\text{Lim}_{ir}$ rat 40 4 h (9), $\text{Lim}_{ir}$ man 16<br>Irritates upper respiratory tract, affects liver and kidneys<br>Detection: colorimetry; detection limit 5 $\mu\text{g}$ in analytical volume |
| <b>Naphthalene</b><br><br>$\text{MAC}_{wz}$ 20 (v), Class IV<br>$\text{MAC}_{hw}$ 0.003<br>$\text{MAC}_{ad}$ 0.003<br>339, 465  | Intragastric: $\text{LD}_{50}$ rat $490 \pm 70$<br>Intraabdominal: LD rat <1000<br>Inhalation: LC rat <100<br>Affects nervous system, blood, kidneys, gastrointestinal tract; irritates skin and upper respiratory tract; causes opacification of lens<br>Detection: colorimetry; detection limit 10 $\mu\text{g}$ in analytical volume                                               |
| <b>2,6-Naphthalenetetracarboxylic acid</b><br><br>$\text{MAC}_{wz}$ 0.1 (a), Class II<br>552                                    | Intragastric: LD mouse and rat <18 000                                                                                                                                                                                                                                                                                                                                                |

| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                        | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                |
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| <b>1,4,5,8-Naphthalenetetracarboxylic acid</b><br><br>MAC <sub>wz</sub> 0.5 (a), Class II<br>502           | Intragastric: LD <sub>50</sub> mouse 3800, LD <sub>50</sub> rat 7500<br>Inhalation: Lim <sub>ac</sub> rat 80 4 h (43)                                                                                                                                                                                                                         |
| <b>1,4,5,8-Naphthalenetetracarboxylic acid dianhydride</b><br><br>MAC <sub>wz</sub> 1 (a), Class II<br>501 | Intragastric: LD <sub>50</sub> mouse 7100, LD <sub>50</sub> rat 7400<br>Intratracheal: LD <sub>100</sub> rat 50<br>Inhalation: Lim <sub>ac</sub> rat 120 4 h (1)                                                                                                                                                                              |
| <b>Naphthenic acids</b><br>(mixture of mono-, cyclic, fatty and aromatic acids)<br>TSEL <sub>wz</sub> 5<br>MAC <sub>w</sub> 0.3<br>386                                                      | Intragastric: LD <sub>50</sub> mouse 6900 (6000—7930), LD <sub>50</sub> rat 5400 (4000—7290)                                                                                                                                                                                                                                                  |
| <b>2-Naphthoic acid</b><br><br>MAC <sub>wz</sub> 0.1 (a), Class II<br>553                                | Intragastric: LD <sub>50</sub> mouse 4700±660, LD <sub>50</sub> rat 4500±650                                                                                                                                                                                                                                                                  |
| <b>β-Naphthol</b><br><br>MAC <sub>wz</sub> 0.1 (a), Class II<br>MAC <sub>w</sub> 0.4<br>335, 461, 467    | Intragastric: LD <sub>50</sub> mouse 98 (70—137), LD <sub>50</sub> rat 2460 (1700—3570), LD <sub>50</sub> guinea pig 1335, LD <sub>50</sub> rabbit 5400, LD <sub>50</sub> cat 89<br>Inhalation: LC mouse <20 4 h, LC rat <4 h; Lim <sub>ac</sub> rabbit 0.25 15 min (7)<br>Detection: polarography; detection limit 1 μg in analytical volume |

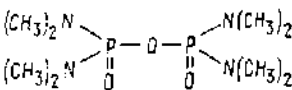
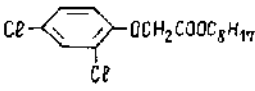
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                                                                                                              | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| <p><b><math>\alpha</math>-Naphthoquinone</b> (1,4-naphthoquinone)</p>  <p>MAC<sub>wz</sub> 0.1 (v), Class I<br/>MAC<sub>hw</sub> 0.005<br/>MAC<sub>ad</sub> 0.005<br/>314, 467</p>                                                                                                            | <p>Intragastric: LD<sub>100</sub> rat 500<br/>Suncutaneous: LD<sub>100</sub> rat 250<br/>Intraabdominal: LD<sub>100</sub> rat 50<br/>Inhalation: Lim<sub>17</sub> 0.4 15 min (7)<br/>Has irritant properties<br/>Detection: polarography; detection limit 2.5 µg in analytical volume</p>                                                                                                                                                                                                                                                      |
| <p><b>1-Naphthyl-N-methylcarbamate</b> (sevin)</p>  <p>MAC<sub>wz</sub> 0.1 (a), Class II<br/>553</p> <p><b>Nickel</b><br/>MAC* Ni<sub>wz</sub> 0.5 (a), Class II<br/>374, 467</p> <p><b>Nickel carbonyl</b><br/>Ni(CO)<sub>4</sub><br/>MAC<sub>wz</sub> 0.0005 (v), Class I<br/>272, 312</p> | <p>Intragastric: LD<sub>50</sub> mouse 363 (294—432), LD<sub>50</sub> rat 721 (653—789), LD<sub>50</sub> cat 150<br/>Inhalation: LC cat &lt;82 6 h; Lim<sub>ac</sub> cat 20 6 h (24)</p> <p>Intravenous: LD mouse 50<br/>Detection: amperometry; detection limit 0.3 µg in analytical volume<br/>Inhalation: LC<sub>50</sub> mouse 15 100±2200 2 h, LC<sub>50</sub> rat 151 300±22 100 2 h, LC<sub>50</sub> cat 81 500±9600 4 h<br/>Has irritant and neurotoxic actions<br/>Detection: colorimetry; detection limit 0.007 mg/m<sup>3</sup></p> |
| <p><b>Nicotinic acid</b></p>  <p>401</p>                                                                                                                                                                                                                                                    | <p>Intragastric: LD<sub>50</sub> mouse 6980 (6769—7191), LD<sub>50</sub> rat 7043 (6834—7252)<br/>Intraabdominal: LD<sub>50</sub> mouse 3250 (3041—3459)</p>                                                                                                                                                                                                                                                                                                                                                                                   |
| <p><b>Nitroammophoska</b><br/>MAC<sub>wz</sub> 4 (a), Class IV<br/>87, 461</p> <p><b>o-Nitroaniline+</b><br/>o-NO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>NH<sub>2</sub><br/>MAC<sub>wz</sub> 0.5 (a), Class II<br/>TSEL<sub>hw</sub> 0.006<br/>45, 512, 549</p>                                                                                                                  | <p>Intragastric: LD<sub>50</sub> mouse 2500, LD<sub>50</sub> rat 8700<br/>Detection: weighing method<br/>Intraabdominal: LD<sub>50</sub> rat 800<br/>Methemoglobin former<br/>Affects central nervous system<br/>Detection: colorimetry; detection limit 1 µg in analytical volume</p>                                                                                                                                                                                                                                                         |

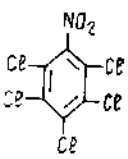
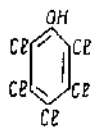
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                                                                                                                                                                                  | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                          |
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| <b>p-Nitroaniline<sup>+</sup></b><br>$p\text{-NO}_2\text{C}_6\text{H}_4\text{NH}_2$<br>MAC <sub>wz</sub> 0.1 (a), Class I<br>TSEL <sub>hw</sub> 0.006<br>45, 512, 549                                                                                                                                                                                                                                                                              | Intragastric: LD <sub>100</sub> rat 600<br>Inhalation: Lim <sub>ac</sub> rat 10 4 h (16)<br>Methemoglobin former<br>Affects central nervous system<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                                                                                                              |
| <b>p-Nitroanisole (1-methoxy-4-nitrobenzene)</b><br>$p\text{-CH}_3\text{OC}_6\text{H}_4\text{NO}_2$<br>MAC <sub>wz</sub> 3 (v), Class III<br>462, 537                                                                                                                                                                                                                                                                                              | Intragastric: LD <sub>100</sub> mouse 3500; LD mouse <750<br>Inhalation: LC mouse <10—30 2 h<br>Affects central nervous system<br>Detection: colorimetry; detection limit 2 µg in analytical volume                                                                                                                                                                                                  |
| <b>p-Nitrobenzoic acid</b><br><br>TSEL <sub>wz</sub> 4<br>156                                                                                                                                                                                                                                                                                                     | Intragastric: LD <sub>50</sub> rat 5000<br>Intratracheal: LD rat <50<br>Detection: gas—liquid chromatography                                                                                                                                                                                                                                                                                         |
| <b>m-Nitrobenzotrifluoride</b><br><br>MAC <sub>wz</sub> 1 (v), Class II<br>150                                                                                                                                                                                                                                                                                    | Intragastric: LD <sub>50</sub> mouse 520 (317—759), LD <sub>50</sub> rat 610 (455—817)<br>Inhalation: LC <sub>50</sub> mouse 880 (770—1010) 2 h, LC <sub>50</sub> rat 870 (790—950); Lim <sub>ac</sub> rat 33 4 h (1)                                                                                                                                                                                |
| <b>Nitrochlorobenzene<sup>+</sup></b><br> ortho-isomer<br> meta-isomer<br> para-isomer<br>MAC <sub>wz</sub> 1 (v), Class II<br>MAC <sub>ad</sub> 0.004<br>MAC <sub>w</sub> 0.05<br>67, 422 | Intragastric: LD <sub>50</sub> mouse 440 (para isomer), LD <sub>50</sub> mouse 440 (ortho isomer), LD <sub>50</sub> rat 555 (para isomer), LD <sub>50</sub> rat 339 (ortho isomer), LD <sub>50</sub> rat 420 (meta isomer), LD <sub>50</sub> rabbit 280 (ortho isomer)<br>Affects central nervous system; methemoglobin former<br>Detection: photometry; detection limit 0.2 µg in analytical volume |
| <b>Nitrocyclohexane</b><br>                                                                                                                                                                                                                                                                                                                                     | Intragastric: LD <sub>50</sub> mouse 250<br>Inhalation: LC <sub>100</sub> mouse 10 2 h; LC <sub>50</sub> rat 150 4 h                                                                                                                                                                                                                                                                                 |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                    | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <b>MAC<sub>wz</sub> 1 (v), Class II</b><br><b>MAC<sub>w</sub> 0.1</b><br><b>185, 462</b><br><br><b>Nitroethane</b><br>$\text{CH}_3\text{CH}_2\text{NO}_2$<br><b>MAC<sub>wz</sub> 30 (v), Class IV</b><br><b>MAC<sub>w</sub> 1</b><br><b>312, 454</b> | Has irritant, neuro- and hepatotoxic actions<br>Detection: colorimetry; detection limit 1 µg in analytical volume<br>Intragastric: LD <sub>50</sub> mouse 860±104, LD <sub>50</sub> rat 1100±97<br>Inhalation: LC mouse 19 500 2 h; Lim <sub>ac</sub> rabbit 1000 40 min (2)<br>Narcotic<br>Detection: colorimetry; detection limit 20 µg in analytical volume<br>Inhalation: LC <sub>50</sub> rat 690—850 25 min; Lim <sub>ir</sub> man 150 4 min, Lim <sub>ir</sub> man 90 15 min; Lim <sub>alt</sub> 10<br>Irritates lower respiratory tract<br>Detection: colorimetry; detection limit 1 µg in analytical volume<br>Intragastric: LD <sub>100</sub> mouse 300<br>Inhalation: LC <sub>50</sub> mouse 800 2 h; Lim <sub>ac</sub> cat 40 1 h (4), Lim <sub>ac</sub> rat 50 1 h (1); Lim <sub>ir</sub> man 12<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume<br>Intragastric: LD <sub>50</sub> mouse 950±122, LD <sub>50</sub> rat 940±80<br>Inhalation: LC mouse 18 000 2 h; Lim <sub>ac</sub> rabbit 1000 40 min (2)<br>Narcotic: has convulsive action<br>Detection: polarography; detection limit 0.2 µg per 1 ml of solution<br>Intragastric: LD <sub>50</sub> mouse 450, LD <sub>50</sub> rat 700; LD <sub>50</sub> cat 300; LD rabbit 3000<br>On skin: LD rat <2000, LD rabbit <5000<br>Inhalation: LC cat 620 4 h; Lim <sub>ac</sub> cat 13 4 h (4)<br>Detection: photometry; detection limit 5 µg in analytical volume |
| <b>Nitrogen oxides (as NO<sub>2</sub>)</b><br><b>MAC<sub>wz</sub> 5 (v), Class II</b><br><b>MAC<sub>hw</sub> 0.085</b><br><b>MAC<sub>ad</sub> 0.085</b><br><b>1, 6, 464</b>                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Nitroform (trinitromethane)</b><br>$\text{CH}(\text{NO}_2)_3$<br><b>MAC<sub>wz</sub> 0.5 (v), Class II</b><br><b>MAC<sub>w</sub> 0.01</b><br><b>463, 472</b>                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Nitromethane</b><br>$\text{CH}_3\text{NO}_2$<br><b>MAC<sub>wz</sub> 30 (v), Class IV</b><br><b>MAC<sub>w</sub> 0.005</b><br><b>289, 454</b>                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Nitrophenes (containing up to 72% alkyl phenols)</b><br>                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| $\{Al\}_C = C_1 - C_6$<br><b>MAC<sub>wz</sub> 1 (a), Class II</b><br><b>134</b>                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Nitrophoska containing nitric and sulfuric acids</b><br><b>MAC<sub>wz</sub> 5 (a), Class III</b><br><b>41, 468</b>                                                                                                                                | Intragastric: LD <sub>50</sub> mouse 3700, LD <sub>50</sub> rat 8800<br>Inhalation: LC rat <280 4 h<br>Detection: weighing method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Nitrophoska containing no chlorine</b><br><b>MAC<sub>wz</sub> 2 (a), Class III</b><br><b>41, 468</b>                                                                                                                                              | Intragastric: LD <sub>50</sub> mouse 2300, LD <sub>50</sub> rat 6500<br>Detection: weighing method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

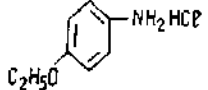
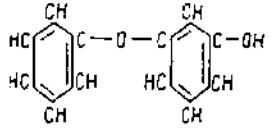
| Substance, MAC or TSEL,<br>Hazard Glass Reference(s)                                                                                                                                                     | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                           |
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| <b>Nitrophoska containing sulfates</b><br>MAC <sub>wz</sub> 2 (a), Class III<br>41, 468                                                                                                                  | Intragastric: LD <sub>50</sub> mouse 2900, LD <sub>50</sub> rat 7900<br>Detection: weighing method                                                                                                                                       |
| <b>Nitrophoska containing phosphates</b><br>MAC <sub>wz</sub> 2 (a), Class III<br>41, 468                                                                                                                | Intragastric: LD <sub>50</sub> mouse 1500, LD <sub>50</sub> rat 4800<br>Detection: weighing method                                                                                                                                       |
| <b>2-Nitropropane</b><br>$\text{CH}_3\text{-CH-CH}_3$<br> <br>$\text{NO}_2$<br>MAC <sub>wz</sub> 30 (v), Class IV<br>MAC <sub>w</sub> 1<br>312, 360                                                      | Inhalation: LC <sub>50</sub> mouse 10 000 2 h;<br>Lim <sub>ac</sub> rat 100 1 h (4)<br>Narcotic<br>Detection: colorimetry; detection limit 20 mg/m <sup>3</sup>                                                                          |
| <b>Nitroxylene+</b><br>$(\text{CH}_3)_2\text{C}_6\text{H}_3\text{NO}_2$<br>MAC <sub>wz</sub> 5 (v), Class II<br>TSEL <sub>hw</sub> 0.008<br>45, 118                                                      | Inhalation: LC mouse <1500 5 h; Lim <sub>ac</sub> rabbit 120—200 40 min (2); Lim <sub>ir</sub> rabbit 10 (7)<br>Affects central nervous system; methemoglobin former<br>Detection: photometry; detection limit 5 µg in analytical volume |
| <b>Nonyl alcohol (octylcarbinol)</b><br>$\text{CH}_3(\text{CH}_2)_7\text{CH}_2\text{OH}$<br>MAC <sub>wz</sub> 10 (v+a), Class III<br>MAC <sub>w</sub> 0.01<br>82, 462                                    | Intragastric: LD <sub>50</sub> mouse 19 000 ± 3000<br>Inhalation: LC <sub>50</sub> mouse 5500 ± 1500 2 h<br>Detection: colorimetry; detection limit 5 µg in analytical volume                                                            |
| <b>Octachlorotetrahydro-endo-methyleneindan (chlorindan)+</b><br><br>MAC <sub>wz</sub> 0.01 (v+a), Class I<br>175, 464 | Intragastric: LD <sub>50</sub> mouse 250, LD <sub>50</sub> rat 390<br>On skin: LD rabbit 250<br>Inhalation: LC rat 100—200 6 h<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume                                    |
| <b>Octafluoroamyl alcohol</b><br>$\text{CHF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CH}_2\text{OH}$<br>MAC <sub>wz</sub> 20 (v), Class IV<br>29, 468                                                    | Inhalation: LC <sub>50</sub> mouse 10 500 2 h;<br>Lim <sub>ac</sub> rabbit 1150 40 min (2)<br>Detection: photometry; detection limit 1.4 kg in analytical volume                                                                         |
| <b>Octafluorocyclobutane (freon 318S)</b><br>$\text{C}_4\text{F}_8$<br>MAC <sub>wz</sub> 3000 (v), Class IV<br>312                                                                                       | Inhalation: CL mouse <620 000 2 h<br>Detection: colorimetry; detection limit 0.002 µg per 5 ml of solution                                                                                                                               |
| <b>Octafluorodichlorocyclohexane</b><br>$\text{C}_6\text{F}_8\text{Cl}_2$                                                                                                                                | Inhalation: LC <sub>50</sub> mouse 980 (680—1410) 2 h, LC <sub>50</sub> mouse 910 (710—1160) <sup>1</sup> 2 h;                                                                                                                           |

<sup>1</sup> Technical — grade product

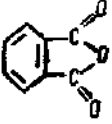
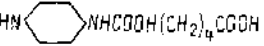
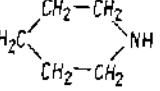
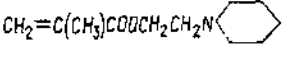
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                            | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                     |
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| <b>MAC<sub>wz</sub> 1 (v), Class II</b><br>463, 489                                                                                                                          | Lim <sub>ac</sub> mouse 50 2 h (4, 15)<br>Detection: colorimetry; detection limit 100 µg in analytical volume                                                                                   |
| <b>Octamethyltetramide of pyrophosphoric acid (octamethyl)+</b>                                                                                                              | Intragastric: LD rat 3<br>Intraocular: LD rabbit 5                                                                                                                                              |
|                                                                                             | On skin: LD rabbit 20<br>Inhalation: LC <sub>50</sub> rat 8—10 4 h<br>Detection: photometry; detection limit 0.5 µg in analytical volume                                                        |
| <b>MAC<sub>wz</sub> 0.02 (v+a), Class I</b><br>53, 464                                                                                                                       |                                                                                                                                                                                                 |
| <b>Octyl alcohol (octanol)</b><br>$\text{CH}_3(\text{CH}_2)_7\text{CH}_2\text{OH}$<br><b>MAC<sub>wz</sub> 10 (v+a), Class III</b><br><b>MAC<sub>w</sub> 0.05</b><br>468, 543 | Intragastric: LD <sub>50</sub> mouse 4000<br>Inhalation: LC rat <180—350 2 h<br>Has irritant properties<br>Detection: colorimetry; detection limit 5 µg in analytical volume                    |
| <b>Octyl alcohol, secondary</b><br>$\text{CH}_3\text{CH}(\text{OH})(\text{CH}_2)_6\text{CH}_3$<br>399, 525                                                                   | Intragastric: LD <sub>50</sub> mouse 12 400 (11 376—13 516), LD <sub>50</sub> 7370 (6824—7960)<br>Detection: chromatography                                                                     |
| <b>Octyl alcohol, tertiary</b><br>$\text{CH}_3(\text{CH}_2)_6\text{C}(\text{CH}_3)_2\text{OH}$<br>399                                                                        | Intragastric: LD <sub>50</sub> rat 2200 (1864—2464)                                                                                                                                             |
| <b>Octyl 2,4-dichlorophenoxyacetate</b>                                                                                                                                      | Intragastric: LD <sub>50</sub> mouse 1650 (1400—1900), LD <sub>50</sub> mouse 1200 (900—1596)<br>On skin: LD rabbit 2000<br>Detection: colorimetry; detection limit 100 µg in analytical volume |
|                                                                                             |                                                                                                                                                                                                 |
| <b>MAC<sub>wz</sub> 1 (v+a), Class II</b><br>468, 517                                                                                                                        |                                                                                                                                                                                                 |
| <b>Octyl iodide (1-iodooctane)</b><br>$\text{C}_8\text{H}_{17}\text{I}$<br>45                                                                                                | Intraabdominal: LD <sub>50</sub> mouse 1416 (1142—1690), LD <sub>50</sub> rat 1982 (1634—2329)<br>Detection: colorimetry; detection limit 5 µg per 6 ml of analytical volume                    |
| <b>Oil shales (ash)</b><br><b>MAC<sub>wz</sub> 4 (a), Class IV</b><br>468                                                                                                    | Intragastric: LD <sub>50</sub> mouse 20 000<br>Intraabdominal: LD <sub>50</sub> mouse 8250<br>Detection: weighing method                                                                        |
| <b>Oxacillin</b><br>$\text{C}_{19}\text{H}_{18}\text{N}_3\text{NaO}_5\text{S} \cdot \text{H}_2\text{O}$<br><b>MAC<sub>wz</sub> 0.05 (a), Class I</b><br>155, 469             | Intragastric: LD <sub>20</sub> mouse 6500; LD rat <10 000<br>Inhalation LC rat <100 4 h<br>Detection: colorimetry; detection limit 5 µg per 1 ml of solution                                    |
| <b>Ozone</b><br>$\text{O}_3$<br><b>MAC<sub>wz</sub> 0.1 (v), Class I</b><br>283, 462                                                                                         | Inhalation: LC <sub>50</sub> mouse 46 2 h, LC <sub>50</sub> rat 28 2 h<br>Has irritant properties<br>Detection: colorimetry; detection limit 0.4 µg in analytical volume                        |

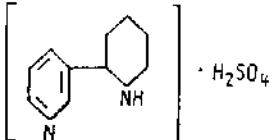
| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                                              | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                             |
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| <b>Pentachloroacetone</b><br>$\text{Cl}_3\text{C}=\text{C}=\text{CHCl}_2$<br><br>MAC <sub>wz</sub> 0.5 (v), Class II<br>295, 463 | Intragastric: LD <sub>50</sub> rat 200<br>Inhalation: LC <sub>50</sub> mouse 450 (390—510) 2 h; Lim <sub>ac</sub> mouse 20—30 2 h (1); Lim <sub>lc</sub> man 1<br>Has irritant properties<br>Detection: colorimetry; detection limit 0.3 µg in analytical volume                                                                                                                           |
| <b>Pentachlorofluoroethane (freon 115)</b><br>$\text{CClF}_2\text{CF}_3$<br>MAC <sub>wz</sub> 3000 (v), Class IV<br>169, 460                                                                                      | Inhalation: LC mouse <1 907 000 2 h<br>Narcotic<br>Detection: thermal degradation in a quartz tube; detection limit 1.4 µg in analytical volume                                                                                                                                                                                                                                            |
| <b>Pentachloronitrobenzene</b><br><br>MAC <sub>wz</sub> 0.5 (v+a), Class II<br>TSEL <sub>hw</sub> 0.01<br>45, 370                | Intragastric: LD <sub>50</sub> mouse 1400, LD <sub>50</sub> rat 1300<br>Inhalation: LC <sub>50</sub> mouse 2000, LC <sub>50</sub> rat 1400; Lim <sub>ac</sub> rat 50<br>Affects cardiovascular and central nervous systems<br>Detection: photometry; detection limit 0.1 µg in analytical volume                                                                                           |
| <b>Pentachlorophenol</b><br><br>MAC <sub>wz</sub> 0.1 (v+a), Class I<br>TSEL <sub>hw</sub> 0.02<br>71, 466                      | Intragastric: LD <sub>50</sub> mouse 130 (106—161), LD <sub>50</sub> rat 184 (148—220)<br>On skin: LD <sub>50</sub> rat 96 (73—120)<br>Inhalation: LC <sub>50</sub> mouse 225 (165—285) 2 h, LC <sub>50</sub> rat 355 (295—415); Lim <sub>ac</sub> rat 42 1 h (24)<br>Affects cardiovascular system, liver and kidneys<br>Detection: photometry; detection limit 2 µg in analytical volume |
| <b>Pentachlorothiophenol, zinc salt (renacit IV)</b><br>$\text{C}_{12}\text{Cl}_{10}\text{S}_2\text{Zn}$<br>MAC <sub>wz</sub> 2 (a), Class III<br>385, 462                                                        | Intragastric: LD mouse <10 000<br>Inhalation: LC rat <10<br>Detection: colorimetry; detection limit 9.6 µg in analytical volume                                                                                                                                                                                                                                                            |
| <b>Pentadecylamine</b><br>$\text{C}_{15}\text{H}_{31}\text{NH}_2$<br>MAC <sub>wz</sub> 1 (v), Class II<br>191, 463                                                                                                | Intragastric: LD <sub>50</sub> mouse 520 (452—598), LD <sub>50</sub> rat 660 (545—799)<br>Inhalation: LC <sub>50</sub> mouse 240 (160—350), LC <sub>50</sub> rat 900 (600—1350) 4 h; Lim <sub>ac</sub> rat 10 4 h (1)<br>Lowers blood pressure; damages blood vessels<br>Detection: photometry; detection limit 1 µg in analytical volume                                                  |

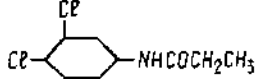
| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                    | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                              |
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| <b>Pentafluoropropionic acid</b><br>$\text{CF}_3\text{CF}_2\text{COOH}$<br>MAC <sub>wz</sub> 2 (v), Class III<br>45, 149                                                | Intragastric: LD <sub>50</sub> rat 750<br>Inhalation: LC <sub>50</sub> mouse 2100 2 h, LC <sub>50</sub> rat 155 000 2 h; Lim <sub>ac</sub> rat 2700 1 h (1); Lim <sub>ir</sub> man 350—400<br>Has irritant properties<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume                |
| <b>Perchloromethyl mercaptan</b><br>$\text{Cl-S-C} \begin{matrix} \text{Cl} \\   \\ \text{Cl} \end{matrix}$<br>MAC <sub>wz</sub> 1 (v), Class II<br>101, 466            | Inhalation: LC <sub>50</sub> mouse 296±43 2 h; LC <sub>100</sub> rat 260 4 h; Lim <sub>ac</sub> mouse 46 (1); Lim <sub>air</sub> man 1.8<br>Narcotic<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                   |
| <b>Perfluoroacetone dihydrate+</b><br>$(\text{CF}_3)_2\text{CO} \cdot 2\text{H}_2\text{O}$<br>MAC <sub>wz</sub> 2 (v), Class III<br>219, 312                            | Inhalation: LC <sub>50</sub> mouse 2400±280 2 h, LC <sub>50</sub> rat 3800±300 4h; Lim <sub>ir</sub> rabbit 60 15 min (7), Lim <sub>ir</sub> man 30; Lim <sub>air</sub> 8—15<br>Detection: photometry; detection limit 0.002 mg per 5 ml of solution                                                        |
| <b>Perfluoroadipodinitrile</b><br>$\text{NC}(\text{CF}_2)_4\text{CN}$<br>MAC <sub>wz</sub> 0.1 (v), Class I<br>173                                                      | Intragastric: LD <sub>50</sub> mouse 1955, LD <sub>50</sub> rat 2917<br>Inhalation: LC <sub>50</sub> mouse 140 4 h, LC <sub>50</sub> rat 62 4 h; Lim <sub>ac</sub> rat 9—10 4 h (1, 8, 15)                                                                                                                  |
| <b>Perfluorobutyl alcohol (perfluorobutanol)</b><br>$\text{CF}_3-\text{C}(\text{OH})(\text{CF}_3)-\text{CF}_2-\text{CF}_3$<br>MAC <sub>wz</sub> 20 (v), Class IV<br>284 | Intragastric: LD <sub>50</sub> rat 3630<br>Inhalation: LC <sub>50</sub> mouse 10 230 (8200—12 790) 2 h; Lim <sub>ac</sub> rat 1000—1500 4 h (1, 7, 8, 10)<br>Has irritant properties                                                                                                                        |
| <b>Perfluorodibutyl ether</b><br>$(\text{C}_4\text{F}_9)_2\text{O}$<br>MAC <sub>wz</sub> 1000 (v), Class IV<br>169                                                      | Intragastric: LD rat <18 000<br>Inhalation: LC <sub>50</sub> mouse 49 500 2 h, LC <sub>50</sub> rat 80 000 4 h; Lim <sub>ac</sub> rat 10 400 4 h (1, 7, 26)                                                                                                                                                 |
| <b>Perfluoroglutarodinitrile</b><br>$\text{NC}(\text{CF}_2)_3\text{CN}$<br>MAC <sub>wz</sub> 0.05 (v), Class I<br>173                                                   | Intragastric: LD <sub>50</sub> mouse 997, LD <sub>50</sub> rat 2600<br>Inhalation: LC <sub>50</sub> mouse 58 4 h, LC <sub>50</sub> rat 67 4 h; Lim <sub>ac</sub> rat 9—10 4 h (1, 8, 15)                                                                                                                    |
| <b>Perfluoroisobutylene (octafluoroisobutylene)</b><br>$(\text{CF}_3)_2\text{C}=\text{CF}_2$<br>MAC <sub>wz</sub> 0.1 (v), Class I<br>144, 312                          | Inhalation: LC <sub>100</sub> mouse 15 2 h; LC mouse <8 2 h; LC <sub>100</sub> rat 18 2 h; LC rat <10 2 h; LC <sub>100</sub> rat 15 min; LC cat 25—35 2 h; Lim <sub>ac</sub> rat 2—3 6 h (33)<br>Irritates lower respiratory tracts<br>Detection: photometry; detection limit 0.002 µg in analytical volume |

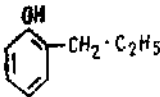
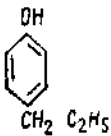
| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                                                                                                          | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                               |
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| <b>p-Phenetidine</b> (p-aminophenethole)+<br><br>MAC <sub>wz</sub> 0.2 (v), Class II<br>467, 510                                                                                             | Intragastric: LD <sub>50</sub> mouse 540 (450—630),<br>LD <sub>50</sub> rat 580 (500—640)<br>Inhalation: LC <sub>100</sub> rat 250 4 h; Lim <sub>ac</sub> rat<br>4.2 4 h (16)<br>Methemoglobin former; affects liver,<br>lungs and spleen<br>Detection: polarography; detection limit<br>1 µg in analytical volume                                                                                                           |
| <b>p-Phenetidine chloride</b><br><br>MAC <sub>wz</sub> 0.5 9 a), Class II<br>MAC <sub>w</sub> 0.02<br>467, 510                                                                               | Intragastric: LD <sub>50</sub> mouse 1180 (1090—<br>1280), LD <sub>50</sub> rat 2080 (1850—2310)<br>Inhalation: Lim <sub>ac</sub> rat 10 4 h (16)<br>Methemoglobin former; affects liver,<br>lungs and spleen<br>Detection: polarography; detection limit<br>1 µg in analytical volume                                                                                                                                       |
| <b>Phenol</b> (oxybenzene, carbolic<br>acid)+<br><br>MAC <sub>wz</sub> 0.3 (v), Class II<br>MAC <sub>hw</sub> 0.01<br>MAC <sub>ad</sub> 0.01<br>MAC <sub>w</sub> 0.001<br>125, 176, 419, 458 | Intragastric: LD <sub>50</sub> mouse 427 (395—<br>458), LD <sub>50</sub> rat 512 (455—568)<br>Subcutaneous: LD <sub>50</sub> mouse 510±30, LD <sub>50</sub><br>rat 670±75<br>On skin: LD <sub>50</sub> rat 1500 (1200—1800)<br>Inhalation: LC <sub>50</sub> rat 330 (260—420) 2 h<br>Affects nervous system; has irritant and<br>cauterizing actions<br>Detection: colorimetry; detection limit<br>4 µg in analytical volume |
| <b>m-Phenoxyphenol</b> +<br><br>MAC <sub>wz</sub> 1 (v), Class II<br>215                                                                                                                   | Intragastric: LD <sub>50</sub> mouse 493 (460—526),<br>LD <sub>50</sub> rat 1211 (1120—1302); Lim <sub>ac</sub> rat<br>17 (27)<br>On skin: LD <sub>50</sub> rat 2750 (2570—2930)<br>Inhalation: LC mouse, rat and guinea<br>pig <110 4 h; Lim <sub>ac</sub> rat 9 4 h (1, 27)<br>Detection: photometry; detection limit<br>5 µg in analytical volume                                                                         |
| <b>Phenylaminoethyl methacrylate</b><br><br>398                                                                                                                                            | Intragastric: LD <sub>50</sub> 5660 (4814—6506)                                                                                                                                                                                                                                                                                                                                                                              |

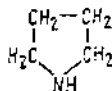
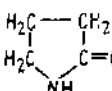
| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                   | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                                     |
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| <b>N-Phenyl-N,N-dimethylurea</b><br>(phenuron)                                                                                                         | Intragastric: LD <sub>50</sub> guinea pig 3200, LD <sub>50</sub> rat 7350; Lim <sub>ac</sub> 300 (37)<br>Has irritant properties and affects nervous system                                                                                                                                                        |
| <b>TSEL<sub>w</sub> 0.2</b><br>313                                                                                                                     |                                                                                                                                                                                                                                                                                                                    |
| <b>Phenylmethyldichlorosilane</b><br><chem>C6H5CH2SiCl2</chem><br>MAC <sub>wz</sub> 1 (v), Class II<br>190, 203                                        | Intragastric: LD mouse <100<br>Subcutaneous: LD <sub>100</sub> mouse 100<br>Intraabdominal: LD <sub>100</sub> mouse 100, LD <sub>100</sub> rat 100<br>Inhalation: LC <sub>100</sub> mouse 200—300 2 h;<br>LC mouse <20—40 2 h<br>Detection: colorimetry; detection limit<br>50 µg in analytical volume             |
| <b>N,N-m-Phenylenedimaleimide</b><br>148                                                                                                               | Intragastric: LD <sub>50</sub> mouse 250, LD <sub>50</sub> rat 1370                                                                                                                                                                                                                                                |
| <b>Phosgene</b><br><br>MAC <sub>wz</sub> 0.5 (v), Class II<br>60, 462 | Inhalation: LC rabbit 720 15 min, LC cat 190 15 min, LC dog 600 15 min, LC man 360 30 min<br>Causes acute toxic edema of lungs, circulatory disturbances and hypoxemia<br>Detection: colorimetry; detection limit<br>1 µg in analytical volume                                                                     |
| <b>Phosphoric anhydride</b><br><chem>P2O5</chem><br>MAC <sub>wz</sub> 1 (a), Class II<br>12, 454                                                       | Inhalation: LC rabbit 5000—7000 2—3 h<br>Has irritant properties<br>Detection: colorimetry; detection limit<br>1 µg in analytical volume                                                                                                                                                                           |
| <b>Phosphorus oxychloride</b> (phosphoryl chloride)<br><chem>POCl3</chem><br>MAC <sub>wz</sub> 0.05 (v), Class I<br>279, 469                           | Intragastric: LD <sub>50</sub> rat 380<br>Inhalation: LC <sub>50</sub> rat 71 (62—80) 4 h;<br>Lim <sub>ac</sub> rat 6 4 h (1, 8, 11); Lim <sub>ir</sub> rat 1 1 h (7), Lim <sub>ir</sub> man 1<br>Has irritant and necrotizing properties<br>Detection: colorimetry; detection limit<br>2 µg in analytical volume  |
| <b>Phosphorus pentoxide</b><br><chem>PCl5</chem><br>MAC <sub>wz</sub> 0.2 (v), Class II<br>279, 469                                                    | Intragastric: LD <sub>50</sub> rat 600<br>Inhalation: LC <sub>50</sub> rat 205 (152—283) 4 h;<br>Lim <sub>ac</sub> rat 40 4 h (1, 8); Lim <sub>ir</sub> rat 8 4 h (7), Lim <sub>ir</sub> man 10<br>Has irritant and necrotizing properties<br>Detection: colorimetry; detection limit<br>2 µg in analytical volume |

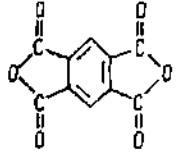
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                   | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                           |
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| <b>Phosphorus trichloride+</b><br>$\text{PCl}_3$<br>MAC <sub>wz</sub> 0.2 (v), Class II<br>279, 469                                                                                                                 | Intragastric: LD <sub>50</sub> rat 550 (470—643)<br>Inhalation: LC <sub>50</sub> rat 225 (173—287) 4 h;<br>Lim <sub>ac</sub> rat 10 4 h (1, 8, 11); Lim <sub>ir</sub> rat 5 4 h (7), Lim <sub>ir</sub> man 4<br>Has irritant and necrotizing actions<br>Detection: colorimetry; detection limit 2 µg in analytical volume                             |
| <b>Phthalic anhydride</b><br><br>MAC <sub>wz</sub> 1 (v+a), Class II<br>MAC <sub>hw</sub> 0.1<br>MAC <sub>ad</sub> 0.1<br>188, 289 | Intragastric: LD <sub>50</sub> mouse 1500, LD <sub>40</sub> rat 1500—200<br>Intratracheal: LD rat <30<br>Inhalation: LC rat <100 2.5 h<br>Has irritant properties<br>Detection: fluorescence measurement; detection limit 1 µg in analytical volume                                                                                                   |
| <b>Picolines</b> (isomers mixture)<br>$\text{CH}_3\text{C}_5\text{H}_4\text{N}$<br>MAC <sub>wz</sub> 5 (v), Class III<br>351, 464                                                                                   | Inhalation: Lim <sub>ac</sub> rabbit 330 40 min (2);<br>Lim <sub>ir</sub> man 5<br>Has irritant properties; affects nervous system, liver and kidneys<br>Detection: colorimetry; detection limit 10 µg in analytical volume                                                                                                                           |
| <b>Piperazine adipate</b><br><br>MAC <sub>wz</sub> 5 (a), Class III<br>471                                                         | Intragastric: LD <sub>50</sub> mouse 8000 (7500—8500), LD <sub>50</sub> rat 12 000<br>Intraabdominal: LD <sub>50</sub> mouse 1640 (1000—2600)                                                                                                                                                                                                         |
| <b>Piperidine+</b><br><br>MAC <sub>wz</sub> 0.2 (v), Class II<br>MAC <sub>w</sub> 0.06<br>34                                     | Intragastric (8% solution): LD <sub>50</sub> mouse 360 (290—380) (8% solution), LD <sub>50</sub> 371 (307—449), LD <sub>50</sub> rabbit 145 (105—157)<br>On skin: LT <sub>50</sub> mouse 120 (80—170)<br>Inhalation: LC <sub>50</sub> mouse 6500 (5000—10 700); Lim <sub>ac</sub> rat 20 4 h (1); Lim <sub>ir</sub> man 50<br>Has irritant properties |
| <b>Piperidylethyl methacrylate</b><br><br>398                                                                                    | Intragastric: LD <sub>50</sub> rat 3532 (2635—4428)                                                                                                                                                                                                                                                                                                   |

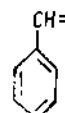
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                      | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                      |
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| <b>3(2-Piperidyl)pyridyl sulfate</b><br>(anabasine sulfate)<br>                                                       | Intragastric: LD <sub>50</sub> rat 210 (185—235), LD <sub>50</sub> mouse 4250<br>Intraabdominal: LD <sub>50</sub> cat 5600<br>Inhalation: LC <sub>50</sub> rat 60 4 h<br>Neuralpoison; affects intermediate ganglia of autonomous nervous system |
| MAC <sub>wz</sub> 0.1 (v+a), Class I<br>224                                                                                                                                                            | Inhalation: LC <sub>50</sub> mouse 1100 (9760—12397) 2 h, LC <sub>50</sub> rat 140 000 (97 200—201 600) 2 h; Lim <sub>ac</sub> rat 4000 4 h (4); Lim <sub>ir</sub> man 1000 1 min; Lim <sub>or</sub> man 6                                       |
| <b>Piperylene</b><br>CH <sub>3</sub> CH=CH-CH=CH <sub>2</sub><br>MAC <sub>wz</sub> 40 (v), Class IV<br>396                                                                                             | Intragastric: LD <sub>50</sub> mouse 240, LD <sub>50</sub> rat 350                                                                                                                                                                               |
| <b>Polychloropinene</b><br>(complex mixture of bicyclic compounds)+<br>MAC <sub>wz</sub> 0.2 (v+a), Class II<br>MAC <sub>w</sub> 0.2<br>289, 520                                                       | On skin: LD <sub>100</sub> rabbit 1000<br>Inhalation: LC <sub>50</sub> cat 60 4 h<br>Affects central nervous system<br>Detection: photometry; detection limit 1.5 µg in analytical volume                                                        |
| <b>Polyethylene (low pressure)</b><br>(-CH <sub>2</sub> -CH <sub>2</sub> -) <sub>n</sub><br>MAC <sub>wz</sub> 10 (a), Class III<br>384, 461                                                            | Intragastric: LD mouse <7000<br>Inhalation: LC rabbit and rat <100 2 h<br>Has irritant properties<br>Detection: weighing method                                                                                                                  |
| <b>Polyformaldehyde</b><br>(-CH <sub>2</sub> -O-) <sub>n</sub><br>80, 461                                                                                                                              | Inhalation: LC rat <730 2 h<br>Has irritant properties<br>Detection: weighing method                                                                                                                                                             |
| <b>Polymarcin</b><br>(composition: 40% zinc ethylene-bisdithiocarbamate, 20% manganese ethylenebisdithiocarbamate and 40% ethylenethiuramdisulfide)<br>MAC <sub>wz</sub> 0.5 (a), Class II<br>259, 469 | Intragastric: LD <sub>50</sub> rat 3290, LD <sub>50</sub> rabbit 2250<br>On skin: LD rabbit <1000; Lim <sub>ac</sub> rat and cat 20 4 h (39, 40)<br>Detection: colorimetry; detection limit 15 µg in analytical volume                           |
| <b>Polypropylene</b><br>MAC <sub>wz</sub> 10 (a), Class III<br>140, 461                                                                                                                                | Intragastric: LD mouse <8000<br>Inhalation: LC rat <100 2 h, LC rabbit <100 2 h<br>Has irritant properties<br>Detection: weighing method                                                                                                         |
| <b>Polyvinyl chloride</b><br>(-CH <sub>2</sub> -CH-) <sub>n</sub><br> <br>Cl<br>MAC <sub>wz</sub> 6 (a), Class III<br>114, 468                                                                         | Intragastric: LD mouse <5000<br>Inhalation: LC rat <300—400 4 h<br>Intratracheal: LD rat <50<br>Has irritant properties<br>Detection: weighing method                                                                                            |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                       | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                   |
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| <b>Potassium xanthogenate butyl ether</b><br>$C_4H_9OCS_2K$<br>MAC <sub>wz</sub> 10 (a), Class III<br>MAC <sub>w</sub> 0.001<br>24                                                      | Intragastric: LD <sub>50</sub> rat 456 (398—531);<br>Lim <sub>ac</sub> rat 40 (1)<br>Inhalation: LC <sub>50</sub> rat 7690 (7030—8320)<br>2 h; Lim <sub>ac</sub> rat 2500 2 h (1)                                                                                                                                             |
| <b>Propargyl alcohol</b><br>$CH \equiv C - C \begin{matrix} \nearrow OH \\ \searrow H_2 \end{matrix}$<br>MAC <sub>wz</sub> 1 (v), Class II<br>443, 462                                  | Intragastric: LD <sub>50</sub> mouse 53±3<br>Inhalation: LC <sub>50</sub> mouse 1500—2000, LC <sub>50</sub> rat 1600—2000 2 h<br>Narcotic; has irritant properties<br>Detection: colorimetry; detection limit 4 µg in analytical volume                                                                                       |
| <b>Propionic acid 3,4-dichloroaniline (propanide)</b><br><br>MAC <sub>wz</sub> 0.1 (a), Class I<br>303 | Intragastric: LD <sub>50</sub> mouse 675 (478—872),<br>LD <sub>50</sub> rat 2500 (2130—2870)<br>On skin: LD rat and rabbit <2000<br>Inhalation: LC rat and cat <25 4 h;<br>Lim <sub>ac</sub> rat and cat 15 4 h (16, 27)<br>Detection: chromatography; detection limit 5 µg in analytical volume                              |
| <b>Propionic aldehyde</b><br>$CH_3CH_2C \begin{matrix} \nearrow O \\ \searrow H \end{matrix}$<br>MAC <sub>wz</sub> (v), Class III<br>435, 464                                           | Intragastric: LD <sub>50</sub> rat 1410<br>Inhalation: LC <sub>50</sub> mouse 21 800 (17 000—27 900); 2 h; NC mouse 10 000 2 h;<br>Lim <sub>ac</sub> rabbit 1040 40 min (7); Lim <sub>ac</sub> man 14—16; Lim <sub>ac</sub> 1<br>Has irritant properties<br>Detection: colorimetry; detection limit 2 µg in analytical volume |
| <b>Propyl alcohol</b><br>$CH_3CH_2CH_2OH$<br>MAC <sub>wz</sub> 10 (v), Class III<br>MAC <sub>hw</sub> 0.3<br>MAC <sub>ad</sub> 0.3<br>MAC <sub>w</sub> 0.25<br>245, 422                 | Inhalation: Lim <sub>ac</sub> rabbit 50 000 40 min (2)<br>Narcotic; has irritant properties and damages eyes<br>Detection: paper chromatography; detection limit 0.5 µg in analytical volume                                                                                                                                  |
| <b>Propylamine</b><br>$CH_3CH_2CH_2NH_2$<br>MAC <sub>wz</sub> 5 (v), Class III<br>MAC <sub>w</sub> 0.5<br>45, 127                                                                       | Intragastric: LD <sub>50</sub> rat 580<br>Inhalation: LC <sub>50</sub> mouse 2500 2 h, LC <sub>50</sub> rat 1738 2 h; Lim <sub>ac</sub> rat 10 4 h (4, 7)<br>Affects central nervous system                                                                                                                                   |
| <b>Propyl bromide</b><br>$CH_3(CH_2)_2Br$<br>174                                                                                                                                        | Intraperitoneal: LD <sub>50</sub> mouse 2530, LD <sub>50</sub> rat 2950<br>Narcotic; causes organic damages to nervous system<br>Detection: colorimetry                                                                                                                                                                       |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                               | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                           |
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| <b>Propylene oxide</b> (1,2-epoxypropane, methyl oxirane) <sup>+</sup><br>$\text{H}_2\text{C} \begin{array}{c} \diagup \text{O} \diagdown \\ \text{CH} \end{array} \text{CH}_3$<br>MAC <sub>wz</sub> 1 (v), Class II<br>14, 333, 358                                            | Intragastric: LD <sub>50</sub> rat 380 (317—456), LD <sub>50</sub> mouse 440 (365—532)<br>Intraabdominal: LD <sub>50</sub> rat 150 (126—174), LD <sub>50</sub> mouse 175 (149—201)<br>On skin: LT <sub>50</sub> mouse 3.1 (2.7—4.9)<br>Inhalation: LC <sub>50</sub> mouse 4500 (3600—5700) 2 h; Lim <sub>ac</sub> rat 20 (1, 12) 4 h<br>Has irritant properties<br>Detection: photometry; detection limit 0.2 µg in analytical volume |
| <b>β-Propyl-α-ethylacrolein</b> (2-ethylhexanal)<br>$\text{C}_3\text{H}_7\text{CH}(\text{C}_2\text{H}_5)\text{CHO}$<br>MAC <sub>wz</sub> 3 (v), Class III<br>255, 283                                                                                                           | Intragastric: LD <sub>50</sub> mouse 3550 (2540—4970), LD <sub>50</sub> rat 6600 (5100—8600)<br>Inhalation: NC <sub>50</sub> mouse 600—830 2 h; Lim <sub>ac</sub> mouse 32—63 2 h, Lim <sub>ac</sub> 33±6 2 h (4), Lim <sub>ir</sub> man 5; Lim <sub>ot</sub> 1.6                                                                                                                                                                     |
| <b>S-Propyl-N-ethyl-N-butylthiocarbamate</b> (bittam)<br>$\text{C}_4\text{H}_9 \begin{array}{c} \diagup \text{NCSC}_2\text{H}_5 \\ \diagdown \text{C}_2\text{H}_5 \end{array} \begin{array}{c} \text{O} \\    \end{array}$<br>MAC <sub>wz</sub> 1 (v + a), Class II<br>469, 523 | Intragastric: LD <sub>50</sub> mouse 750, LD <sub>50</sub> rat 1125<br>On skin: LD <sub>50</sub> rat 2000; LD rabbit 1500<br>Inhalation: Lim <sub>ac</sub> rat 9 4 h                                                                                                                                                                                                                                                                  |
| <b>Propyl iodide</b><br>$\text{CH}_3\text{CH}_2\text{CH}_2\text{I}$<br>397                                                                                                                                                                                                      | Intraabdominal: LD <sub>50</sub> mouse 297 (249—345), LD <sub>50</sub> rat 650 (625—674), LD <sub>50</sub> guinea pig 595 (469—720)<br>Has irritant properties and affects central nervous system<br>Detection: colorimetry; detection limit 5 µg per 6 ml of analytical volume                                                                                                                                                       |
| <b>o-Propylphenol</b><br><br>514                                                                                                                                                             | Intragastric: LD <sub>50</sub> mouse 356±37, LD <sub>50</sub> rat 541±51, LD <sub>50</sub> guinea pig 450                                                                                                                                                                                                                                                                                                                             |
| <b>p-Propylphenol</b><br><br>514                                                                                                                                                             | Intragastric: LD <sub>50</sub> mouse 348±16, LD <sub>50</sub> rat 540±85, LD <sub>50</sub> guinea pig 675                                                                                                                                                                                                                                                                                                                             |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                            | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                               |
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| <b>Propyl propionate</b><br>$\text{CH}_3\text{CH}_2\text{COOC}_3\text{H}_7$<br>MAC <sub>wz</sub> 70 (v), Class IV<br>293, 312                                                                                                | Inhalation: LC <sub>50</sub> mouse 24 000 2 h;<br>Lim <sub>ac</sub> mouse 1500 40 min, Lim <sub>ac</sub> rabbit<br>1500—2000 40 min (2), Lim <sub>ac</sub> rabbit<br>500—1000 40 min (4); Lim <sub>ir</sub> man 1500,<br>Lim <sub>ir</sub> cat 500 30 min (28, 29)<br>Narcotic; causes edema of lungs<br>Detection: photometry; detection limit<br>10 mg/m <sup>3</sup>   |
| <b>Pyrene</b><br>$\text{C}_{16}\text{H}_{10}$<br>TSEL <sub>wz</sub> 0.1<br>320                                                                                                                                               | Intragastric: LD <sub>50</sub> mouse 800 (657—964),<br>LD <sub>50</sub> rat 2700 (2400—2900)<br>Inhalation: LC <sub>50</sub> rat 170 (68—272) 4 h<br>Detection: fluorescence measurement;<br>detection limit $1 \cdot 10^{-2}$ µg per 1 ml of<br>analytical volume                                                                                                        |
| <b>Pyridine</b><br><br>MAC <sub>wz</sub> 5 (v), Class II<br>MAC <sub>hw</sub> 0.08<br>MAC <sub>ad</sub> 0.08<br>MAC <sub>w</sub> 0.2<br>351 | Inhalation: LC rabbit and cat <5000<br>2 h; Lim <sub>ac</sub> rabbit 370 40 min (2); Lim <sub>ir</sub><br>man 5<br>Has irritant properties; affects nervous<br>system, liver and kidneys                                                                                                                                                                                  |
| <b>Pyrrolidine</b> <sup>+</sup><br><br>MAC <sub>wz</sub> 0.1 (v), Class II<br>290, 469, 541                                                | Intragastric: LD <sub>50</sub> rat 250; LD mouse<br><250; LD <sub>63</sub> guinea pig 250, LD <sub>70</sub> rabbit<br>250<br>On skin: LT <sub>50</sub> mouse 60; LD rabbit<br><500<br>Inhalation: LC <sub>50</sub> mouse 1500 2 h; Lim <sub>ac</sub><br>rat 30 4 h (1)<br>Has irritant properties<br>Detection: colorimetry; detection limit<br>2 µg in analytical volume |
| <b>α-Pyrrolidone</b><br><br>TSEL <sub>wz</sub> 6<br>10, 184                                                                               | Intragastric: LD <sub>50</sub> rat 7500<br>Detection: chromatography                                                                                                                                                                                                                                                                                                      |

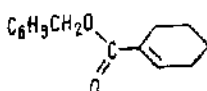
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                  | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                        |
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| <b>Pyromellitic acid dianhydride</b><br><br>MAC <sub>wz</sub> 5 (a), Class III<br>161, 464        | Intragastric: LD <sub>50</sub> mouse 2400±400, LD <sub>50</sub> rat 2200±200<br>Inhalation: LC rat 150 4 h; Lim <sub>ac</sub> rat 70 4 h (1)<br>Has irritant properties                                                                                                                                                                                                            |
| <b>Renacit II</b> (alloy of trichlorothio-phenol with disulfide and paraffin)<br>C <sub>6</sub> H <sub>3</sub> Cl <sub>3</sub> S<br>MAC <sub>wz</sub> 5 (a), Class III<br>385, 468 | Intragastric: LD <sub>50</sub> mouse 2250<br>Inhalation: LC rat <20—30<br>Detection: weighing method                                                                                                                                                                                                                                                                               |
| <b>Resorcinol m-monomethyl ether</b><br>(m-methoxyphenol) <sup>+</sup><br>m-CH <sub>3</sub> OC <sub>6</sub> H <sub>4</sub> OH<br>MAC <sub>wz</sub> 0.5 (v), Class II<br>216        | Intragastric: LD <sub>50</sub> mouse 312 (292—334), LD <sub>50</sub> rat 597 (572—623)<br>On skin: LD <sub>50</sub> rat 682 (554—830)<br>Inhalation: LC <sub>50</sub> mouse 11.5 4 h, LC <sub>50</sub> rat 11.5 4 h; LC guinea pig <11.5 4 h; Lim <sub>ac</sub> rat 3.2 4 h (1, 27)<br>Has irritant properties<br>Detection: photometry; detection limit 2 µg in analytical volume |
| <b>Selenious anhydride</b><br>SeO <sub>2</sub><br>AC <sub>wz</sub> 0.1 (a), Class I<br>39, 461                                                                                     | Inhalation: LC rabbit <20 2 h<br>Has irritant properties<br>Detection: colorimetry; detection limit 20 µg in analytical volume                                                                                                                                                                                                                                                     |
| <b>Selenium (amorphous)</b><br>Se<br>AC <sub>wz</sub> 2 (a), Class III<br>39, 461                                                                                                  | Inhalation: LC rabbit <40<br>Has irritant properties<br>Detection: colorimetry; detection limit 20 µg in analytical volume                                                                                                                                                                                                                                                         |
| <b>Sodium cis-chloroacrylate (acrolein)</b><br>C—COONa<br>  <br>C—Cl<br>AC <sub>wz</sub> 0.5 (a), Class III<br>35                                                                  | Intragastric: LD <sub>50</sub> mouse 595 (513—677), LD <sub>50</sub> rat 540 (379—701), LD <sub>50</sub> rabbit 400 (198—602)<br>On skin: LD <sub>50</sub> rat 3900 (3304—4596)<br>Inhalation: LC <sub>50</sub> rat 150 (126—174) 4 h; Lim <sub>ac</sub> rat and rabbit 73 4 h (1, 24, 37)<br>Intraabdominal: LD <sub>50</sub> rat 4.7 (4.3—5.1)                                   |
| <b>Sodium cyanide</b><br>NaCN<br>34                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Sodium iodide</b><br>NaI<br>31                                                                                                                                                  | Intragastric: LD <sub>50</sub> mouse 1000; LD rat 1600<br>On skin: LD rabbit <500<br>Inhalation: LC mouse <50 000 2 h<br>Detection: weighing method                                                                                                                                                                                                                                |

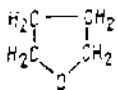
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                    | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                         |
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| <b>Sodium N-methyldithiocarbamate (carbathione)</b><br>$\text{CH}_3\text{NHCSNa} \cdot 2\text{H}_2\text{O}$<br><br>MAC <sub>wz</sub> 0.1 (a), Class I<br>282        | Intragastric: LD <sub>50</sub> mouse 340±25, LD <sub>50</sub> mouse 145±9 <sup>1</sup> , LD <sub>50</sub> rat 573±34, LD <sub>50</sub> rat 444±72 <sup>1</sup><br>On skin: LD <sub>50</sub> rat 636 (623—669)                                                                                                                                                                                       |
| <b>Sodium nitrite</b><br>$\text{NaNO}_2$<br>TSEL <sub>wz</sub> 0.05<br>70                                                                                                                                                                            | Intragastric: LD <sub>50</sub> rat 200±4<br>Inhalation: LC <sub>50</sub> rat 5.5±0.2 4 h; Limac rat 1 4 h (20, 39)                                                                                                                                                                                                                                                                                  |
| <b>Sodium pentachlorophenate</b><br>$\text{C}_6\text{Cl}_5\text{ONa}$<br>MAC <sub>wz</sub> 0.1 (v+a), Class I<br>MAC <sub>w</sub> 5<br>324, 466                                                                                                      | Intragastric: LD <sub>50</sub> mouse 197±14.5; LD <sub>100</sub> rat 545; LD rat 290; LD <sub>100</sub> rabbit 328; LD guinea pig 260; LD guinea pig 168<br>On skin: LD <sub>50</sub> mouse 124±8.4<br>Inhalation: LC <sub>50</sub> mouse 240±28.6 2 h, LC <sub>50</sub> guinea pig 341±42.5 2 h; Limac guinea pig 35 4 h (27)<br>Detection: colorimetry; detection limit 2 µg in analytical volume |
| <b>Sodium thiocyanate (technical grade)</b><br>$\text{NaSCN}$<br>MAC <sub>wz</sub> 50 (a), Class IV<br>328                                                                                                                                           | Intragastric: LD <sub>50</sub> mouse 362±25, LD <sub>50</sub> rat 1180±80<br>Intratracheal: LD <sub>50</sub> rat 232±34<br>Intravenous: LD rabbit 500<br>On skin: LD rat <1250<br>Inhalation: LC mouse and rat <3500 2 h                                                                                                                                                                            |
| <b>Streptomycin sulfate</b><br>$(\text{C}_{21}\text{H}_{39}\text{N}_7\text{O}_{12})_2 \cdot 3\text{H}_2\text{SO}_4$<br>MAC <sub>wz</sub> 0.1 (a), Class I<br>304, 461                                                                                | Intragastric: LD <sub>50</sub> mouse 430 (328—522), LD <sub>50</sub> rat 430 (394—465)<br>Inhalation: LC rat <75 3 h<br>Detection: weighing method                                                                                                                                                                                                                                                  |
| <b>Strontium nitrate</b><br>$\text{Sr}(\text{NO}_3)_2$<br>MAC <sub>wz</sub> 1 (a), Class I<br>461, 558                                                                                                                                               | Intragastric: LD <sub>50</sub> mouse 1826 (1685—1966), LD <sub>50</sub> rat 2750 (2447—3053)<br>Inhalation: Limac rat 74 4 h (1, 11)<br>Detection: weighing method                                                                                                                                                                                                                                  |
| <b>Styrene (vinylbenzene)</b><br><br>MAC <sub>wz</sub> 5 (v), Class III<br>MAC <sub>hw</sub> 0.003<br>MAC <sub>ad</sub> 0.003<br>MAC <sub>w</sub> 0.1<br>390, 467 | Inhalation: LC <sub>50</sub> mouse 9500 4 h; Limac rabbit 250—2000 40 min (2); Limad man 20<br>Narcotic; has irritant properties<br>Detection: chromatography; detection limit 1 µg in analytical volume                                                                                                                                                                                            |

<sup>1</sup> Technical — grade product

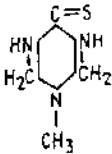
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                      | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                    |
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| Styrene- $\alpha$ -methylstyrene copolymer                                                                                                                             | Intragastric: LD rat <12 500<br>Intratracheal: LD rat <25<br>Detection: weighing method                                                                                                                                                                                                        |
| $\left[ \begin{array}{c} \text{CH}_2 - \text{CH} - \text{CH}_2 - \text{C} \\   \quad \quad   \\ \text{C}_6\text{H}_5 \quad \text{C}_6\text{H}_5 \end{array} \right]_p$ |                                                                                                                                                                                                                                                                                                |
| MAC <sub>wz</sub> 5 (a), Class III<br>43, 468                                                                                                                          |                                                                                                                                                                                                                                                                                                |
| Sulfur chloride<br>S <sub>2</sub> Cl <sub>2</sub><br>TSEL <sub>wz</sub> 0.5<br>45, 409                                                                                 | Inhalation: Lim <sub>ac</sub> rat 90—96 4 h (1, 11, 12); Lim <sub>ir</sub> rat 9 (9), Lim <sub>ir</sub> cat 10 1 h (28), Lim <sub>ir</sub> man 5<br>Has irritant properties<br>Detection: nephelometry and colorimetry                                                                         |
| Sulfuric acid<br>H <sub>2</sub> SO <sub>4</sub><br>MAC <sub>wz</sub> 1 (a), Class II<br>MAC <sub>hw</sub> 0.3<br>MAC <sub>ad</sub> 0.1<br>283, 468                     | Inhalation: LC <sub>50</sub> mouse 320 2 h, LC <sub>50</sub> rat 510 2 h<br>Has irritant properties<br>Detection: colorimetry; detection limit 10 µg in analytical volume                                                                                                                      |
| Tellurium<br>Te<br>MAC <sub>wz</sub> 0.01 (a), Class I<br>MAC <sub>w</sub> 0.01<br>228, 422                                                                            | Intragastric: LD <sub>50</sub> mouse 20 (15.7—24.3), LD <sub>50</sub> rat 83 LD <sub>50</sub> guinea pig 45, LD <sub>50</sub> rabbit 67<br>Has irritant properties; affects liver and other parenchymatous organs<br>Detection: spectrophotometry; detection limit 0.5 µg in analytical volume |
| Terephthalic acid (1,4-benzene-dicarboxylic acid)                                                                                                                      | Intragastric: LD <sub>50</sub> mouse 10 000<br>Inhalation: LC rat <2—5 2 h<br>Affects central nervous system<br>Detection: colorimetry; detection limit 30 µg in analytical volume                                                                                                             |
|                                                                                     |                                                                                                                                                                                                                                                                                                |
| MAC <sub>wz</sub> 0.1 (v+a), Class I<br>MAC <sub>w</sub> 0.1<br>361, 469                                                                                               |                                                                                                                                                                                                                                                                                                |
| Tetrabromoethane<br>CHBr <sub>2</sub> -CHBr <sub>2</sub><br>MAC <sub>wz</sub> 1 (v), Class II<br>11, 307                                                               | Intragastric: LD <sub>50</sub> mouse 269±44, LD <sub>50</sub> rat 1100±106<br>On skin: LD <sub>50</sub> rat 5250±110<br>Inhalation: LC <sub>50</sub> rat 549±50 4 h<br>Narcotic; affects liver and kidneys                                                                                     |
| Tetrachloroethane+<br>Cl <sub>2</sub> CHCHCl <sub>2</sub><br>MAC <sub>wz</sub> 5 (v), Class III<br>MAC <sub>w</sub> 0.2<br>326, 466                                    | Intragastric: LD <sub>50</sub> rat 800<br>Inhalation: LC <sub>50</sub> mouse 4500 2 h; Lim <sub>ac</sub> mouse 720 40 min (1); Lim <sub>ir</sub> rat 18 2 h<br>Narcotic; affects liver and kidneys<br>Detection: photometry; detection limit 0.3 µg in analytical volume                       |

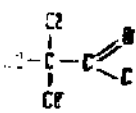
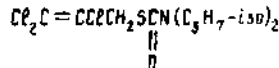
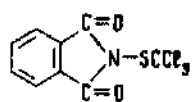
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                                  | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                         |
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| <b>Tetraethyl lead+</b><br>$\text{Pb}(\text{C}_2\text{H}_5)_4$<br>MAC <sub>wz</sub> 0.005 (v), Class I<br>MAC <sub>w</sub> none<br>66, 460                                                                                                                                                         | Inhalation: LC mouse 5100 10 min<br>Damages central nervous system, particularly cerebral cortex and thalamic and hypothalamic regions<br>Detection: nephelometry; detection limit 1.5 µg in analytical volume                                                                                                                      |
| <b>Tetrachloroethylene</b> (perchloroethylene)<br>$\text{Cl}_2=\text{CCl}_2$<br>MAC <sub>wz</sub> 10 (v), Class III<br>72, 498                                                                                                                                                                     | Inhalation: LC rat <100 000 4 h; Lim <sub>ac</sub> rat 1000 4 h (5)<br>Narcotic; affects liver and kidneys<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume                                                                                                                                                   |
| <b>Tetrachloroheptane</b><br>$\text{Cl}(\text{CH}_2\text{CH}_2)_3\text{CCl}$<br>MAC <sub>wz</sub> (v), Class II<br>MAC <sub>w</sub> 0.0025<br>464, 498                                                                                                                                             | Intragastric: LD rat 2500<br>Narcotic; affects liver<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume                                                                                                                                                                                                         |
| <b>Tetrachlorohexatriene+</b><br>$\text{H}_2\text{C}=\text{C}=\text{C}=\text{C}=\text{C}=\text{CH}_2$<br>$\begin{array}{c} \text{Cl} \quad \text{Cl} \quad \text{Cl} \\   \quad   \quad   \\ \text{C} \quad \text{C} \quad \text{C} \end{array}$<br>MAC <sub>wz</sub> 0.3 (v), Class II<br>56, 461 | Intragastric: LD <sub>50</sub> mouse 290 (235–344), LD <sub>50</sub> rat 370 (322–418)<br>On skin: LT <sub>50</sub> mouse 91<br>Inhalation: LC <sub>5</sub> mouse 190 (104–271) 2 h, LC <sub>50</sub> rat 670 (468–882); Lim <sub>ac</sub> rat 48 4 h (1, 8)<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume |
| <b>Tetrachlorononane</b><br>$\text{Cl}(\text{CH}_2\text{CH}_2)_4\text{CCl}_3$<br>MAC <sub>wz</sub> 1 (v+a), Class II<br>MAC <sub>w</sub> 0.003<br>464                                                                                                                                              | Intragastric: LD <sub>50</sub> rat 1 ml/kg<br>Inhalation: LC <sub>100</sub> rat 250 2 h; LC rat <100 2 h<br>Narcotic; damages liver<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume                                                                                                                          |
| <b>Tetrachloropentane</b><br>$\text{Cl}(\text{CH}_2\text{CH}_2)_2\text{CCl}_3$<br>MAC <sub>wz</sub> 1 (v), Class II<br>MAC <sub>w</sub> 0.005<br>464, 498                                                                                                                                          | Intragastric: LD rat 1500<br>Narcotic; damages liver<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume                                                                                                                                                                                                         |
| <b>Tetrachloropropane</b><br>$\text{Cl}(\text{CH}_2\text{CH}_2)\text{CCl}_3$<br>MAC <sub>wz</sub> 1 (v), Class II<br>MAC <sub>w</sub> 0.01<br>464, 498                                                                                                                                             | Intragastric: LD rat 4000<br>Narcotic; damages liver<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume                                                                                                                                                                                                         |
| <b>Tetrachloroundecane</b><br>$\text{Cl}(\text{CH}_2\text{CH}_2)_5\text{CCl}_3$<br>MAC <sub>wz</sub> 5 (v+a), Class III<br>MAC <sub>w</sub> 0.007<br>461, 499                                                                                                                                      | Intragastric: LD <sub>50</sub> mouse 2000<br>Inhalation: LC rat <250; Lim <sub>ac</sub> cat 50 1 h (4)<br>Detection: colorimetry; detection limit 0.5 µg in analytical volume                                                                                                                                                       |

| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                                                                         | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                |
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| <b>Tetracycline</b><br>$C_{22}H_{24}N_2O_8$<br>MAC <sub>wz</sub> 0.1 (a), Class II<br>MAC <sub>hw</sub> 0.01<br>MAC <sub>ad</sub> 0.006<br>769, 554                                                                                          | Intragastric: LD <sub>50</sub> mouse 5517 (5236—5798), LD <sub>50</sub> rat 4250, LD <sub>50</sub> guinea pig 1875<br>Inhalation: LC rat <100 5 h<br>Causes allergic dermatitis and bronchial asthma<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                                                                                     |
| <b>Tetrafluoroethylene</b><br>$CF_2=CF_2$<br>TSEL <sub>wz</sub> 20<br>460                                                                                                                                                                    | Inhalation: LC <sub>50</sub> mouse 143 000 2 h, LC <sub>50</sub> rat 120 000 (113 000—147 200), 4 h, LC <sub>50</sub> guinea pig 115 600 4 h; Lim <sub>ac</sub> rat 5300 4 h (1, 7, 15)<br>Detection: thermal degradation in a quartz tube; detection limit 1.4 µg in analytical volume                                                                                                                                       |
| <b>Tetrafluoro-(m-phenylene)dima-<br/>leimide</b><br>148                                                                                                                                                                                     | Intragastric: LD <sub>50</sub> mouse 1650, LD <sub>50</sub> rat 2100                                                                                                                                                                                                                                                                                                                                                          |
| <b>Tetrafluoropropyl alcohol</b><br>$CHF_2CF_2CH_2OH$<br>MAC <sub>wz</sub> 20 (v), Class IV<br>30, 312                                                                                                                                       | Inhalation: LC <sub>50</sub> mouse 8600 2 h; Lim <sub>ac</sub> rabbit 2800 40 min (2)<br>Narcotic<br>Detection: colorimetry; detection limit 0.002 mg in analytical volume                                                                                                                                                                                                                                                    |
| <b>Tetrahydrobenzaldehyde</b><br>$C_8H_8CHO$<br>MAC <sub>wz</sub> 0.5 (v), Class II<br>MAC <sub>w</sub> 0.1<br>TSEL <sub>hw</sub> 0.05<br>TSEL <sub>ad</sub> 0.05<br>274                                                                     | Intragastric: LD <sub>50</sub> rat 1050±35, LD <sub>50</sub> mouse 1000, LD <sub>50</sub> rabbit 1600, LD <sub>50</sub> guinea pig 1750<br>Inhalation: LC <sub>50</sub> mouse 556±14 4 h; LC rat <930 4 h; Lim <sub>ac</sub> rat 50 4 h (1); Lim <sub>01f</sub> man 0.14<br>Narcotic<br>Detection: colorimetry, detection limit 3 µg per 1 ml of analytical volume; chromatography, detection limit 1 µg in analytical volume |
| <b>Tetrahydrobenzyl cyclohexenecar-<br/>oxylate</b><br><br>MAC <sub>wz</sub> 1 (v), Class II<br>TSEL <sub>hw</sub> 0.15<br>TSEL <sub>ad</sub> 0.15<br>274 | Intragastric: LD <sub>50</sub> rat 1670±39, LD <sub>50</sub> mouse 1800, LD <sub>50</sub> rabbit 2700, LD <sub>50</sub> guinea pig 2900<br>Inhalation: LC mouse and rat <300 4 h; Lim <sub>ac</sub> rat 100 4 h (1, 24); Lim <sub>01f</sub> man 0.6<br>Narcotic<br>Detection: colorimetry, detection limit 10 µg per 1 ml of analytical volume; chromatography; detection limit 2 µg on plate                                 |

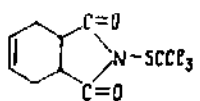
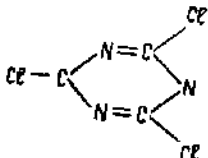
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                         | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                            |
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| <b>Tetrahydrofuran (furanidine)</b><br><br>MAC <sub>wz</sub> 100 (v), Class IV<br>MAC <sub>hw</sub> 0.2<br>MAC <sub>sd</sub> 0.2<br>MAC <sub>w</sub> 0.5<br>440, 464                                     | Intragastric: LD <sub>50</sub> rat 3000<br>Inhalation: LC <sub>50</sub> rat 78 000 (51 400—100 800) 2 h; Lim <sub>ac</sub> rat 20 000 4 h (1)<br>Narcotic; has irritant properties<br>Detection: colorimetry; detection limit 5 µg in analytical volume                                                                                                                                |
| <b>Tetrahydroindene</b><br><br>TSEL <sub>wz</sub> 20<br>74                                                                                                                                               | Intragastric: LD <sub>50</sub> mouse 3500 (2230—4772)<br>Intraabdominal: Lim <sub>ac</sub> mouse 1.67 (1.12±2.5) (1)<br>Inhalation: LC mouse <56 000 2 h; Lim <sub>ac</sub> mouse 70±23 40 min (1) Lim <sub>ir</sub> man 183; Lim <sub>air</sub> 2.5                                                                                                                                   |
| <b>Tetralin (tetrahydronaphthalene)</b><br><br>MAC <sub>wz</sub> 100 (v), Class IV<br>45, 493                                                                                                            | Inhalation: LC mouse <1000 2—7 h, LC rabbit <1000 2 h, LC cat <1000 4.5 h; Lim <sub>ac</sub> man 1000<br>Narcotic; causes lens opacification<br>Detection: ultrametry                                                                                                                                                                                                                  |
| <b>Tetramethylthiuramdisulfide (thiuram, TMTD)</b><br>$(\text{CH}_3)_2\text{NC}-\text{S}-\text{S}-\text{CN}(\text{CH}_3)_2$<br><br>MAC <sub>wz</sub> 0.5 (a), Class II<br>MAC <sub>w</sub> 1<br>45, 278 | Intragastric: LD <sub>50</sub> mouse 1343 (1166—1521), LD <sub>50</sub> rat 712 (636—788), LD <sub>50</sub> rabbit 288 (185—391)<br>On skin: LD rabbit 1000<br>Inhalation: LC cat and rabbit <780—810 4 h; Lim <sub>ac</sub> cat and rat 150—300 4 h<br>Increases sensitivity to alcohol; has irritant properties<br>Detection: colorimetry; detection limit 7 µg in analytical volume |
| <b>Tetra nitromethane</b><br>$\text{C}(\text{NO}_2)_4$<br>MAC <sub>wz</sub> 0.3 (v), Class II<br>MAC <sub>w</sub> 0.5<br>168, 435                                                                                                                                                         | Inhalation: LC <sub>100</sub> mouse 1000 2 h; Lim <sub>ac</sub> rat 2—3 2 h, Lim <sub>ac</sub> rat 3 2 h (4)<br>Methemoglobin former<br>Detection: gas-liquid chromatography                                                                                                                                                                                                           |
| <b>Thallium bromide</b><br>$\text{TlBr}_3$<br>MAC <sub>wz</sub> 0.01 (a), Class I                                                                                                                                                                                                         | Intragastric: LD <sub>100</sub> rat 35<br>Inhalation: LC rat <5 1 h<br>Affects central and peripheral nervous systems, gastrointestinal tract and kidneys<br>Detection: colorimetry; detection limit 2 µg in analytical volume                                                                                                                                                         |

| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                      | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                    |
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| <b>Thallium iodide</b><br>$TlI_3$<br>MAC <sub>wz</sub> 0.01 (a), Class I<br>43, 365                                       | Intragastric: LD <sub>50</sub> rat 55<br>Inhalation: LC rat <5 1 h<br>Affects central and peripheral nervous systems, gastrointestinal tract and kidneys<br>Detection: colorimetry; detection limit 2 µg in analytical volume<br>Intraabdominal: LD <sub>50</sub> rat 3442±103                                                                    |
| <b>Thiocarbonic acid diamide (thio-urea)</b><br>$NH_2C(S)NH_2$<br>551                                                     | Intraabdominal: LD <sub>50</sub> rat 3442±103                                                                                                                                                                                                                                                                                                     |
| <b>Thioglycolic acid (mercaptoacetic acid)*</b><br>$SH-CH_2-COOH$<br>MAC <sub>wz</sub> 0.1 (v+a), Class I<br>343, 469     | Intragastric: LD <sub>50</sub> rat 120, LD <sub>50</sub> mouse 250 (229—272)<br>On skin: LD rabbit <80—90<br>Inhalation: LC mouse 7—8 2 h; Lim <sub>ac</sub> rat 1—4 4 h (12)<br>Affects skin and disturbs hematopoiesis<br>Detection: colorimetry; detection limit 20 µg in analytical volume                                                    |
| <b>Thiophene (thiofuran)</b><br>         | Intragastric: LD <sub>50</sub> mouse 420 (350—510), LD <sub>50</sub> rat 1400 (1100—1780)<br>Inhalation: LC <sub>50</sub> mouse 9500 (7600—11 900) 2 h; Lim <sub>ac</sub> mouse 1000 2 h (4), Lim <sub>ac</sub> rabbit 2000 40 min (2)<br>Narcotic; has irritant properties<br>Detection: nephelometry; detection limit 2 µg in analytical volume |
| MAC <sub>wz</sub> 20 (v), Class IV<br>MAC <sub>hw</sub> 0.6<br>MAC <sub>w</sub> 2<br>270, 463                             |                                                                                                                                                                                                                                                                                                                                                   |
| <b>Thiourea dioxide</b><br>$CH_4SO_2N_2$<br>551                                                                           | Intragastric: LD <sub>50</sub> rat 423±15                                                                                                                                                                                                                                                                                                         |
| <b>Titanium tetrachloride</b><br>$TiCl_4$<br>MAC <sub>wz</sub> 1 (v), Class II<br>MAC <sub>w</sub> 0.1<br>363, 461        | Inhalation: LC <sub>50</sub> mouse 100, LC <sub>50</sub> rat 400<br>Has irritant properties<br>Detection: colorimetry; detection limit 0.3 µg in analytical volume                                                                                                                                                                                |
| <b>Toluene (methylbenzene)</b><br>     | Inhalation: LC mouse 30 000—35 000 2 h; Lim <sub>ac</sub> rabbit 3000—10 000 40 min (2)<br>Narcotic; affects hematopoiesis has irritant properties<br>Detection: colorimetry; detection limit 5 µg in analytical volume                                                                                                                           |
| MAC <sub>wz</sub> 50 (v), Class III<br>MAC <sub>hw</sub> 0.6<br>MAC <sub>ad</sub> 0.6<br>MAC <sub>w</sub> 0.5<br>243, 462 |                                                                                                                                                                                                                                                                                                                                                   |

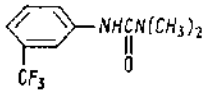
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                     | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                           |
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| <b>m-Toluic acid</b><br>$m\text{-CH}_3\text{C}_6\text{H}_4\text{COOH}$<br>33                                                                          | Intragastric: LD <sub>50</sub> mouse 1630 (1148—2315); LD rat <5000                                                                                                                                                                                                                                                                                                   |
| <b>Toluylenediamine+</b><br>$\text{CH}_3\text{C}_6\text{H}_4(\text{NH}_2)$<br>MAC <sub>wz</sub> 2 (v+a), Class III<br>102, 465                        | Intragastric: LD <sub>50</sub> rat 300<br>Inhalation: LC mouse 120—150<br>Methemoglobin former; causes hemolysis<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                                                                                                                 |
| <b>Triallylamine+</b><br>$(\text{CH}_2=\text{CH}_2\text{-CH}_2)_3\text{N}$<br>MAC <sub>wz</sub> 1 (v), Class II<br>208, 469                           | Intragastric: LD <sub>50</sub> mouse 620 (553—694), LD <sub>50</sub> rat 2200 (1737—2376)<br>Inhalation: LC <sub>50</sub> rat 2800 (2000—3240) 4 h<br>Detection: colorimetry detection limit 5 µg in analytical volume                                                                                                                                                |
| <b>Triazinethion</b><br><br>515                                      | Intragastric: LD mouse, rat and guinea pig <5000                                                                                                                                                                                                                                                                                                                      |
| <b>Tributyl phosphate+</b><br>$(\text{C}_4\text{H}_9\text{O})_3\text{PO}$<br>MAC <sub>wz</sub> 0.5 (v), Class II<br>MAC <sub>w</sub> 0.01<br>141, 460 | Intragastric: LD <sub>50</sub> mouse 1189±213, LD <sub>50</sub> rat 3350±133<br>Intraabdominal: LD <sub>50</sub> mouse 158±12, LD <sub>50</sub> rat 215±27<br>On skin: LD rat <670<br>Inhalation: LC mouse <22 2 h, LC rat <22 4 h<br>Has irritant properties; inhibits cholinesterase activity<br>Detection: colorimetry detection limit 0.5 µg in analytical volume |
| <b>Tributyltinmethacrylate</b><br>$\text{CH}_2=\text{C}(\text{CH}_3)\text{COOSn}(\text{C}_4\text{H}_9)_3$<br>490                                      | Intragastric: LD <sub>50</sub> mouse 210, LD <sub>50</sub> rabbit 150, LD <sub>50</sub> guinea pig 150                                                                                                                                                                                                                                                                |
| <b>Trichloroacetic acid+</b><br>$\text{CCl}_3\text{COOH}$<br>MAC <sub>wz</sub> 5 (v+a), Class III<br>249                                              | Intragastric: LD <sub>50</sub> rat 8900 (7000—9900)<br>On skin: LT <sub>50</sub> mouse 129 (119—139)<br>Inhalation: Lim <sub>ac</sub> rat 43 4 h (1); Lim <sub>ir</sub> rat 25 4 h (7), Lim <sub>ir</sub> man 5—7<br>Has irritant properties                                                                                                                          |

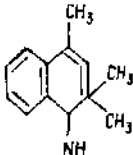
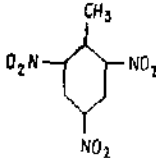
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                                 | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                          |
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| <b>1,1,3-Trichloroacetone</b><br>$\text{CHCl}_2\text{COCH}_2\text{Cl}$<br>MAC <sub>wz</sub> 0.3 (v), Class II<br>297, 312                                                                                                                                                                         | Inhalation: LC <sub>50</sub> mouse 360±44 2 h, LC <sub>50</sub> rat 390 2 h; Lim <sub>ac</sub> mouse 40 2 h (1); Lim <sub>ir</sub> man 0.8<br>Detection: colorimetry; detection limit 0.003 mg per 1 ml of solution                                                                                                                                  |
| <b>Trichloroacetyl chloride<sup>1</sup></b><br><br>MAC <sub>wz</sub> 0.1 (v), Class I<br>248, 461                                                                                                                | Intragastric: LD <sub>50</sub> rat 600<br>Inhalation: LC <sub>50</sub> rat 475 (318—698) 4 h, LC <sub>50</sub> mouse 445 (296—667); Lim <sub>ac</sub> rat 10 4 h (1, 11, 15), Lim <sub>ac</sub> rat 1—3 4 h (7, 9); Lim <sub>ir</sub> man 0.6<br>Has irritant properties<br>Detection: colorimetry; detection limit 0.1 µg in analytical volume      |
| <b>S-(2,3,3-Trichloroallyl)-N,N-di-(isopropyl)thiocarbamate (diphal)</b><br>$\text{CCl}_2\text{C}=\text{CClCH}_2\text{SCN}(\text{C}_3\text{H}_7\text{-iso})_2$<br><br>MAC <sub>wz</sub> 1 (v+a), Class II<br>322 | Intragastric: LD <sub>50</sub> mouse 832 (698—966), LD <sub>50</sub> rat 1694 (1465—1923), LD <sub>50</sub> cat 475 <sup>1</sup><br>On skin: LD <sub>50</sub> rat 3500<br>Inhalation: LC <sub>50</sub> cat 400 4 h; LC rat <400 4 h; Lim <sub>ac</sub> rat and cat 5—9 4 h (34)                                                                      |
| <b>Trichlorobenzene</b><br>$\text{C}_6\text{H}_3\text{Cl}_3$<br>MAC <sub>wz</sub> 10 (v), Class III<br>TSEL <sub>hw</sub> 0.008<br>MAC <sub>u</sub> 0.03<br>466, 507                                                                                                                              | Inhalation: LC rat <100 4 h<br>Affects central nervous system, liver and kidneys<br>Detection: photometry; detection limit 0.25 µg in analytical volume                                                                                                                                                                                              |
| <b>Trichloroethylene</b><br>$\text{CHCl-CCl}_2$<br>MAC <sub>wz</sub> 10 (v), Class II<br>MAC <sub>hw</sub> 4<br>MAC <sub>ad</sub> 1<br>MAC <sub>w</sub> 0.5<br>27, 289                                                                                                                            | Inhalation: LC rat <50 5 h<br>Narcotic; damages nervous system (predominantly trigeminal and optic nerves) and parenchymatous organs<br>Detection: colorimetry; detection limit 0.3 µg per 2 ml of solution                                                                                                                                          |
| <b>Trichlorofluoromethane (freon 11)</b><br>$\text{CFCl}_3$<br>MAC <sub>wz</sub> 1000 (v), Class IV<br>MAC <sub>hw</sub> 100<br>MAC <sub>ad</sub> 10<br>144, 169<br><b>N-Trichloromethylthiophthalimide</b><br>(phthalan)                                                                         | Inhalation: LC <sub>50</sub> mouse 346 700 2 h; Lim <sub>ac</sub> rabbit 12 000 40 min (2)<br>Narcotic<br>Detection: thermal degradation in a quartz tube; detection limit 1.4 µg in analytical volume<br>Intragastric: LD <sub>50</sub> mouse 1546±120, LD <sub>50</sub> rat 7540±876, LD <sub>50</sub> rabbit 1115; Lim <sub>ac</sub> rat 200 (42) |
| <br>TSEL <sub>wz</sub> 2<br>251, 289                                                                                                                                                                           | Affects nervous system<br>Detection: colorimetry; detection limit 1 µg per 2 ml of solution                                                                                                                                                                                                                                                          |

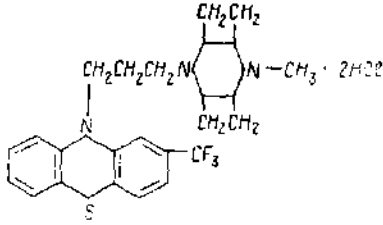
<sup>1</sup> Technical — grade product

| Substance, MAC or TSHL, Hazard Class Reference(s)                                                                                                                                                                      | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                      |
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| <b>N-Trichloromethylthiotetrahydrophthalimide (captan)</b><br>                                                                        | Intragastric: LD <sub>50</sub> mouse 138±21, LD <sub>50</sub> rat 2650±740, LD <sub>50</sub> rabbit 740<br>Has irritant properties<br>Detection: colorimetry; detection limit 2.5 µg per 2 ml of solution                                                                                                                                                                                        |
| 66<br><b>Trichloromonosilane</b> (silicochloroform, trichlorosilane)<br>SiHCl <sub>3</sub><br>MAC <sub>wz</sub> 1 (v), Class II<br>198, 462                                                                            | Inhalation: LC <sub>50</sub> mouse 1500—2000 2 h<br>Has irritant properties<br>Detection: colorimetry; detection limit 15 µg in analytical volume                                                                                                                                                                                                                                                |
| <b>1,2,3-Trichloropropane</b><br>CH <sub>2</sub> -Cl-CH-Cl-CH <sub>2</sub> -Cl<br>MAC <sub>wz</sub> 2 (v), Class III<br>MAC <sub>w</sub> 0.07<br>312                                                                   | Inhalation: LC <sub>50</sub> mouse 3400 2 h, LC <sub>50</sub> mouse 7000; Lim <sub>ac</sub> rabbit 125 40 min (2)<br>Narcotic; affects liver, heart and kidneys; has irritant properties<br>Detection: colorimetry; detection limit 0.003 mg per 6 ml of solution                                                                                                                                |
| <b>Tricresyl phosphate</b> (more than 3% ortho isomers) <sup>+</sup><br>(CH <sub>3</sub> C <sub>6</sub> H <sub>4</sub> O) <sub>3</sub> PO<br>MAC <sub>wz</sub> 0.1 (a), Class I<br>MAC <sub>w</sub> 0.005<br>466, 555  | Intragastric: LD <sub>50</sub> mouse 3900±270<br>Causes diffuse organic lesions of central and peripheral nervous systems; impairs metabolism of vitamins B <sub>1</sub> and B <sub>12</sub> ; injures capillaries<br>Detection: colorimetry; detection limit 12 µg in analytical volume                                                                                                         |
| <b>Tricresyl phosphate</b> (less than 3% ortho isomers) <sup>+</sup><br>(CH <sub>3</sub> C <sub>6</sub> H <sub>4</sub> O) <sub>3</sub> PO<br>MAC <sub>wz</sub> 0.5 (a), Class II<br>MAC <sub>w</sub> 0.005<br>466, 555 | Intragastric: LD <sub>50</sub> mouse 7500±630<br>Causes diffuse organic lesions of central and peripheral nervous systems; impairs metabolism of vitamins B <sub>1</sub> and E; injures capillaries<br>Detection: colorimetry; detection limit 12 µg in analytical volume                                                                                                                        |
| <b>2,4,6-Trichloro-1,3,5-triazine</b> (cyanuric chloride)<br><br>MAC <sub>wz</sub> 0.1 (v), Class I<br>38, 312                      | Intragastric: LD <sub>50</sub> mouse 350 (275—425), LD <sub>50</sub> rat 485 (300—670)<br>On skin: LD rabbit <200<br>Inhalation: LC <sub>100</sub> mouse 10 (6.3—13.7) 2 h; Lim <sub>ac</sub> mouse 0.6 2 h (1); Lim <sub>ir</sub> man 0.3<br>Affects central nervous system, heart, liver and kidneys; has irritant properties<br>Detection: photometry; detection limit 0.04 mg/m <sup>3</sup> |
| <b>Triethanolamine</b><br>(CH <sub>2</sub> CH <sub>2</sub> OH) <sub>3</sub> N<br>MAC <sub>w</sub> 1.4<br>78                                                                                                            | Intragastric: LD <sub>50</sub> mouse 7750, LD <sub>50</sub> rat 8400, LD <sub>50</sub> guinea pig 2200, LD <sub>50</sub> rabbit 2200<br>Detection: colorimetry                                                                                                                                                                                                                                   |

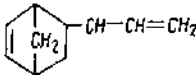
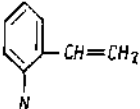
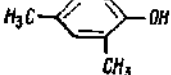
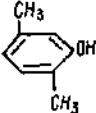
| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                          |
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| <b>Triethanolamine trimethacryl ether</b><br>$[\text{CH}_2=\text{C}(\text{CH}_3)\text{COOCH}_2\text{CH}_2\text{CH}_2]_3$<br>398                                                                  | Intragastric: $\text{LD}_{50}$ rat 11 163 (10 471—11 854)                                                                                                                                                                                                                                                                            |
| <b>Triethoxysilane</b><br>$\text{NSi}(\text{OC}_2\text{H}_5)_3$<br>$\text{MAC}_{wz}$ 1 (v), Class II<br>205, 464                                                                                 | Inhalation: $\text{LC}_{50}$ mouse 500 2 h; $\text{Lim}_{ac}$ mouse 5 (1)<br>Narcotic; has irritant properties impairs respiration<br>Detection: colorimetry; detection limit 1 $\mu\text{g}$ in analytical volume                                                                                                                   |
| <b>Triethylamine</b><br>$(\text{C}_2\text{H}_5)_3\text{N}$<br>$\text{MAC}_{wz}$ 10 (v), Class III<br>$\text{MAC}_{wz}$ 0.14<br>$\text{MAC}_{sd}$ 0.14<br>$\text{MAC}_w$ 2<br>206, 136, 422       | Intragastric: $\text{LD}_{50}$ mouse 545 (435—670)<br>Inhalation: $\text{LC}_{50}$ mouse 6000 2 h; $\text{Lim}_{ac}$ rat 200 2 h (4), $\text{Lim}_{ac}$ rat 100 2 h (7)<br>Has irritant properties; damages parenchymatous organs<br>Detection: photometry; detection limit 1 $\mu\text{g}$ in analytical volume                     |
| <b>Triethylene glycol diacrylate</b><br>$\text{CH}_2=\text{CHCOOCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OOCCH}=\text{CH}_2$<br>398                                   | Intragastric: $\text{LD}_{50}$ mouse 700 (592—828), $\text{LD}_{50}$ rat 500 (407—615)                                                                                                                                                                                                                                               |
| <b>Triethylene glycol dimethacrylate</b><br>$\text{CH}_2=\text{C}(\text{CH}_3)\text{COOCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OOC}(\text{CH}_3)=\text{CH}_2$<br>398 | Intragastric: $\text{LD}_{50}$ rat 17 900 (15 080—20 020)                                                                                                                                                                                                                                                                            |
| <b>Trifluoroacetic acid</b><br>$\text{CF}_3\text{COOH}$<br>$\text{MAC}_{wz}$ 2 (v), Class III<br>149, 312                                                                                        | Intragastric: $\text{LD}_{10}$ rat 500<br>Inhalation: $\text{LC}_{50}$ mouse 13 500 2 h, $\text{LC}_{50}$ rat 10 000; $\text{Lim}_{ac}$ rat 1500 1 h (1); $\text{Lim}_{ac}$ man 250<br>Has irritant action damages lungs, liver and nervous system<br>Detection: colorimetry; detection limit 0.5 $\mu\text{g}$ in analytical volume |
| <b>Trifluorobromomethane (freon 13B1)</b><br>$\text{CB}_7\text{F}_5$<br>$\text{MAC}_{wz}$ 3000 (v), Class IV<br>169, 460                                                                         | Inhalation: LC mouse 2 000 000 2 h<br>Narcotic<br>Detection: thermal degradation in a quartz tube; detection limit 1.4 $\mu\text{g}$ in analytical volume                                                                                                                                                                            |
| <b>1,1,1-Trifluoro-3-chloropropane (freon 253)+</b><br>$\text{CF}_3\text{CH}_2\text{CH}_2\text{Cl}$<br>$\text{MAC}_{wz}$ 1 (v), Class II<br>$\text{MAC}_w$ 0.1<br>169, 461                       | Inhalation: $\text{LC}_{50}$ mouse 800 (680—930) 2 h; $\text{LC}_{100}$ rat 1800, $\text{LC}_{100}$ rabbit 2300<br>Narcotic<br>Detection: colorimetry; detection limit 1.4 $\mu\text{g}$ in analytical volume                                                                                                                        |
| <b>Trifluoroethane (freon 143)</b><br>$\text{CH}_3\text{CF}_3$<br>$\text{MAC}_{wz}$ 3000 (v), Class IV<br>460                                                                                    | Inhalation: LC mouse <2 500 000 2 h; $\text{Lim}_{ac}$ mouse and rat 146 000—160 000 2—4 h (1, 4)<br>Narcotic<br>Detection: thermal degradation in a quartz tube; detection limit 1.4 $\mu\text{g}$ in analytical volume                                                                                                             |

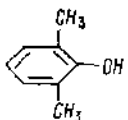
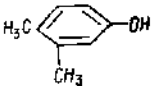
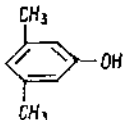
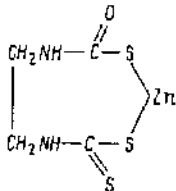
| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                                                       | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                              |
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| <b>1,1,1-Trifluoroethylamine</b> ( $\beta, \beta, \beta$ -trifluoroethylamine)<br>$\text{CF}_3\text{CH}_2\text{NH}_2$<br>$\text{MAC}_{wz}$ 100 (v), Class IV<br>170, 463                                                   | Intragastric: $\text{LD}_{50}$ mouse 4170 (3620 - 4790)<br>Inhalation: $\text{LC}_{50}$ mouse 4170 (2600-6670) 2 h; $\text{Lim}_{lr}$ rat 2500 4 h (7), $\text{Lim}_{lr}$ man 300<br>Has irritant properties<br>Detection: colorimetry; detection limit 1 $\mu\text{g}$ in analytical volume                                                                |
| <b>Trifluoroethyl alcohol</b> (trifluoroethanol)<br>$\text{CF}_3\text{CH}_2\text{OH}$<br>$\text{MAC}_{wz}$ 10 (v), Class III<br>284, 461                                                                                   | Intragastric: $\text{LD}_{50}$ rat 590<br>Inhalation: $\text{LC}_{50}$ mouse 2950 (2280-3390) 2 h; $\text{Lim}_{ac}$ rat 100-300 4 h (1, 7, 8, 10)<br>Affects nervous system and liver<br>Detection: photometry; detection limit 1.4 $\mu\text{g}$ in analytical volume                                                                                     |
| <b>Trifluorochloroethylene</b><br>$\text{CF}_2=\text{CFCl}$<br>$\text{MAC}_{wz}$ 5 (v), Class III<br>169, 460                                                                                                              | Inhalation: $\text{LC}_{50}$ mouse 8500 2 h, $\text{LC}_{50}$ rat 7100 4 h, $\text{LC}_{50}$ guinea pig 4300 4 h; $\text{Lim}_{ac}$ rat 150 4 h (1, 7)<br>Has irritant properties<br>Detection: thermal degradation in a quartz tube; detection limit 1.4 $\mu\text{g}$ in analytical volume                                                                |
| <b>N-(3-Trifluoromethylphenyl)-N,N-dimethylurea</b> (coloran)<br><br>$\text{MAC}_{wz}$ 5 (a), Class III<br>$\text{MAC}_w$ 0.3<br>325, 469 | Intragastric: $\text{LD}_{50}$ mouse $1088 \pm 92$ , $\text{LD}_{50}$ rat $1515 \pm 22$ , $\text{LD}_{50}$ guinea pig $810 \pm 78$ , $\text{LD}_{50}$ rabbit 2500<br>Inhalation: $\text{LC}$ mouse and guinea pig $< 6640$ 2 h; $\text{Lim}_{ac}$ guinea pig 588 2 h (24)<br>Detection: colorimetry; detection limit 0.1 $\mu\text{g}$ in analytical volume |
| <b>Trifluoropropene</b><br>$\text{CF}_3\text{CH}=\text{CH}_2$<br>$\text{MAC}_{wz}$ 3000 (v), Class IV<br>169, 460                                                                                                          | Inhalation: $\text{LC}_{50}$ mouse 1 691 000 2 h<br>Narcotic<br>Detection: thermal degradation in a quartz tube; detection limit 1.4 $\mu\text{g}$ in analytical volume                                                                                                                                                                                     |
| <b>Trifluoropropylamine</b> ( $\gamma, \gamma, \gamma$ -trifluoropropylamine)<br>$\text{CF}_3\text{CH}_2\text{CH}_2\text{NH}_2$<br>$\text{MAC}_{wz}$ 5 (v), Class III<br>170, 463                                          | Intragastric: $\text{LD}_{50}$ mouse 29<br>Inhalation: $\text{LC}_{50}$ mouse 600 (490-740) 2 h; $\text{Lim}_{ac}$ rat 300-400 4 h (1, 7, 8); $\text{Lim}_{lr}$ man 400<br>Has irritant properties and affects nervous system<br>Detection: colorimetry; detection limit 1 $\mu\text{g}$ in analytical volume                                               |

| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                       | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Trifluorostyrene</b><br>$C_6H_5CF=CF_2$<br>MAC <sub>wz</sub> 5 (v), Class III<br>264, 462                                               | Intragastric: LD <sub>50</sub> rat 2500 (2100--2970)<br>Inhalation: LC <sub>50</sub> rat 8000 (5300--12 000)<br>4 h; Lim <sub>ac</sub> rat 30 4 h (1)                                                                                                             |
| <b>1,2,2-Trifluorotrichloroethane</b> (fre-<br>on 113)<br>$CF_2ClCFCl_2$<br>MAC <sub>wz</sub> 3000 (v), Class IV<br>169, 460               | Intragastric: LD rat <8000<br>Inhalation: LC <sub>50</sub> 543 300 (452 700—<br>651 900) 2 h; Lim <sub>ac</sub> rat 50 000—80 000<br>4 h (1, 4)<br>Narcotic<br>Detection: thermal degradation in a<br>quartz tube; detection limit 1.4 µg in<br>analytical volume |
| <b>Trimethylamine</b><br>$(CH_3)_3N$<br>MAC <sub>wz</sub> 5 (v), Class II<br>59, 342                                                       | Inhalation: LC <sub>50</sub> mouse 19 000 (17 900—<br>22 200) 2 h; Lim <sub>ac</sub> 25 4 h (1); Lim <sub>air</sub><br>man 2<br>Detection: gas—liquid chromatography                                                                                              |
| <b>Trimethyl-1,2-dihydroquinoline</b><br>(acetonanil)<br> | Intragastric: LD <sub>50</sub> mouse 1450 (1356—<br>1551), LD <sub>50</sub> rat 2000 (1379—2900)<br>Inhalation: LC rat <19 4 h; Lim <sub>ac</sub> rat<br>6—7 4 h (1)<br>Affects central nervous system, lungs<br>and kidneys                                      |
| MAC <sub>wz</sub> 1 (a), Class II<br>147                                                                                                   |                                                                                                                                                                                                                                                                   |
| <b>Trimethylpropane (etriol)</b><br>$CH_2OH$<br>$CH_3=CH_2=C=CH_2OH$<br>$CH_2OH$<br>MAC <sub>wz</sub> 50 (v), Class IV<br>432, 462         | Intragastric: LD <sub>50</sub> mouse 13 700, LD <sub>50</sub><br>rat 14 100<br>Inhalation: LC rat 700--2000 4 h<br>Detection: colorimetry; detection limit<br>50 µg in analytical volume                                                                          |
| <b>Trinitrobenzene</b><br>$C_6H_3(NO_2)_3$<br>473                                                                                          | Intragastric: LD <sub>50</sub> mouse 572, LD <sub>50</sub> rat<br>280                                                                                                                                                                                             |
| <b>2,4,5-Trinitrotoluene<sup>+</sup></b><br>            | Subcutaneous: LD <sub>20</sub> mouse 250                                                                                                                                                                                                                          |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                          | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MAC <sub>w</sub> 1 (v), Class II<br>MAC <sub>w</sub> 0.5<br>TSEL <sub>h,w</sub> 0.007<br>411, 459                                                                                          | Methemoglobin former; affects central nervous system, liver and eyes; has irritant properties<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                           |
| <b>Trioctyl phosphite</b><br>$\text{C}_8\text{H}_{17}\text{O}-\text{P} \begin{cases} \text{OC}_8\text{H}_{17} \\ \text{OC}_8\text{H}_{17} \end{cases}$<br>TSEL <sub>w</sub> 10<br>116, 466 | Intragastric: LD <sub>50</sub> mouse 7000<br>Intraabdominal: LD <sub>50</sub> mouse 5234±576;<br>Lim <sub>ac</sub> mouse 141 (24)<br>Detection: photometry                                                                                                   |
| <b>Triphenyl phosphate</b><br>$(\text{C}_6\text{H}_5\text{O})_3\text{PO}$<br>TSEL <sub>w</sub> 6<br>8, 466                                                                                 | Intragastric: LD <sub>50</sub> mouse 1320±280, LD <sub>50</sub> rat 3800±260<br>Damages nervous system<br>Detection: photometry                                                                                                                              |
| <b>Triphenyl phosphite</b><br>$\text{C}_6\text{H}_5\text{O}-\text{P} \begin{cases} \text{OC}_6\text{H}_5 \\ \text{OC}_6\text{H}_5 \end{cases}$<br>TSEL <sub>w</sub> 1—2<br>116, 466        | Intragastric: LD <sub>50</sub> mouse 1333±162<br>Intraabdominal: LD <sub>50</sub> mouse 1167±242;<br>Lim <sub>ac</sub> mouse 25 (24)<br>Detection: photometry                                                                                                |
| <b>Triphthazine</b>                                                                                                                                                                        | Intragastric: LD <sub>50</sub> mouse 520 (388—696)<br>Inhalation: LC rat < 868 4 h; Lim <sub>ac</sub> rat 26 4 h (4)<br>Affects central nervous system and heart                                                                                             |
|                                                                                                          |                                                                                                                                                                                                                                                              |
| MAC <sub>w</sub> 0.01 (a), Class I<br>308                                                                                                                                                  |                                                                                                                                                                                                                                                              |
| <b>Tri-p-propylamine</b><br>$(\text{CH}_3\text{CH}_2\text{CH}_2)_3\text{N}$<br>MAC <sub>w</sub> 2 (v), Class II<br>208, 422                                                                | Intragastric: LD <sub>50</sub> rat 740<br>Inhalation: LC <sub>50</sub> mouse 3800 2 h, LC <sub>50</sub> rat 5100 4 h; Lim <sub>ac</sub> rat 50 4 h (7, 30);<br>Lim <sub>ac</sub> man 0.6<br>Detection: photometry; detection limit 1 µg in analytical volume |
| <b>Trixylenyl phosphate</b><br>$(\text{C}_6\text{H}_4\text{CH}_2\text{C}_6\text{H}_4\text{O})_3\text{PO}$                                                                                  | Intragastric: LD <sub>50</sub> mouse 11 800                                                                                                                                                                                                                  |

| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                             | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MAC <sub>wz</sub> 1.5 (a), Class III<br>MAC <sub>w</sub> 0.05<br>483, 555                                                                                                                        | Causes diffuse organic lesions of central and peripheral nervous systems; decreases cholinesterase activity in blood<br>Detection: colorimetry; detection limit 13 µg in analytical volume                                                                                                                                                                       |
| <b>Turpentine</b><br>MAC <sub>wz</sub> 3000 (v), Class IV<br>MAC <sub>w</sub> 0.2<br>226, 461                                                                                                    | Inhalation: NC mouse 20 000 2 h; LC <sub>50</sub> mouse 30 000 2 h; LC guinea pig 16 000 1 h, LC dog <4500—6000 3.5 h<br>Affects central nervous system; has irritant properties<br>Detection: colorimetry; detection limit 1 µg in analytical volume                                                                                                            |
| <b>Valeric acid</b><br>$\text{CH}_3(\text{CH}_2)_3\text{COOH}$<br>MAC <sub>wz</sub> 5 (v), Class III<br>MAC <sub>hw</sub> 0.03<br>MAC <sub>ad</sub> 0.01<br>83, 464                              | Intragastric: LD <sub>50</sub> mouse 600<br>Inhalation: LC <sub>50</sub> mouse 4100 2 h<br>Has irritant properties; affects nervous system<br>Detection: colorimetry; detection limit 20 µg in analytical volume                                                                                                                                                 |
| <b>Vanadium pentoxide</b><br>$\text{V}_2\text{O}_5$<br>MAC <sub>wz</sub> 0.1 (a), Class II<br>MAC <sub>ad</sub> 0.002<br>MAC <sub>w</sub> 0.1<br>341, 464                                        | Intragastric: LD <sub>50</sub> mouse 23<br>Has systemic toxicity and irritant properties<br>Detection: colorimetry; detection limit 5 µg in analytical volume                                                                                                                                                                                                    |
| <b>Vanadium trioxide</b><br>$\text{V}_2\text{O}_3$<br>MAC <sub>wz</sub> 0.5 (a), Class II<br>341, 464                                                                                            | Intragastric: LD <sub>50</sub> mouse 130<br>Inhalation: LC rabbit <40—75 2 h<br>Detection: colorimetry; detection limit 5 µg in analytical volume                                                                                                                                                                                                                |
| <b>Vinyl acetate</b><br>$\text{CH}_3\text{COOCH}=\text{CH}_2$<br>MAC <sub>wz</sub> 10 (v), Class III<br>MAC <sub>hw</sub> 0.15<br>MAC <sub>ad</sub> 0.15<br>MAC <sub>w</sub> 0.2<br>29, 113, 469 | Intragastric: LD <sub>50</sub> mouse 1613<br>Inhalation: LC <sub>50</sub> mouse 4700 2 h; LC rabbit 20 000 2 h; Lim <sub>lr</sub> cat 70—150, Lim <sub>lr</sub> man 10—50<br>Has irritant properties<br>Detection: paper chromatography; detection limit 5 µg in analytical volume                                                                               |
| <b>Vinylacetylene</b><br>$\text{H}_2\text{C}=\text{C}(\text{CH}_3)-\text{CH}=\text{CH}_2$<br>MAC <sub>wz</sub> 20 (v), Class IV<br>45, 110                                                       | Inhalation: LC <sub>50</sub> mouse 97 200 (93 700—100 700) 2 h; NC <sub>50</sub> mouse 78 500 (75 600—81 400) 2 h; Lim <sub>lr</sub> cat 50 000 30 min; Lim <sub>ac</sub> rabbit 400—800 40 min (2); Lim <sub>ac</sub> mouse 200—400 40 min (1); Lim <sub>lr</sub> man 120; Lim <sub>ot</sub> 60<br>Narcotic<br>Has irritant properties<br>Detection: titrimetry |
| <b>Vinyl butyl ether</b><br>$\text{CH}_2=\text{CH}-\text{O}-\text{C}_4\text{H}_9$<br>MAC <sub>wz</sub> 20 (v), Class IV<br>466, 481                                                              | Inhalation: LC <sub>50</sub> mouse 62 000 2 h; Lim <sub>ac</sub> mouse 1000 2 h (1)<br>Detection: photometry; detection limit 2.5 µg in analytical volume                                                                                                                                                                                                        |

| Substance, MAC or TSEL, Hazard Class Reference(s)                                                                                                                                                                                                                                | Toxicometric Parameters, Test Conditions, Action(s), Method(s) of Detection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Vinyl norbornene</b><br><br>TSEL <sub>wz</sub> 10<br>74<br>2-Vinylpyridine+                                                                                                                  | Intragastric: LD <sub>50</sub> mouse 5667 (4690—6644)<br>Intraabdominal: Lim <sub>ac</sub> mouse 1.36 (0.4—4.6) (1)<br>Inhalation: LC <sub>50</sub> mouse 17 700 (15 100—20 300) 2 h; Lim <sub>ac</sub> mouse 330 40 min (1); Lim <sub>ir</sub> man 65; Lim <sub>oit</sub> man 8<br>Intragastric: LD <sub>50</sub> mouse 420<br>Inhalation: LC <sub>50</sub> mouse 460 2 h; Lim <sub>ac</sub> rat 1 4 h (1)<br>Has systemic toxicity and irritant properties<br>Detection: colorimetry; detection limit 2.5 µg in analytical volume                                                    |
| <br>MAC <sub>wz</sub> 0.5 (v), Class II<br>76, 469<br><b>Vinyltoluene</b><br>CH <sub>3</sub> C <sub>6</sub> H <sub>4</sub> CH=CH <sub>2</sub><br>MAC <sub>wz</sub> 50 (v), Class IV<br>388, 465 | Intragastric: LD <sub>50</sub> mouse 420<br>Inhalation: LC <sub>50</sub> mouse 460 2 h; Lim <sub>ac</sub> rat 1 4 h (1)<br>Has systemic toxicity and irritant properties<br>Detection: colorimetry; detection limit 2.5 µg in analytical volume                                                                                                                                                                                                                                                                                                                                        |
| <b>Vinyltoluene</b><br>CH <sub>3</sub> C <sub>6</sub> H <sub>4</sub> CH=CH <sub>2</sub><br>MAC <sub>wz</sub> 50 (v), Class IV<br>388, 465                                                                                                                                        | Inhalation: LC <sub>50</sub> mouse 29 500 4 h; LC cat <60 000; Lim <sub>ir</sub> cat 5000 2 h; Lim <sub>ac</sub> cat 1000—5000 40 min (2); Lim <sub>ir</sub> man 2 min; Lim <sub>oit</sub> 5—10<br>Has irritant properties<br>Detection: photometry; detection limit 5 µg in analytical volume<br>Inhalation: Lim <sub>ac</sub> rat 2000—2900 1 h (4)<br>Narcotic<br>Has irritant properties<br>Detection: linear colorimetry<br>Inhalation: LC mouse 50 000; Lim <sub>ac</sub> rabbit 200—400 40 min<br>Narcotic<br>Detection: photometry; detection limit 20 µg in analytical volume |
| <b>White spirit</b> (petroleum)<br>MAC <sub>wz</sub> 300 (v), Class IV<br>45, 120                                                                                                                                                                                                | Inhalation: Lim <sub>ac</sub> rat 2000—2900 1 h (4)<br>Narcotic<br>Has irritant properties<br>Detection: linear colorimetry<br>Inhalation: LC mouse 50 000; Lim <sub>ac</sub> rabbit 200—400 40 min<br>Narcotic<br>Detection: photometry; detection limit 20 µg in analytical volume                                                                                                                                                                                                                                                                                                   |
| <b>Xylene</b> (mixture of isomers)<br>C <sub>6</sub> H <sub>4</sub> (CH <sub>3</sub> ) <sub>2</sub><br>MAC <sub>wz</sub> 50 (v), Class III<br>MAC <sub>hw</sub> 0.2<br>MAC <sub>ad</sub> 0.2<br>MAC <sub>w</sub> 0.05<br>243, 463<br><b>2,4-Xylenol</b>                          | Intragastric: LD <sub>50</sub> mouse 809 (724—914), LD <sub>50</sub> rat 3200 (2780—3680)<br>On skin: LD <sub>50</sub> mouse 1040 (630—1716)<br>Detection: gas chromatography                                                                                                                                                                                                                                                                                                                                                                                                          |
| <br>196, 504<br><b>2,5-Xylenol</b>                                                                                                                                                            | Intragastric: LD <sub>50</sub> mouse 1140 (797—1530), LD <sub>50</sub> rat 1270<br>Detection: gas chromatography                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <br>196, 504<br>120                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Substance, MAC or TSEL,<br>Hazard Class Reference(s)                                                                                                                                                                | Toxicometric Parameters, Test Conditions,<br>Action(s), Method(s) of Detection                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>2,6-Xylenol</b><br>                                                                                                             | Intragastric: LD <sub>50</sub> mouse 980 (823—1166), LD <sub>50</sub> rat 1750 (1420—2150)<br>On skin: LD <sub>50</sub> mouse 920 (576—1472)<br>Detection: gas chromatography                                                                                                      |
| <b>3,4-Xylenol</b><br>                                                                                                             | Intragastric: LD <sub>50</sub> mouse 948 (658—1365), LD <sub>50</sub> rat 1620<br>Detection: gas chromatography                                                                                                                                                                    |
| <b>3,5-Xylenol</b><br>                                                                                                             | Intragastric: LD <sub>50</sub> mouse 836 (773—906), LD <sub>50</sub> rat 1915<br>Detection: gas chromatography                                                                                                                                                                     |
| <b>Yttrium oxide</b><br>Y <sub>2</sub> O <sub>3</sub><br>MAC <sub>wz</sub> 2 (a), Class III<br>424                                                                                                                  | Intragastric: LD mouse <6000, LD rat <10 000<br>Intraabdominal: LD <sub>50</sub> mouse 430±18, LD <sub>50</sub> rat 230±13<br>Inhalation: Lim <sub>ac</sub> rat 92 4 h (1, 7)<br>Detection: flame photometry; detection limit 5 µg per 1 ml of solution                            |
| <b>Zinc ethylene-N,N'-bis-dithiocarbamate (zineb)</b><br><br>MAC <sub>wz</sub> 0.5 (a), Class II<br>MAC <sub>w</sub> 0.03<br>354 | Intragastric: LD <sub>50</sub> rat 1900±237, LD <sub>50</sub> rabbit 4450±470<br>Intraabdominal: LD <sub>50</sub> mouse 1940±200<br>Inhalation: LC rat ±800 4 h<br>Affects hematopoiesis, liver and kidneys<br>Detection: colorimetry; detection limit 2.5 µg in analytical volume |

**STANDARD TEST CONDITIONS  
FOR MEASURING TOXICOMETRIC PARAMETERS**

| Parameter                              | Animal species                                                | Test conditions                                                                                                                                     |
|----------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| LC <sub>50</sub>                       | Mice weighing 20±2 g<br>Rats weighing 220±                    | Inhalation for 2—4 h followed by observation for 2 weeks                                                                                            |
| LD <sub>50</sub>                       | ±40 g<br>Same                                                 | Administration into the stomach, under the skin, or into the abdominal cavity or else application on the skin                                       |
| Lim <sub>Ir</sub><br>Lim <sub>ac</sub> | Any species<br>Two species (the use of rats being obligatory) | Inhalation for 15 min<br>Inhalation for 4 h, with an examination carried out 15 min postexposure; at least two integral methods should be employed) |

<sup>1</sup> These tests can be carried out on man provided adequate safety precautions are taken (inhalation time = 1 min.).

**CLASSIFICATION OF CHEMICALS BY HAZARD**

| Parameter                                                                              | Hazard Class |          |             |         |
|----------------------------------------------------------------------------------------|--------------|----------|-------------|---------|
|                                                                                        | I            | II       | III         | IV      |
| Maximum allowable concentration (MAC) in the air of working zones (mg/m <sup>3</sup> ) | <0.1         | 0.1—1.0  | 1.1—10.0    | >10.0   |
| Median lethal dose (LD <sub>50</sub> ) with intragastric administration (mg/kg)        | <15          | 15—150   | 151—5000    | >5000   |
| Median lethal dose (LD <sub>50</sub> ) with skin application (mg/kg)                   | <100         | 100—500  | 500—2500    | >2500   |
| Median lethal concentration (LC <sub>50</sub> ) in air (mg/m <sup>3</sup> )            | <500         | 500—5000 | 5001—50,000 | >50,000 |
| Coefficient of potential poisoning by inhalation                                       | >300         | 300—30   | 29—3        | <3      |
| Acute action zone                                                                      | <6.0         | 6.0—18.0 | 18.1—54.0   | >54.0   |
| Chronic action zone                                                                    | >10.0        | 10.0—5.0 | 4.9—2.5     | <2.5    |

**Notes:**

- Class I — extremely dangerous substances  
Class II — highly dangerous substances  
Class III — moderately dangerous substances  
Class IV — slightly dangerous substances
- The coefficient of potential poisoning by inhalation (CPPI) is the ratio of the maximum attainable concentration of a given substance in the air at 20°C to the median lethal concentration of that substance for mice.  
The acute action zone is the ratio of the median lethal concentration of a given substance to the acute action threshold for that substance.  
The chronic action zone is the ratio of the acute action threshold for a given substance to the chronic action threshold (i. e., the lowest concentration that produces adverse effects in a long — term test with exposures of 4 hours daily 5 times a week for a period of at least 4 months) for that substance.

**CLASSIFICATION OF CHEMICALS BY TOXICITY  
WITH SUBCUTANEOUS  
AND INTRAABDOMINAL ADMINISTRATION  
(SOURCE: SIDOROV, 1973)**

| Toxicity<br>class | Toxicity Rating      | Median Lethal Dose (mg/kg) with |                                  |
|-------------------|----------------------|---------------------------------|----------------------------------|
|                   |                      | subcutaneous<br>administration  | intraabdominal<br>administration |
| I                 | Extremely toxic      | $\leq 0.3$                      | $\leq 0.2$                       |
| II                | Highly toxic         | 0.4 - 15                        | 0.3 - 10                         |
| III               | Moderately toxic     | 16 - 150                        | 11 - 100                         |
| IV                | Slightly toxic       | 151 - 1500                      | 101 - 1000                       |
| V                 | Practically nontoxic | 1501 - 4500                     | 1001 - 3000                      |
| VI                | Relatively harmless  | $> 4500$                        | $> 3000$                         |

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## INDEX OF CHEMICALS

- Acetal 82  
 Acetaldehyde, 15  
 Acetaldehyde tetramer, 15  
 Acetic aldehyde, 15  
 Acetonanyl 117  
 Acetone, 15  
 Acetone cyanohydrin, 15  
 Acetonitrile, 16  
 Acetophenone, 16  
 Acetopropyl acetate, 16  
 Acetopropyl alcohol, 16  
 Acrofol 105  
 Acrylic acid, 16  
 Acrylonitrile, 16  
 Acrylyl chloride, 17  
 Acylate 32  
 Adipodinitrile, 17  
 Aerosil-175, 17  
 AF-1, 17  
 AF-2, 17  
 Aldehydodichloromaleic acid 46  
 Aldrin 73  
 Alipur, 17  
 Alkyl ferrocene, 17  
 Allyl alcohol, 17  
 Allylamine, 17  
 Allyl chloride, 18  
 Allyl cyanide, 18  
 Allyl formate, 18  
 Amidophos 29  
 Aminazine, 18  
 Amines, aliphatic, higher, 18  
 Amines, aliphatic, primary, 18  
 p-Aminoanisole 21  
 $\alpha$ -Aminoanthraquinone, 19  
 Aminobenzene 22  
 p-Aminobenzenesulfonamide, 19  
 2-(p-Aminobenzenesulfonamido) - 4,6-dimethylpyrimidine 19  
 2-(p-Aminobenzenesulfonamido)thiazole, 19  
 p-Aminobenzenesulfonylguanidine monohydrate, 19  
 m-Aminobenzotrifluoride, 20  
 Aminoanthracic acid, 20  
 5-Amino-8-hydroxy-3,7-dihydro - 1,4-naphthoquinone imine, 20  
 p-Aminophenetole 98  
 m-Aminophenol, 20  
 2-Amino-1,3,5-trimethylbenzene, 20  
 Aminopyrimidine 81  
 4-Amino-m-xylene, 20  
 Amiphos 55  
 Ammonia, 21  
 Ammonium chrome alums 38  
 Ammonium sulfamate, 21  
 Ammophos, 21  
 Amyl alcohol, 21  
 Amyl iodide 21  
 Amyl, tertiary, hydroperoxide 21  
 Anabasine sulfate 101  
 Aniline 21  
 Anilinobenzene 63  
 p-Anisidine 22  
 Anthio 58  
 9,10-Anthraquinone 22  
 Anthraquinone, disperse blue dye K 22  
 Anthraquinonyl amine, 19  
 Antimony, metallic 22  
 Antimony pentachloride 22  
 Antimony pentafluoride 23  
 Antimony pentasulfide 23  
 Antimony pentoxide 23  
 Antimony trichloride 23  
 Antimony trifluoride 23  
 Antimony trioxide 23  
 Antimony trisulfide 23  
 Arsine 75  
 Ashes of oil shales 23  
 Atrazine 36  
 4,4-Azobenzenedicarboxylic acid 23  
 Barium caprylate 23  
 Barium carbonate 23  
 Barium stearate 24  
 Benzal chloride 24  
 Benzaldehyde 24  
 Benzene 24  
 1,4-Benzene dicarboxylic acid 107  
 Benzine (solvent) 24  
 Benzotrifluoride 24  
 Benzotrifluoride 25  
 p-Benzoquinone 25  
 Benzoyl chloride 25  
 Benzyl chloride 25

Benzyl cyanide 25  
 Beryllium chloride 26  
 Beryllium sulfate 26  
 Bifurgin 27  
 Bis(chloromethyl)benzene 26  
 Bis(chloromethyl)naphthalene 26  
 Bis(chloromethyl)xylene 26  
 Bis(dimethylamino)isopropyl methacrylate 26  
 Bisfurfurylidenehexamethylene diamine 27  
 1,1-Bis(hydroxymethyl)-3-cyclohexene 27  
 Boric acid 27  
 Boric anhydride 27  
 Bornyl chloride 27  
 Boron fluoride 27  
 Boron oxide 27  
 Bromoacetopropyl acetate 27  
 Bromobenzene 28  
 Bromoform 28  
 Bromoethane 65  
 Bromomethane 81  
 Bromomethyl 81  
 1,3-Butadiene 63  
 Butaldehyde 30  
 Butanal 30  
 Butanol 28  
 Butyl acetate 28  
 Butyl acrylate 28  
 Butyl alcohol 28  
 Butylamine 28  
 Butyl bromide 28  
 tert-Butyl bromide 29  
 Butylcapfax 29  
 Butyl 5-chloromethyl-2-furancarboxylate 29  
 O-(4-tert-Butyl-2-chlorophenyl)-o-methyl-N-methylamido phosphate 29  
 Butyl 2,4-dichlorophenoxyacetate 29  
 $\gamma$ -Butylene 77  
 Butyl 2-furancarboxylate 29  
 tert-Butyl hydroperoxide 30  
 Butyl iodide 30  
 tert-Butyl peracetate 30  
 tert-Butyl perbenzoate 30  
 tert-Butyl peroxide 43  
 2-(Butylthio)benzothiazole 29  
 Butylthioethyl methacrylate 30  
 1,4-Butynediol 30  
 Butyphos 44  
 Butyraldehyde 30  
 Butyric acid 30  
 Butyric aldehyde 30  
 Butyric anhydride 31  
 $\gamma$ -Butyrolactone 31  
 Cadmium oxide 31  
 Cadmium stearate 31  
 Calamine 64  
 Caffeine (base) 31  
 Caffeine sodium benzoate 31  
 2-Camphanone 31  
 Camphor 31  
 Caproic acid 32  
 Caprolactam 32  
 Caplan 114  
 Carbothione 106  
 Carboethoxymethyl acrylate 32  
 Carboethoxymethyl methacrylate 32  
 N-Carboisopropoxy-O-acetyl-N-phenyl carbamate 32  
 Carboisopropoxymethyl methacrylate 32  
 Carbolic acid 98  
 Carbon  
 Carbonate  
 Carbon disulfide 32  
 Carbon monoxide 33  
 Carbon tetrachloride 33  
 Carbophos 56  
 Carbyne 35  
 Cerous chloride 33  
 Cerous oxide 33  
 Chlorazine 35  
 Chlorex 45  
 Chlorinated naphthalenes (higher) 33  
 Chlorindan 94  
 Chlorine 33  
 Chlorine dioxide 33  
 Chloroacetic acid 33  
 Chloroacetopropyl acetate 34  
 m-Chloroaniline 34  
 p-Chloroaniline 34  
 Chlorobenzene 34  
 4-Chlorobenzophenone-2-carboxylic acid 34  
 2-Chloro-4,6-bis(diethylamino)sym-triazine 35  
 2-Chloro-4,6-bis(isopropylamino)sym-triazine 35  
 1,3-Chlorobromopropane 35  
 2-Chlorobutadiene-1,3- $\beta$ -chlorobutadiene 38  
 4-Chloro-2-butynyl-N-(4-chlorophenyl)carbamate 35  
 $\gamma$ -Chlorocrotyl 2,4-dichlorophenoxyacetate 35  
 Chlorocyclohexane 36  
 2-Chloro-4-diethylamino-6-isopropylamino-sym-triazine 36  
 3-Chloro-1,2-epoxypropane 64  
 Chloroethane 65  
 2-Chloroethanesulfonylchloride 36  
 2-Chloro-4-ethylamino-6-isopropylamino-sym-triazine 36  
 Chloroethyl methacrylate 36  
 Chloromethane 82  
 3-Chloro-4-methylamido- $\alpha$ -methylvaleric acid 36

- Chloromethyltrichlorosilane 37  
 Chloropelargonic acid 37  
 p-Chlorophenol 37  
 p-Chlorophenyl-p-chlorobenzenesulfonate 37  
 m-Chlorophenyl isocyanate 37  
 p-Chlorophenyl isocyanate 38  
 N-o-Chlorophenylmaleimide 38  
 N-(p-Chlorophenyl)maleimide 38  
 Chlorophos 60  
 Chloroprene 38  
 3-Chloroprene 18  
 Chlorothene 38  
 $\alpha$ -Chlorotoluene 25  
 p-Chlorotoluene 38  
 Chromic ammonium sulfate 38  
 Chromic chloride 39  
 Chromo-alumino-potassium catalyst A-30 39  
 Ciodrin 59  
 Cobalt hydrocarbonyl 39  
 Cobalt tetracarbonyl 39  
 Colamine 64  
 Copper-chromium-barium catalyst 39  
 Copper hydroquinonate 39  
 Copper-nickel ore 39  
 Copper oxychloride 39  
 Copper sulfide ore (dust) 39  
 Copper 2,4,5-trichlorophenolate 40  
 Colerae 116  
 m-Cresol 40  
 o-Cresol 40  
 p-Cresol 40  
 Crotonic aldehyde 40  
 Crotylin 35  
 Cumol 78  
 Cuprozinc 40  
 Cyanamide (free) 40  
 Cyanoethyl methacrylate 41  
 Cyanotoluene 25  
 Cyanuric chloride 114  
 Cyclohexane 41  
 Cyclohexanone 41  
 Cyclohexylamine 41  
 Cyclohexyl chloride 36  
 Cyclopentadiene 41  
 Cyclotetramethylenetetranitroamine 42  
 Cyclotrimethylenetrinitroamine 42  
 Cydeal 56  
 2,4-DA 47  
 DD 42  
 DDB 42  
 DDT 42  
 DDVP 57  
 Decyl alcohol 42  
 1-Decanol  
 4,4-Diacetyldiphenyl oxide 42  
 Diallylamine 43  
 Diamide 57  
 4,4-Diaminodiphenyl oxide 43  
 4,4-Diaminodiphenyl sulfide 43  
 1,2-Diaminoethane 66  
 Dibrom 56  
 Dibromomethane 83  
 1,2-Dibromopropane 43  
 1,2-Dibromotetrafluoroethane 43  
 Dibutylamine 43  
 Di-tert-butyl peroxide 43  
 Dibutyl phthalate 44  
 Dibutyl sebacate 44  
 S-S-S-Dibutyltrithiophosphate 44  
 4,4-Dicarboxylic acid diphenyl oxide-dichloroanhydride 44  
 1,3-Dichloroacetone 44  
 3,4-Dichloroanilide of propionic acid 45  
 3,4-Dichloroaniline 45  
 o-Dichlorobenzene 45  
 1,3-Dichloro-2-butene 45  
 $\beta$ , $\beta$ -Dichlorodiethyl ether 45  
 3,8-Dichloro-4,4-diphenylmethanedi-maleimide 45  
 p,p-Dichlorodiphenyltrichloroethane 42  
 1,2-Dichloroethane 45  
 1,1-Dichloroethylene 46  
 1,1-Dichloro-1-fluoroethane 46  
 $\alpha$ , $\beta$ -Dichloro- $\beta$ -formylacrylic acid 46  
 Dichlorohydrin 46  
 3,4-Dichloro-2-hydroxycrotonolactone 46  
 3,4-Dichloro-2-hydroxycrotonolactonic acid 46  
 1,2-Dichloroisobutane 46  
 1,3-Dichloroisobutylene 46  
 3,3-Dichloroisobutylene 47  
 Dichloromethane 83  
 3,3-Dichloromethyloxycyclobutane 47  
 2,3-Dichloro-1,4-naphthoquinone 47  
 3,4-Dichloronitrobenzene 47  
 2,4-Dichlorophenoxyacetic acid, amine salt 47  
 3,4-Dichlorophenylcarbonimide 48  
 3,4-Dichlorophenyl isocyanate 48  
 N-3,4-Dichlorophenyl-N-methoxyurea 48  
 Dichlorophenyltrichlorosilane 48  
 1,3-Dichloro-2-propanol 46  
 1,3-Dichloropropylene 48  
 2,3-Dichloropropylene 48  
 2,5-Dichlorostyrene 48  
 1,2-Dichlorotetrafluoroethane 49  
 2,5-Dichlorovinylbenzene 48  
 Dicobalt octacarbonyl 49  
 Diercyl 49  
 Diercyl N-methyl carbamate 49  
 Diconylmethane 50  
 1,4-Dicyanobutane, 17  
 Dicyclohexylamine nitrite 50  
 Dicyclohexylamine, oil-soluble salt 50

Dicyclopentadiene 49  
 Didodecyl phthalate 49  
 Dieldrin 73  
**Diethanolamine 49**  
 Diethanoldiaminoisopropanal 49  
 Diethylamine 50  
 $\beta$ -Diethylaminoethyl mercaptan 50  
 $\beta$ -Diethylaminoethyl methacrylate 51  
 Diethylbenzene 51  
 Diethyl chlorothiophosphate 51  
 O,O-Diethyl-S-(6-chloro-2-oxobenzo-  
 xazolyl-3-methyl)dithiophosphate  
 51  
 Diethylene dioxide 63  
 Diethylene ether 63  
 Diethylene glycol bis(chloroacrylate)  
 51  
 Diethylene glycol diacrylate 51  
 Diethylene glycol divinyl ether 51  
 Diethylene glycol vinyl ether 52  
 Diethyl ethanamine 52  
 Diethyl ether 52  
 O,O-Diethyl-O-ethylmercaptoethyl-  
 thiophosphate-O,O-diethyl-S-ethyl-  
 mercaptoethyl phosphate 52  
 Di(2-ethylhexyl)phenyl phosphate 52  
 Diethylmercury 52  
 O,O-Diethyl-O-p-nitrophenyl thiophos-  
 phate 53  
 Diethyl perfluoroadipate 53  
 Diethyl perfluoroglutarate 53  
 1,1-Difluoro-1-chloroethane 53  
 Difluorochloromethane 53  
 Difluorodichloroethylene 53  
 Difluoro-2,2-dichloroethylmethyl ether  
 53  
 Difluoroethane 54  
 Difluorodichloromethane 54  
 1,2-Difluorotetrachloroethane 54  
 N,N-Difurfural-n-phenylenediamine 54  
 Diisopropylamine 54  
 Diisopropylbenzene 54  
 m-Diisopropylbenzene dihydroperoxide  
 55  
 Diisopropyl ether 55  
 O,O-Dimethyl-S-2(acetyl amino)ethyl-  
 dithiophosphate 55  
 Dimethylamine 55  
 Dimethylaminoethyl methacrylate 55  
 [N-(3-Dimethylaminopropyl)-2-chlo-  
 rophenothiazine hydrochloride] 18  
 N,N-Dimethylaniline 55  
 Dimethylbenzylamine 56  
 O,O-Dimethyl-S-(1-carboethoxyme-  
 thyl)thiophosphate 56  
 O,O-Dimethyl-S-(1-carboethoxy 1-phc-  
 nylmethyl)dithiophosphate 56  
 Dimethyl chlorothiophosphate 56  
 O,O-Dimethyl-O-(1,2-dibromo-2,2-  
 dichloroethyl)phosphate 56  
 O,O-Dimethyl-S-1,2-dicarboethoxy-  
 dithiophosphate 56  
 O,O-Dimethyl-O-(2,2-dichlorovinyl)  
 phosphate 57  
 4,4-dimethyl-1,4-dioxane 57  
 N,N-Dimethyldiphenylacetamide 57  
 Dimethyl disulfide 57  
 Dimethylethanamine 57  
 O,O-Dimethyl-S-[2-(ethylmercapto)-  
 ethyl]dithiophosphate 57  
 Dimethyl formamide 58  
 Dimethyl ketone 15  
 O,O-Dimethyl-S-methylbarbamido-  
 methyl dithiophosphate 58  
 O,O-Dimethyl-S-(N-methyl-N-for-  
 mylcarbamylmethyl)dithiophos-  
 phate 58  
 O,O-Dimethyl-(3-methyl-4-nitrophe-  
 nyl)thiophosphate 58  
 O,O-Dimethyl-O-1-methyl-2-phenyl-  
 carboethoxy)vinylphosphate 59  
 O,O-Dimethyl-O-nitrophenylthio-  
 phosphate 59  
 O,O-Dimethyl-O-p-nitrophenylthio-  
 phosphate 59  
 N,N-Di-(1,4-dimethylpentyl)-p-pheny-  
 lenediamine 59  
 Dimethylphenylcarbinol 59  
 O,O-Dimethyl-S-(phthalimidomethyl)-  
 dithiophosphate 59  
 Dimethyl sulfide 60  
 Dimethyl terephthalate  
 O,O-Dimethyl-(2,2,2-trichloro-1-hy-  
 droxyethyl)phosphate 60  
 Dimethylvinylethynylcarbinol 60  
 1,3-Dimethyl xanthine 60  
 3,7-Dimethyl xanthine 61  
 Dimide 57  
 Dinil 61  
 Dinitrobenzene 61  
 Dinitro-sec-butylphenol 61  
 Dinitrochlorobenzene 61  
 Dinitro-o-cresol 61  
 2,4-Dinitro-p-hydroxydiphenylamine  
 62  
 4,6-Dinitro-2-isopropylphenol 62  
 2,4-Dinitrophenol 62  
 Dinitrothiocyanobenzene 62  
 Dinitrotoluene 62  
 Dioctyl sebacate 62  
 1,3-Dioxolane 70  
 1,4-Dioxane 62  
 Diphenamide 57  
 Diphenylamine 63  
 4,4-Diphenylmethane diisocyanate 63  
 4,4-Diphenylmethane dimalcicide 63  
 Diphenylpropane 76  
 Di-n-propylamine 63  
 Dipthal 113  
 Di-thio-bis(N-phenylmalcicide) 63

Ditolyl methane 63  
 Ditrizine citrate 63  
 Divinyl 63  
 N-Dodecylguanidine acetate 64  
 tert-Dodecyl mercaptan 64  
 Double salt of theophylline and ethylenediamine 69  
 Epichlorohydrin 64  
 1,2-Epoxypropane 103  
 Eplam 68  
 Ester sulfonate 37  
 Ethanal 15  
 Ethanol 65  
 Ethanolamine 64  
 Ethanoethylene diamine 64  
 5-Ethoxyphenyl-1,2-thiazothionium chloride 65  
 $\beta$ -Ethoxypropionitrile 65  
 Ethyl acetate 65  
 Ethyl alcohol 65  
 Ethyl benzoyl acetate 65  
 Ethyl bromide 65  
 Ethyl butyl amine 65  
 Ethyl chloride 66  
 Ethylcyclohexyl thiocarbamate 66  
 Ethylene chloride 45  
 Ethylene chlorohydrin 66  
 Ethylene cyanohydrin 66  
 Ethylene diacetate 66  
 Ethylenediamine 66  
 Ethylene dichloride 45  
 Ethylene glycol dimethacrylate 67  
 Ethylene glycol isopropyl ether 67  
 Ethylene glycol monobutyl ether 67  
 Ethylene glycol vinyl ether 67  
 Ethylene oxide 67  
 Ethylene sulfide 67  
 Ethylenimine 67  
 Ethylidene norbornene 67  
 S-Ethyl-N,N-hexamethylenethiocarbamate 68  
 2-Ethylhexenal 103  
 2-Ethyl-1-hexane 68  
 2-Ethylhexanol 77  
 Ethyl iodide 68  
 Ethyl mercaptan 68  
 Ethyl mercury chloride 68  
 N-Ethylmorpholine 68  
 S-Ethyl-N,N-propyl thiocarbamate, 68  
 Ethylthioethyl acrylate 69  
 Ethylthioethyl methacrylate 69  
 Ethyltoluene 69  
 Etrial 117  
 Euphylline 69  
 Extralin 69  
 Florimycin 69  
 Formaldehyde 69  
 Formal glycol 70  
 Formamide 70  
 Formic aldehyde 69  
 2-Formylfuran 70  
 Fozalon 51  
 Freon 11 113  
 Freon 12 54  
 Freon 13B1 115  
 Freon 22 53  
 Freon 112 54  
 Freon 113 117  
 Freon 114 49  
 Freon 115 96  
 Freon 141 46  
 Freon 142 53  
 Freon 143 115  
 Freon 151 89  
 Freon 152 54  
 Freon 253 115  
 Freon 318C 94  
 Furan 70  
 Furanidine 110  
 Furfural 70  
 Furfural 70  
 2-Furylaldehyde 70  
 Gardona[trans-isomer-2 - chloro-1(2,4,5-trichlorophenyl)vinyl - dimethylphosphate] 70  
 Germanium dioxide 71  
 Germanium hydride 71  
 Germanium tetrachloride 71  
 Glass-reinforced plastic (maleic acid polyester-based) 71  
 Gliflor 71  
 Glycidyl methacrylate 71  
 Hafnium chloride 71  
 Heptachlor 71  
 1,4,5,6,7,8-Heptachloro-4,7 - endomethylene-3a,7a-tetrahydroindene 71  
 1-Heptanol 72  
 Heptyl alcohol 72  
 Heptyl alcohol, tertiary 72  
 $\beta$ -Hexachloran 72  
 Hexachloroacetone 72  
 Hexachlorobenzene 72  
 1,2,3,4,7,7-Hexachlorobicyclo(2,2,1) - 2-heptene-5,6-bis-oxymethyl sulfite 72  
 1,2,3,4,5,6-Hexachlorocyclohexane 73  
 Hexachlorocyclohexane,  $\gamma$ -isomer of hexachlorocyclopentadiene 73  
 1,2,3,4,10,10-Hexachloro-1,4,5,8 - diendomethylene-1,4,4a,5,8,8a - hexahydronaphthalene 73  
 1,3,4,10,10-Hexachloro-6,7-epoxy - 1,4,5,8-di-endomethylene - 1,4,4a,5,6,7,8,8a-octahydronaphthalene 73  
 Hexafluoropropylene 74  
 Hexahydrobenzene 41  
 Hexamethylene 41  
 Hexamethylene diamine 74  
 Hexamethylene diisocyanate 74  
 N,N-Hexamethylene dimaleimide 74  
 Hexamethylenimine 74

Hexanitrodiphenyl sulfide 74  
 1-Hexanol 74  
 Hexanone 41  
 Hexogen 42  
 Hexyl alcohol 74  
 Hexyl alcohol, tertiary 74  
 Hydrazine 74  
 Hydroacrylonitrile 66  
 Hydrogen arsenide 75  
 Hydrogen bromide 75  
 Hydrogen chloride 75  
 Hydrogen cyanide 75  
 Hydrogen fluoride 75  
 Hydrogen phosphide 75  
 Hydrogen sulfide 75  
 Hydrogen sulfide, mixture with C<sub>1</sub>-C<sub>5</sub> hydrocarbons 75  
 $\beta$ -Hydroxyethyl mercaptan 75  
 p-Hydroxydiphenylamine 76  
 Hydroxyethylated tetraalkylphosphonate pentaerythritol 76  
 2,2-Di-(4-hydroxyphenyl)propane 76  
 Inhalane 53  
 Iodine 76  
 1-Iodobutane 30  
 1-Iodoctane 95  
 1-Iodoheptafluoropropane 76  
 Iodomethane 84  
 3-Iodo-2-methylbutane 77  
 1-Iodopentane 21  
 2-Iodopropane 78  
 Ipazine 36  
 Isoamylene oxide 76  
 Isoamyl bromide 76  
 Isoamyl iodide 77  
 Isobutylene 77  
 Isobutylene chloride 77  
 Isobutyric aldehyde 77  
 $\gamma$ -Isomer of hexachlorocyclohexane 72  
 Isooctyl alcohol 77  
 Isophthalodinitrile 77  
 Isoprene 81  
 Isopropenylbenzene 86  
 Isopropylaminodiphenylamine 77  
 Isopropylbenzene 78  
 Isopropylbenzene hydroperoxide 78  
 Isopropyl cellosolve 67  
 Isopropyl chlorocarbonate 78  
 Isopropylchloroformate 78  
 Isopropyl-N-(3-chlorophenyl)carbamate 78  
 Isopropylideneacetone 80  
 Isopropyl iodide 78  
 Isopropyl nitrate 78  
 Isopropyl nitrite 79  
 Isopropyl N-phenylcarbamate 79  
 Ketohexamethylene 41  
 Linuron 48  
 M-81 57  
 Maleic anhydride 79  
 N-Maleimide 79  
 Manch 79  
 Manganese, cyclopentadienyl tricarbonyl 79  
 Manganese ethylene-1,2-bis-dithiocarbamate 79  
 Melprex 64  
 Mercaptoacetic acid 111  
 $\beta$ -Mercaptoethylcapronate 79  
 Mercaptophos 52  
 Mercuran 79  
 Mercury bichloride 80  
 Mesityl oxide 80  
 Metalddehyde 15  
 Metaphos 59  
 Methacryl chloride 80  
 Methacrylic acid 80  
 Methacrylic acid anhydride 80  
 Methacryl chloride 80  
 Methanal 69  
 Methanol 80  
 p-Methoxyaniline 22  
 m-Methoxyphenol  
 Methylacetophos 56  
 $\beta$ -Methylacrolein 40  
 Methyl acrylate 80  
 Methyl alcohol 80  
 Methylamine 81  
 2-Methyl-4-amino-5-ethoxymethylpyrimidine 81  
 m-Methylaniline 81  
 Methylbenzene 111  
 Methyl bromide 81  
 2-Methyl-1,3-butadiene 81  
 Methyl butyrate 81  
 Methyl caproate 82  
 Methyl chloride 82  
 Methyl chloroacetate 82  
 Methylchloroform 82  
 Methyl cyanide 16  
 Methylcyclohexane 82  
 4-Methyl-5,6-dihydro- $\alpha$ -pyran 82  
 1-Methyl-4-diethylcarbamoylpiperazine citrate 63  
 Methylidihydropyran 82  
 2-Methyl-1,3-dioxolane 82  
 Methylene-bis-(N-carbonylmaleimide) 83  
 Methylene bromide 83  
 Methylene chloride 83  
 Methylene dichloride 83  
 Methyl ethyl benzene 69  
 Methyl ethyl ketone 83  
 O-Methyl-o-ethyl-o-p-nitrophenyl thiophosphate 83  
 2-Methyl-5-ethylpiperidine 83  
 Methylthiophos 83  
 O-Methyl-o-ethyl-o-(2,4,5-trichlorophenyl)thiophosphate 83  
 Methylfluorophenyldichlorosilane 84

2-Methylfuran 84  
 Methyl iodide 84  
 Methyl isobutyl ketone 84  
 Methyl isobutyrate 84  
 Methyl isocyanate 84  
 Methyl isovalerate 84  
 Methyl mercaptan 84  
 Methylmercaptophos 85  
 Methyl methacrylate 85  
 2-Methylthio-4-methylamino-6-isopropylamino-sym-triazine 85  
 N-Methylmorpholine 85  
 1-Methylnaphthalene 85  
 2-Methylnaphthalene 85  
 Methylnitrophos 58  
 Methyl oxirane 103  
 4-Methyl-3-pentene-2-one 80  
 Methyl phenyl ketone 16  
 2-Methylpropanal 77  
 Methyl propionate 86  
 3-(5)-Methyl pyrazole 86  
 1-Methyl-2-(3-pyridyl)-pyrrolidine sulfate 86  
 N-Methyl- $\alpha$ -pyrrolidone 86  
 $\alpha$ -Methylstyrene 86  
 2-Methylthio-4,6-bis(isopropylamino)-sym-triazine 87  
 Methylthioethyl acrylate 87  
 2-Methylthiophene 87  
 3-Methylthiophene 87  
 Methyl p-toluate 87  
 n-Methylurethanebenzenesulfonhydrazine 87  
 Methyl valerate 88  
 Methyl vinyl ketone 88  
 2-Methyl-5-vinylpyridine 88  
 6-Methyl-2-vinylpyridine 88  
 Medicine 20  
 Molybdenum boride 88  
 Molybdenum (metallic) 88  
 Molybdenum trioxide 88  
 Monochlorodibromotrifluoroethane 88  
 Monochlorodimethyl ether 89  
 Monochloromonofluoroethane 89  
 Monochlorostyrene 89  
 Monomer FA 89  
 Morpholine 89  
 MSDA-11 50  
 MTYu-6-11-50-66 71  
 Mucochloric acid 46  
 Naphthalene 89  
 2,6-Naphthalenedicarboxylic acid 89  
 1,4,5,8-Naphthalenetetracarboxylic acid 90  
 1,4,5,8-Naphthalenetetracarboxylic acid dianhydride 90  
 Naphthenic acids 90  
 2-Naphthoic acid 90  
 $\beta$ -Naphthol 90  
 $\alpha$ -Naphthoquinone 91  
 1-Naphthyl-N-methylcarbamate 91  
 NDA inhibitor 50  
 Nickel 91  
 Nickel carbonyl 91  
 Nicotine sulfate 86  
 Nicotinic acid 91  
 Nitroaminophoska 91  
 o-Nitroaniline 91  
 p-Nitroaniline 92  
 p-Nitroanisole(1-methoxy-4-nitrobenzene) 92  
 p-Nitrobenzoic acid 92  
 m-Nitrobenzotrifluoride 92  
 Nitrochlorobenzene 92  
 Nitrocyclohexane 92  
 Nitroethane 93  
 Nitrogen oxides 93  
 Nitroform 93  
 Nitromethane 93  
 Nitrophenol 93  
 Nitrophoska (containing nitric and sulfuric acids) 93  
 Nitrophoska containing no chlorine 93  
 Nitrophoska containing sulfates 94  
 Nitrophoska containing phosphates 94  
 2-Nitropropane 94  
 Nitroxylenes 94  
 Nonyl alcohol 94  
 Norsulfazole 19  
 Octachlorotetrahydro-endo-1-methylenecandane 94  
 Octafluoroamyl alcohol 94  
 Octafluorocyclobutane 94  
 Octafluorodichlorocyclohexane 94  
 Octafluoroisobutylene 97  
 Octamethyl 95  
 Octamethyltetramide of pyrophosphoric acid 95  
 Octanol 95  
 Octogen 42  
 Octyl alcohol 95  
 Octyl alcohol, secondary 95  
 Octyl alcohol, tertiary 95  
 Octylcarbinol 94  
 Octyl 2,4-dichlorophenoxyacetate 95  
 Octyl iodide 95  
 Oil shales (ash) 95  
 Orthoboric acid 27  
 Ovotran 37  
 Oxacillin 95  
 m-Oxytoluene 40  
 o-Oxytoluene 40  
 p-Oxytoluene 40  
 Oxone 95  
 Pentachloroacetone 96  
 Pentachlorofluoroethane 96  
 Pentachloronitrobenzene 96  
 Pentachlorophenol 96  
 Pentachlorothiophenol, zinc salt 96  
 Pentadecylamine 96

Pentafluoropropionic acid 97  
 1-Pentanol 21  
 Perchloroethylene 106  
 Perchloromethyl mercaptan 97  
 Perfluoroacetone dihydrate 97  
 Perfluoroadipodinitrile 97  
 Perfluorobutanol 97  
 Perfluorobutyl alcohol 97  
 Perfluorodibutyl ether 97  
 Perfluoroglutaredinitrile 97  
 Perfluoroisobutylene 97  
 p-Phenetidine 98  
 p-Phenetidine chloride 98  
 Phenol 98  
 m-Phenoxyphenol 98  
 Phenuron 99  
 Phenylamine 21  
 Phenylaminoethyl methacrylate 98  
 Phenylchloroform 24  
 N-Phenyl-N,N-dimethylurea 99  
 Phenylmethyldichlorosilane 99  
 N,N-m-Phenylenedimaleimide 99  
 Phosgene 99  
 Phosphamide 58  
 Phosphoric anhydride 99  
 Phosphorus oxychloride 99  
 Phosphorus pentoxide 99  
 Phosphorus trichloride 100  
 Phosphoryl chloride 99  
 Phostetrol-1 76  
 Phthalan 113  
 Phthalic anhydride 100  
 Phthalophos 59  
 Picolines 100  
 Piperazine adipate 100  
 Piperidine 100  
 Piperidylethyl methacrylate 100  
 3-(2-Piperidyl)pyridyl sulfate 101  
 Piperylene 101  
 Polychloropinene 101  
 Polyethylene (low pressure) 101  
 Polyformaldehyde 101  
 Polymarcin 101  
 Polypropylene 101  
 Polyvinyl chloride 101  
 Porofor ChKhZ-5 87  
 Potassium xanthogenate butyl ether 102  
 Prometryne 87  
 Propanide 45, 102  
 Propanone 15  
 Propargyl alcohol 102  
 Propazine 35  
 Propionic acid 3,4-dichloroaniline 102  
 Propionic aldehyde 102  
 Propyl alcohol 102  
 Propylamine 102  
 Propyl bromide 102  
 Propylene oxide 103  
 $\beta$ -Propyl- $\alpha$ -ethylacrolein 103  
 S-Propyl-N-ethyl-N-butylthiocarbamate 103  
 Propyl iodide 103  
 o-Propylphenol 103  
 p-Propylphenol 103  
 Propyl propionate 104  
 Pyrene 104  
 Pyridine 104  
 Pyrrolidine 104  
 $\alpha$ -Pyrrolidone 104  
 Pyromellitic acid dianhydride 105  
 p-Quinone 25  
 Renacit II 105  
 Renacit IV 96  
 Ronit 66  
 Resorcinol m-monomethyl ether 105  
 Santolifex 59  
 Selenious anhydride 105  
 Selenium (amorphous) 105  
 Semeron 85  
 Sevin 91  
 Silicochloroform 114  
 Sodium cis-chloroacrylate 105  
 Sodium cyanide 105  
 Sodium iodide 105  
 Sodium N-methyldithiocarbamate 105  
 Sodium nitrile 106  
 Sodium pentachlorophenate 106  
 Sodium thiocyanate 106  
 Solan 36  
 Streptocid 19  
 Streptomycin sulfate 106  
 Strobane 38  
 Strontium nitrate 106  
 Styrene 106  
 Styrene- $\alpha$ -methylstyrene copolymer 107  
 Sulfadimesine 19  
 Sulfagutic 19  
 Sulfur chloride 107  
 Sulfuric acid 107  
 Sylvan 84  
 Tellurium 107  
 Terephthalic acid 107  
 Tetrabromoethane 107  
 Tetrachloroethane 107  
 Tetraethyl lead 108  
 Tetrachloroethylene 108  
 Tetrachloroheptane 108  
 Tetrachlorohexatriene 108  
 Tetrachlorononane 108  
 Tetrachloropentane 108  
 Tetrachloropropane 108  
 Tetrachloroundecane 108  
 Tetraacycline 109  
 Tetrafluoroethylene 109  
 Tetrafluoro-(m-phenylene)dimaleimide 109  
 Tetrafluoropropyl alcohol 109  
 Tetrahydrobenzaldehyde 109

Tetrahydrobenzyl cyclohexanecarboxylate 109  
 Tetrahydrofuran 110  
 Tetrahydroindene 110  
 Tetrahydronaphthalene 110  
 Tetralin 110  
 Tetramethylthiuramdisulfide 110  
 Tetranitromethane 110  
 Thallium bromide 110  
 Thallium iodide 111  
 Theobromine 61  
 Theophylline 60  
 Thiocarbonic acid diamide 111  
 Thiodan 72  
 Thioethyl alcohol 68  
 Thioglycolic acid 111  
 Thiuram 110  
 Thiofuran 111  
 Thiophene 111  
 Thiophos 53  
 Thiourea 111  
 Thiourea dioxide 111  
 Tillam 103  
 Titanium tetrachloride 111  
 TMTD 110  
 Toluene 111  
 m-Toluic acid 112  
 m-Toluidine 81  
 Toluylenediamine 112  
 Triallylamine 112  
 Triazinethion 112  
 Tributyl peroxide 43  
 Tributyl phosphate 112  
 Tributyltinmethacrylate 112  
 Trichloroacetic acid 112  
 1,1,3-Trichloroacetone 113  
 Trichloroacetyl chloride 113  
 S-(2,3,3-Trichloroallyl)-N,N-di-(isopropyl)thiocarbamate 113  
 Trichlorobenzene 113  
 1,1,1-Trichloroethane 82  
 Trichloroethylene 113  
 Trichlorofluoromethane 113  
 Trichloro-3-methaphos 83  
 N-Trichloromethylthiotetrahydrophthalimide 113  
 N-Trichloromethylthiotetrahydrophthalimide 114  
 Trichloromonosilane 114  
 1,2,3-Trichloropropane 114  
 Trichlorosilane 114  
 $\alpha$ -Trichlorotoluene 24  
 Tricresyl phosphate (more than 3% ortho isomers) 114  
 Tricresyl phosphate (less than 3% ortho isomers) 114  
 2,4,6-Trichloro-1,3,5-triazine 114  
 Triethanolamine 114  
 Triethanolamine trimethacryl ether 115  
 Triethoxysilane 115  
 Triethylamine 115  
 Triethylene glycol diacrylate 115  
 Triethylene glycol dimethacrylate 115  
 Trifluoroacetic acid 115  
 Trifluorobromomethane 115  
 1,1,1-Trifluoro-3-chloropropane 115  
 Trifluoroethane 115  
 Trifluoroethanol 116  
 1,1,1-Trifluoroethylamine 116  
 $\beta,\beta,\beta$ -Trifluoroethylamine 116  
 Trifluoroethyl alcohol 116  
 Trifluorochloroethylene 116  
 N-(3-Trifluoromethylphenyl)-N,N-dimethylurea 116  
 Trifluoropropene 116  
 Trifluoropropylamine 116  
 $\gamma,\gamma,\gamma$ -Trifluoropropylamine 116  
 Trifluorostyrene 117  
 Trifluorotoluene 25  
 1,2,2-Trifluorotrichloroethane 117  
 Trimethylamine 117  
 2,2,4-Trimethyl-1,2-dihydroquinoline 117  
 Trimethylolpropane 117  
 Trinitrobenzene 117  
 Trinitromethane 93  
 2,4,5-Trinitrotoluene 117  
 Trioctyl phosphite 118  
 Triphenyl phosphate 118  
 Triphenyl phosphite 118  
 Triphthazine 118  
 Tri-p-propylamine 118  
 Trixylenyl phosphate 118  
 Turpentine 119  
 Valeric acid 119  
 Vanadium pentoxide 119  
 Vanadium trioxide 119  
 Vinyl acetate 119  
 Vinyl acetonitrile 18  
 Vinylacetylene 119  
 Vinylbenzene 106  
 Vinyl butyl ether 119  
 Vinylidene chloride 46  
 Vinyl norbornene 120  
 2-Vinyl pyridine 120  
 Vinyltoluene 120  
 Viomycin 69  
 White spirit (petroleum) 120  
 Xylene 120  
 2,4-Xylenol  
 2,5-Xylenol 120  
 2,6-Xylenol 121  
 3,4-Xylenol 121  
 3,5-Xylenol 121  
 m-Xylidine 26  
 Yalan 68  
 Yttrium oxide 121  
 Zinc 121  
 Zinc ethylene-N,N'-bis-dithiocarbamate 121

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