- Waste Management Area of the UNEP Global Mercury Partnership

GLOBAL MERCURY PARTNERSHIP

Catalogue of Technology and Services on Mercury Waste Management

As of March 2026

About this document

- Article 11 of the Minamata Convention on mercury require parties to take appropriate measures so that mercury waste is managed in an environmentally sound manner.
- Recognizing that there are only a limited number of facilities capable of treating mercury wastes in an environmentally sound manner even at the international level, this document intends to provide information of technologies, products and services related to mercury wastes management owned by partners of the Waste Management Area (WMA) of the UNEP Global Mercury Partnership.

Catalogue of Technology and Services on Mercury Waste Management

As of March 2026

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- Waste Management Area of the UNEP Global Mercury Partnership

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Technologies and Services on Mercury Waste Management

01: Appelglobal

Profile

Appelglobal is a Danish-based company created ten years ago with the aim of reducing global mercury pollution from small-scale gold mining taking an integrated, three-pronged project:

1. **Mercury clean-up from tailings and rivers** polluted by ASGM across the planet Earth. Funded by the Danish government in Nicaragua (2019) and in Honduras (work begins in April 2021). This includes disposal and storage.
2. **Teaching mercury-free gold extraction to small-scale gold miners**. Current projects are located in Mauritania, Bolivia, Uganda and fully financed by German by Danish sources. Work will resume when COVID restrictions are lifted.
3. **Real–time M&E** that measure the effectiveness of our approaches in reducing mercury that debilitates ecosystem service resilience and human health and provide evidence for inform policy recommendations based on context-specific best practices .

Appelglobal partners include the Danish Ministry of Environment and Food, the Danish Ministry of Environment, Honduran Ministry of Environment, Ensome, S.A., *Elplatek*, *FLSmidt.dk* and the Danish NGO *Dialogos*. Main sponsor is the Danish Ministry of Foreign affairs.

Technology, products, services

Cleaning tailings from ASGM for mercury

Appelglobal and partners received a grant from the Danish Ministry of Environment in 2018 to carry out successful test runs on cleaning tailings from small-scale gold mining for mercury flour and in 2020 the Danish Ministry donated a US$ 1 million grant to clean mercury and in 2020 the Danish Ministry donated a US$ 1 million grant to clean mercury from one of many of the Honduran rivers and adjacent soils that small scale gold miner are polluting daily. The project will extract mercury from river sediments using Peter Plates and it will also clean some of the mine tailings in close proximity to the pilot river to be cleaned. The miners who make the tailings will be taught to extract gold without using mercury (see below). We also neutralize the captured Hg as cinnabar and ship it to Switzerland for safe storage.

Mercury-free gold extraction method

Appelglobal has adapted invented in the Philippines more than thirty years ago and used today by >30,000 Filipino miners to teach small-scale gold miners to go mercury-free. The initiative has been implemented on three continents where miners have adopted mercury-free gold extraction to recover up to 50% more gold than they do with using mercury and they save considerable amounts of money by not needing to buy mercury. The only drawback is that this mercury-free gold extraction takes about ten percent longer processing time.

Educational videos describing the method can be viewed in English and Spanish. Both videos have been viewed by over 1.8 million viewers. Videos in French and Bahasa Indonesia are also available, while versions in Pemba and Swahili will be available soon.

Processing station for Mercury-free gold Extraction

Real time M&E

Another added value of our integrated approach is the ability to track changes through a real-time monitoring and evaluation platform that measure environmental and human health outcomes over time. We have an occupational health team of medical doctors, an ESIA and SEA team led by a tropical ecologist with experience working with river, estuarine and marine biodiversity impacts driven by unsustainable practices.

01: Appelglobal

Attributes

Appelglobal's approach offers several benefits to our partners.

1. Mercury clean-up from tailings and rivers

- Reduced human health risks from eating mercury-contaminated aquatic resources;
- Diminished ecosystem health risks due to removal of mercury from environmental compartments;
- Reduced inputs into estuarine nursery areas for fish, shrimp and IUCN Red-listed species;
- Neutralization of mercury by conversion to cinnabar and deep storge in a Swiss safe disposal area;

2. Mercury-free gold extraction

- Reduced health and environmental risks due to the elimination of mercury in small-scale gold mining activities
- Lowered cost to miners due to eliminating the need to purchase mercury
- User-friendly, easy operation after training

It is not always easy to convince people to change their habits. However, teaching and training small-scale gold miners to extract gold mercury-free has the immediate advantage that they do not need to buy mercury which is not only very expensive but also illegal. Next advantage is that they will recover more gold and finally, they and their families are no longer exposed to this potent neurotoxin.

Applicability

1. Mercury clean-up from tailings and rivers

Most small-scale gold miners mill their gold ore in metal drums together with mercury. The mercury-gold amalgam is then recovered after milling. The recovered amalgam is heated, forcing mercury to evaporate, while the gold remains behind. However, many miners do not realise that a large part of auriferous mercury ends up in tiny droplets (mercury flour) which they have no way to recover.

The adjacent photo shows a spoon of tailings with mercury flour (small shiny dots).
Appelglobal together with Leoncio Na-Oy, a small-scale Filipino gold miner invented a gadget called Peter Plates that can recover a large part of mercury flour. The captured mercury flour is then distilled, and the residual gold is recovered. We have applied this successfully in Nicaragua and will imitative a new pilot project in Honduras in April 2021.

2. Mercury-free gold extraction method

Our work spans countries across three continents (see map) and we continue to receive requests for assistance in new countries.

Contact information

Additional information can be found at our website or writing us at:

Peter Appel appelglobal@gmail.com
Joe Ryan jryan@ensomeinfo.com

02: Association of Lighting and Mercury Recyclers

Profile

The Association of Lighting and Mercury Recyclers (ALMR) is a non-profit organization comprised of recycling firms and others engaged in mercury reclamation. Our members operate from locations throughout the U.S. and Europe. Since its formation in 1999, the ALMR has become an educational and informational resource to government agencies, municipal authorities, industries and business entities, waste handlers, generators, environmental groups, industry trade organizations, and the public at large. The ALMR assists government agencies at all levels to establish and implement programs, rules, and regulations which encourage and promote the recycling of all mercury containing products and waste materials. The ALMR received a grant from the USEPA to develop and manage the Lamp Recycling Outreach Project, resulting in hundreds of millions of lamps recycled. The details and scope of this program have been shared with UNEP in the Success Stories. We have developed technology to reclaim Rare Earth Elements from lamp phosphors for strategic and industrial uses. We have started The Mercury Abatement Project to assist SIDS and developing countries in the collection of used lamps to keep mercury from the environment and stimulate local economies through improved tourism. Locations of our member's company operations are found at www.almr.org where each member's web links describe more about their individual activities and locations throughout the world. Since 2011 the ALMR has provided the Global Mercury Project with details of our member's technologies, reverse distribution systems, and success stories. We have provided information for the Sourcebook and we have attended the COP and partnership meetings.

Technology, products, services

The ALMR has provided the project with technical details including photos and descriptions of the methods for recycling light bulbs and mercury recovery.
To summarize:

1. Lamps are collected from any location where they used and stored. Historically we have collected about 500 million lamps per year.
2. Lamps are disassembled in a negative pressure system, where components are mechanically separated and isolated from each other. Clean (mercury free) components are recovered and sent for reuse in any process needing glass, aluminum, tungsten, or other raw materials found in lamps.
3. The Phosphor component is heated in a vacuum distillation system to isolate mercury for reuse or sequestering depending on location.
4. The mercury-free phosphors are then concentrated to remove any remaining impurities and subjected to a thermal or chemical process (patented and proprietary technologies) to recover pure Rare Earth Oxides for reuse by governments and industry. The principal Oxides produced are Terbium, Europium, Yttrium, Cerium and Lanthanum.
5. Through proper recycling nearly all of the materials lamps are comprised of are rendered non-hazardous, mercury is reclaimed, and the critical minerals needed for strategic applications are produced.

02: Association of Lighting and Mercury Recyclers

Attributes

The principal advantages of recycling mercury containing products are the protection of human health and the environment from the toxic effects of mercury, and the reclamation of rare and valuable minerals for alternative energy, industrial, aircraft and defense applications. Our organization is a world leader in performing all these activities.
We share all the information we have developed for public education and outreach to businesses and individuals with any member of the GMP at no cost. We are available to assist anywhere in the world to set up a reverse distribution network and arrange for recycling in the most appropriate method and location.

Integrated Lamp Recycling System used throughout the world Courtesy of Balcan Ltd.

Applicability

Our industry has been operating and performing the activities described here for approximately 25 years. Physical operations are primarily in North America and Europe. Our member companies also provide engineering and technology to establish commercial operations worldwide. Other recycling locations are also available in Asia, Middle East, South Africa and Australia. We arranged for the collection of large quantities of lamps from Sri Lanka and the recycling of these lamps in Dubai. This project was outside the scope of our membership, yet we are committed to networking with any legitimate participant to keep lamps and mercury out of the environment. We have also assisted in similar projects in Central America.

We have described a plan in detail to GMP members to integrate lamp collection and recycling in Developing Countries and Small Island Developing States where improper management practices lead to mercury pollution in nearby marine environment. We continue to seek UN/GEF support for setting up local infrastructure to collect lamps and ship them to integrated recycling facilities in nearby countries. We continue to offer this approach, and we welcome all advice on finding funding sources to support local efforts.

Further information

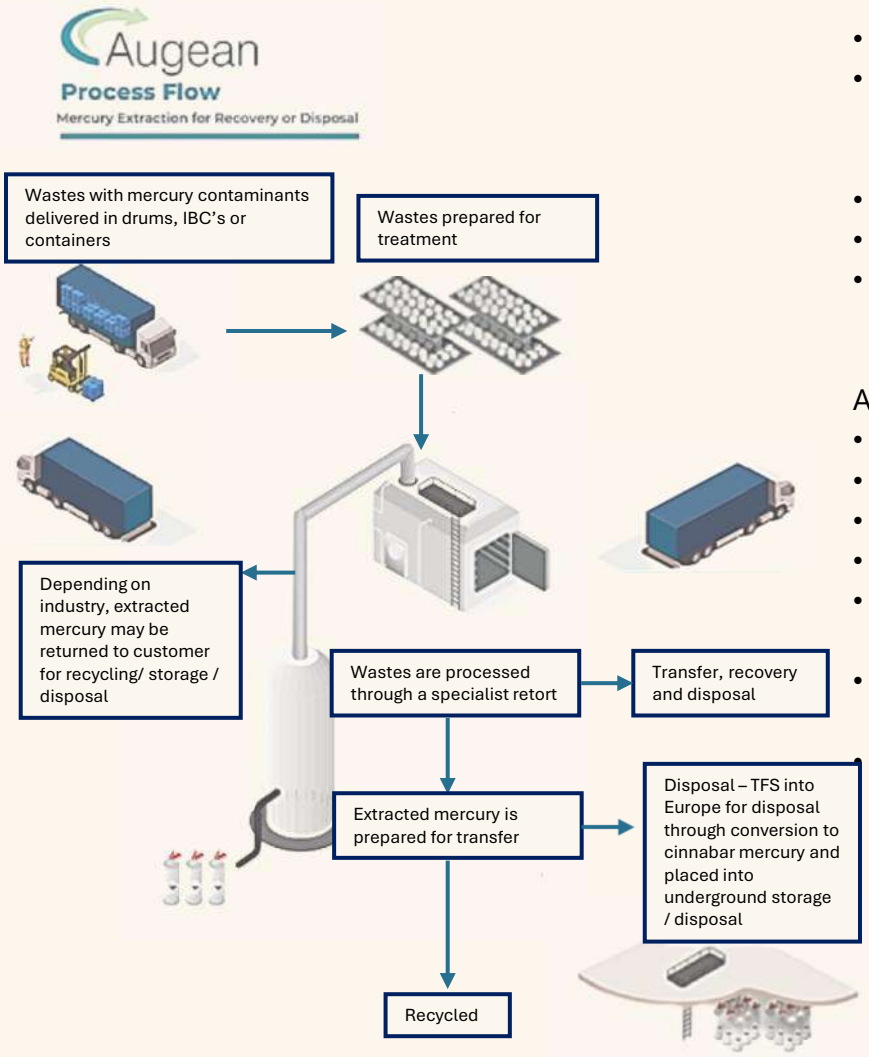
For additional information:
visit our website- www.almr.org
Contact information: Paul Abernathy,
Executive Director
paul@almr.org

03: Augean, Berwick-upon-Tweed plant

Profile

Augean celebrated its 20th anniversary in 2024, marking two decades of delivering comprehensive waste management solutions. With 22 sites across the UK, Augean specialises in hard to handle wastes. Our expertise spans diverse industries including Renewable Energy, Infrastructure & Construction, Nuclear & Radioactive, Processing & Manufacturing, Defence, Utilities, and Oil & Gas Sectors.

Located on the border between England and Scotland, our Berwick-upon-Tweed site operates as a COMAH (Control of Major Accident Hazards) facility. The site boasts nearly 50 years of expertise in chemical plant operation, production, metals recovery, and waste treatment.



Technology, products, services

Our main capabilities include:

- Mercury Recovery Facility
- Metal Recovery Drier
- pH Adjustment Plant
- Copper Recovery and Copper Carbonate Production
- Ammoniacal Etchant Removal Plant

We operate a wide range of processes to optimise the extraction and recovery of mercury from various waste streams, including:

- Mercury-contaminated catalysts and absorbents
- Mercury-contaminated sludge
- Fluorescent lamp powder
- Filter residues and filter media
- Contaminated equipment and pipework
- Inorganic mercury laboratory smalls
- Mercury-contaminated soil, thermometers, sphygmomanometers, PPE, plant, and equipment
- Dental amalgam
- Batteries and button cells
- Activated carbon contaminated with mercury

Additional specialist services include:

- Surface decontamination
- Pipe cleaning
- Site investigations
- Emergency spill response
- Sampling and testing of plant and equipment
- Decontamination of plant and equipment
- Contaminated land management

03: Augean, Berwick-upon-Tweed plant

Attributes

The Berwick plant operates under three permits: KP3937TY, KP3437TF, and JP3790VH and we are accredited to ISO 9001, ISO 14001, and ISO 45001 standards, reflecting our commitment to quality, environmental responsibility, and health and safety.

Our in-house laboratories, equipped with ICP, GC-MS, XRF and other advanced analytical systems, give us the technical control to optimise recovery processes, manage complex waste streams and deliver high-quality assurance upstream and downstream.

The facility has been engineered to treat "hard-to-handle" wastes according to the waste hierarchy, placing reuse, recycling and resource recovery at the forefront.

One standout example: our mercury extraction plant delivers recovered mercury at ~99.99% purity, allowing for reuse, recycling or compliant export for final storage.
Furthermore, our processes are designed to avoid landfill wherever feasible, helping close the loop on finite resource supply chains and strengthening circular economy outcomes.

In short, we bring together rigorous technical capability, full regulatory compliance, industry-leading recovery performance, and a circular economy mindset.

Contact information

Augean , East Ord Industrial Estate,
Berwick-upon-Tweed, Northumberland,
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www.Augean.co.uk
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sales@augean.co.uk

Applicability

Our services are highly applicable across a broad spectrum of sectors and waste typologies. For industrial operators in the oil & gas, petrochemical, metal-plating and catalyst-manufacture arenas, our large-scale mercury evaporation system and metal recovery lines offer tailored solutions for spent catalysts, absorbents, sludges and filter residues.
Thanks to our ability to recover valuable metals (copper, nickel, tin, tungsten, cobalt among them) at high yield - over 99% in some cases, we are well suited to operations where resource value and regulatory risk coincide.
For smaller scale waste producers such as laboratories, dental practices, schools or contaminated land sites, we provide flexible services covering mercury-contaminated smalls, amalgams, soil, equipment and spill response, supported by our UK-wide logistics and supply chain.
Our full spectrum service, from investigation and sampling through to decontamination, treatment, recovery and final disposal, makes us a compelling partner for customers seeking a one-stop, end-to-end hazardous waste solution.
Moreover, our adherence to best available techniques (BAT), transfrontier shipment (TFS) protocols and our strong track record in complex waste streams means our offering aligns with the needs of regulatory bodies, consulting firms, and corporations dedicated to high-integrity waste management and resource recovery.

04: BATREC Industrie AG

Profile

BATREC is a Swiss company specialised in hazardous waste treatment and recovery.

1991: year of Foundation

88 employees

2022 Turnover: 18 Mio €

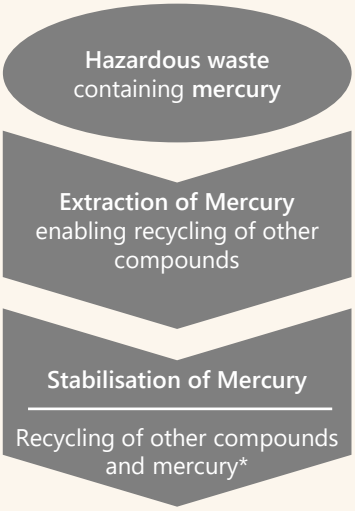
ISO 9001, ISO 14001 & OSHAS 18001

BATREC, a subsidiary company of the Veolia group, part of Sarp Industries, is a leading specialist in the treatment and recycling of industrial hazardous wastes, particularly those containing Mercury.

5 Core Activities: Mercury stabilisation, Mercury contanining waste treatment, Oil and Gas adsorbents recycling, Activated Carbon reactivation, and battery recycling.

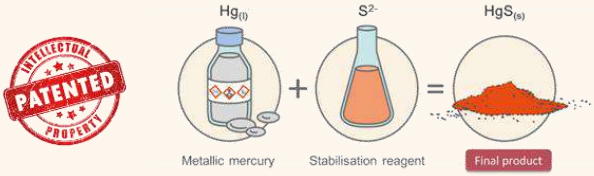
Technology, products, services

The company provides mainly 2 services in terms of mercury waste handling:



Stabilisation

BATREC has BATREC has developed a **patented solution to stabilize metallic mercury** (Hg) to mercury sulfide (HgS) for a permanent and safe disposal in a salt mine



Or

Recovery

(ultra purification of Hg with a purity > 99.9999%)*

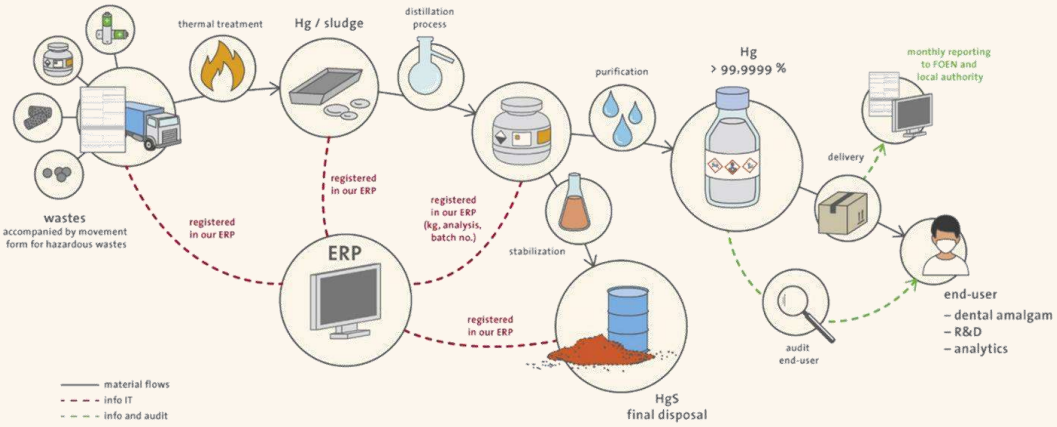
* In accordance with Minamata – limited applications

BATREC can manage any type of mercury waste such as Liquid mercury, Hg guards, AC contaminated with Hg, sludge, contaminated soils, contaminated PPE, filters, thermometers and other Non Electronic Measuring Devices, dental wastes (amalgams)…

04: BATREC Industrie AG

Attributes

BATREC provides **safe** and **traceable treatment services** for Liquid mercury and waste containing mercury in compliance with regulations as the **Minamata** and **Basel Conventions**.



Compliance	BATREC provides services with high quality **Swiss standards**
Experience	BATREC develops its mercury handling services since **1992**
Expertise	BATREC handles **any types of mercury wastes**
Worldwide	BATREC offers a **turnkey solution** within a real-world context

Applicability

- **Decommissioning of Hg based Chlor-Alkali plants.**
  Europe: more than 1'800 T as of 2016 (Spain, Belgium, France, Italy, Hungary, Slovakia, Czech Republic, Switzerland).
- **Industrial gold mines.** *Continuous production worldwide.*
  More than 500 T as of 2016 (Latam Region).
- **Oil and Gas Industry**
- **Clients who request a safe disposal of the Hg recovered from their wastes**

Case Study Mine Industry: BATREC offers to the mining industries its **door-to-door services** consisting of on-site supervision for packing, labelling, stuffing into maritime containers and international transport, following Basel Convention for Transboundary movement of waste, prior to Hg stabilization and final disposal

Further information

Contact details

Tel	+41 (0)33 657 85 00
E-Mail	batrec@batrec.ch
URL Website	http://www.batrec.ch/en/

Managing Director – Philippe ZANETTIN
Commercial Manager – Angels CASTELLNOU

Treatment facilities
Niesenstrasse 44
3752 Wimmis
SWITZERLAND

05: BMT ASIA CO., LTD.

Profile

BMT Asia Co., Ltd., an affiliate of BMT International BV, the Netherlands, and a subsidiary of the REMONDIS Group, Germany, is a regional leader in professional mercury waste management and environmental solutions. Since 2012, the company has operated an advanced treatment facility in Bangpoo Industrial Estate, Thailand, delivering safe, compliant, and sustainable services across Asia.

2012: Commissioning of Treatment Facility in Thailand

REMONDIS®
WORKING FOR THE FUTURE

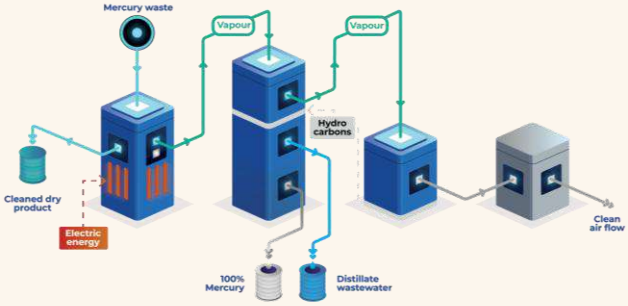
2024: Proud Member of the REMONDIS GROUP

Marked by strong governance and operational excellence, BMT Asia operates under a Type 106 license and internationally recognized standards, including ISO9001, ISO14001, ISO45001, and Thailand Green Industry Certification, with full compliance with DIW and IEAT regulations.

Green Industry

Technology, products, services

BMT operates proprietary, patented technologies based on advanced Thermal Desorption and Vacuum Distillation processes for mercury recovery and purification. The company utilizes BMT Static Retort and BMT Dynamic Retort systems in Thailand, with a combined treatment capacity of 2,800 tons per year, producing high-purity elemental mercury of up to 99.99% purity.



Through its team of 41 specialists, BMT Asia provides integrated mercury management solutions covering sludge, spent catalysts, used PPEs, used filters, elemental mercury, and mercury-contaminated industrial residues, supported by advanced technologies and end-to-end treatment capabilities.

41 Experienced Specialists

Committed to safety, environmental protection, and circular economy principles, BMT Asia ensures responsible residue management through certified co-processing at cement kilns and power plants, enabling the safe conversion of treated residues into alternative materials and fuels.

In alignment with the Minamata Convention on Mercury, BMT Asia supplies highly purified mercury exclusively for permitted applications and maintains a long-term management plan. Surplus mercury, where applicable, is transferred to certified facilities in Europe for stabilization and secure final management in accordance with international best practices.

"Driving Sustainable Mercury Management in Asia"

05: BMT ASIA CO., LTD.

Attributes

Mercury Excellence
Delivering European standards, strong governance, and international best practices in mercury management.

Patented Advanced Treatment Technologies
Proprietary Thermal Desorption and Vacuum Distillation systems ensuring consistent, high-efficiency recovery and purification performance.

Regulatory Compliance
Operating in strict alignment with the Minamata Convention, Basel Convention, and national regulations, ensuring full legal and environmental assurance.

High-Purity Recovery & Secure Management
Producing elemental mercury with up to 99.99% purity, supported by certified storage, stabilization pathways, and long-term stewardship programs.

End-to-End Sustainability Solutions
Delivering integrated services from field operations and logistics to treatment, residue co-processing, and zero-landfill-oriented disposal.

Applicability

- Applicable to mercury-contaminated waste generated from offshore and onshore operations in upstream and downstream oil & gas, petrochemical, chemical, power generation, and general manufacturing industries
- Suitable for the treatment and recovery of spent catalysts, industrial sludge, activated carbon, used filters,, mercury-bearing residues, contaminated metals, and process equipment
- Supporting plant turnarounds, maintenance shutdowns, decommissioning, site remediation, and legacy waste management programs
- Providing compliant solutions for domestic and transboundary waste movements in accordance with the Basel Convention, the Minamata Convention on Mercury, and relevant national regulations
- Serving offshore and onshore operators, waste generators, traders, and licensed environmental service providers with integrated technical, regulatory, and logistical support
- Applicable to projects requiring high-purity mercury recovery, secure residue management, and environmentally responsible treatment under strict safety and quality control systems
- Supporting sustainability, ESG, and circular economy objectives through resource recovery and zero-landfill-oriented practices

Contact information

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+66 (0) 2 709 6725

infoBMTP@bmt-mercury.com

https://www.bmt-mercury.com

Chairat Nattakittikoson, Managing Director

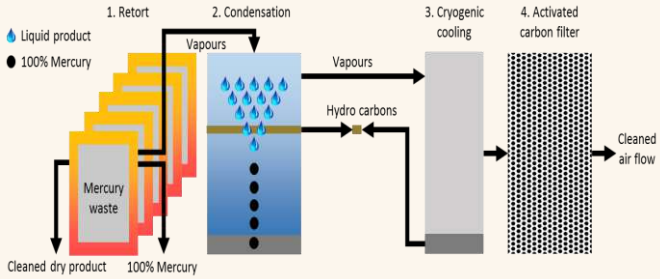
06: BMT EUROPE BV

Profile

BMT is a Dutch company, specialized in the safe and sustainable treatment and recovery of Hg-contaminated waste. Founded in 1991, the company provides highly efficient treatment services for a broad scope of materials, among which are sludges, catalysts, PPE, filters, active carbon, UN3506 products, precious metals, batteries, amalgam and NORM waste.
With about 18 employees, BMT Europe generates a turnover of about 7,5 Mio per year (2025). ISO9001 and ISO14001 ensure compliancy with quality management and environmental management standards.
BMT is a subsidiary of REMONDIS Industrial Services, specialized in the collection, treatment and disposal or reuse of hazardous materials.

Technology, products, services

BMT uses proprietary vacuum distillation technology to separate mercury and other hazardous components from solids. Extracted mercury is immobilized into HgS and stored underground in former German salt mines. Subsequent sub-streams are recovered or reused for other purposes such as temperature moderation in incineration plants or as raw material for the construction of reinforcement purposes.
BMT supports customers in the proper packaging and labelling of material to ensure safe and compliant logistics, prior to treatment, as well as transboundary transportation services, following Basel Convention regulations.



BMT is successfully ensuring the reuse of clean solid residues for a varied number of applications in various industries. Treating Hg-contaminated NORM sludges, supplied by most major oil & gas companies in North-Western Europe is core business and provides in reuse applications as well after "demercurization". This avoids disposal of NORM solids in countries of origin.

CERAMIC BALLS & SPENT ADSORBENTS

HG SAND & SLUDGE

ELEMENTAL MERCURY

USED FILTERS & PPE

NORM

CONTAMINATED METALS

06: BMT EUROPE BV

Applicability

- Hg-contaminated NORM sludge is exported to The Netherlands where it is treated by BMT. After removal of mercury, water and hydrocarbons, the dry NORM matter is used as a raw material to build reinforcement walls at the Dutch NORM deposit site. By using NORM-based raw material for construction purposes at the NORM deposit site instead of new material, money is saved and NORM residues do not have to return to the country of origin.
- Hg-contaminated copper catalyst is exported to The Netherlands to be treated by BMT. After removal of mercury and other hazardous components, the solid residue is smelted to separate the copper content from other solids. Pure copper is used to manufacture new products.
- Hg-contaminated active acrbon is exported to The Netherlands where it is treated by BMT. After removal of mercury andother hazardous components, the carbon can either be recovered and reused for the same purpose of reused in other applications such as energy creation.

Contact information

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W. bmt-mercury.com

CEO Kasper Brakenhoff
Commercial Bart Zonnenberg

07: EAM Environmental, Inc.

Profile

- EAM Environmental is a United States company focusing on manufacturing and e-commerce of hazardous spill control products
- History - Founded in 2016
- Our business
  - Manufacturer of unique magnetic amalgamation powder for all forms of mercury bearing wastes.
  - Strategic partners with THIS to manufacture flocculent /solidification agents for effluents containing heavy metals

Technology, products, services

- Elemental mercury spill clean up
- Final amalgam is collected and shipped to a mercury recycling facility for retort
- Final amalgam is a solid, non vaporizing solid that can be picked up with a magnet

Attributes

- Breaks down easily in the retort process compared to other amalgams
- Due to the chemical formulation of Mercury Magnet®, vapor suppression is complete when amalgam forms
- Inert metal powders form magnetic amalgam after small application of water to product
- Very user friendly and simple to use
- No use of hazardous chemical / substance
- Affordable and low cost method of mercury spill clean up

Applicability

Mercury Magnet® has been used in Azerbaijan for mercury waste clean up in gold refining. In addition, Mercury Magnet® has been used in the remediation of the Thomas Edison museum in Edison, NJ, United States and in the oil & gas sector in the Far East.
It is our intention to provide spill control kits to developing countries to assist in their mercury bearing waste generation, such as laboratories and artisanal gold mining.

Further information

Company website, email
Tel: +1 (570)-848-4186

08: ECOCYCLE PTY LTD

Profile

Ecocycle Pty Ltd is and Australian mercury recycling company founded in 1996.
Head Office and main processing capability is located in the State of Victoria at Campbellfield.
National coverage is serviced through additional facilities located in Perth - Western Australia, Adelaide – South Australia, Sydney – New South Wales, Brisbane – Queensland and Rocherlea – Tasmania.
Agents also represent the company in Darwin – Northern Territory, New Zealand, Indonesia, Papua New Guinea and New Caledonia.
Ecocycle Pty Ltd employ highly experienced staff committed to servicing industry and protecting the environment fully supporting the values and vision of both Minamata Convention and UNEP Global Mercury Partnership.

Technology, products, services

Ecocycle Pty Ltd have installed high volume crush and separation plant across the country with European distillation facilities located at the Head Office.
The company processes all mercury wastes from a wide range of industry including Mining, Oil & Gas, Lighting, Dental and the general public.
All materials received into our facilities are 100% recycled.
Ecocycle Pty Ltd has specific interest in recycling Dental Amalgam and has invested heavily in process and awareness on this subject across the industry.

Attributes

Ecocycle Pty Ltd utilize the latest technology for the safe processing of mercury wastes in a highly efficient and environmentally sound manner.
Our company is fully accredited to the following standards:

- ISO 9001:2015
- ISO 14001:2015
- AS/NZS 4801:2001
- AS/NZS 5377:2013
- OHSAS 18001:2007

Applicability

Ecocycle Pty Ltd have sort out and assisted mercury recycling programmes in South Pacific countries and Indonesia.
The company has a broad reach as member of industry bodies such as:

- Waste Management Association of Australia
- Victoria Waste Management Association
- Australian Battery Recycling Initiative (ABRI)
- Fluorcycle
- Exitcycle

Further information

- Further details and extensive information can be found at our website and we encourage visitors to our web pages to sign up to our regular and informative newsletter.
- All enquiries can also be directed to:

- Mr Daryl Moyle, Business Development Manager
- Telephone 61 432732735 / 61 394089415
- Fax 61 394089416

09: Ecologic, S.A. Urban Mining and special waste management company

Profile

- Started operations in August 2008 and Valued at US$200K
- Urban Mining & special waste management company, locate it in Panama City, Panama
- Partner of the UNEP Global Mercury Partnership's waste management and disposal areas since 2008
- With national operation permit from Health and Environment's Secretaries since 2012
- Recycling and final disposal of containing and contaminated mercury waste.
- UNIDO's mercury waste workshop participant.

Technology, products, services

- Lightning fixture, medical equipment, e-waste, electrical waste, reduction, collection, separation & storage.
- Copper cable, Lightning fixtures and E-waste recycling.
- Gold, copper, aluminum and bronze removal & recovery.
- Copper, aluminum and bronze melting and ingot production.
- Steel scrap recycling & export.
- Plastic waste, mercury containing waste final disposal in secured landfills (special engineer landfill)

Attributes

- Higher recycling efficiency, higher quality of raw material for up and downstream use.
- Lower risk of contamination
- resources recovery for circular economy
- No use of hazardous or chemical substances
- Inverse manufacturing & manual wire stripping
- User-friendly & easy melting operation
- Co-benefit
  - Higher prices for recovered metal
  - More recycled material for industrial use
  - Less waste to municipal landfills
  - Less pollution due to no plastic burning

Small batch's melting process

Copper ingots

Small furnace melting at 1,200 C°

99.99% copper recovered

09: Ecologic, S.A. Urban Mining and special waste management company

Applicability

Circular economy in the waste management had been one way to increase their incomes, but mainly in the aluminum, glass, plastic and cardboards, but not in the special electric & electronic waste. All metals, especially iron/steel, had been send to larger recycling operations to receive residual incomes, less than the actual metal recovery cost.

Since the e-waste and lightning and electrical waste include an important metal footprint and the melting technology is getting more accessible in terms of size and price, there is a convergence to add value and increase general incomes to urban mining & special waste management companies.

Urban Mining, Circular Economy as well as a Better Design for better recyclability in consumer products, will increase the recycling rate, recycled material participation in industrial process and the success of recycling operation around the world.

Further information

- Facebook
- Website
- Contact information
    - Jorge G Conte B
    - Ecologic, S.A.
    - +507 391-9181
    - +507 6649-3220

10: econ industries

Profile

Founded in 2003, econ industries is a German-based cleantech company serving the oil & gas, chemical, mining, and chlor-alkali industries by delivering turn-key equipment for the recovery of resources from industrial hazardous wastes worldwide.

With more than 20 years of experience in mercury wastes treatment and mercury stabilization, econ enables governments, hazardous waste operators and industrial partners to establish decentralized, environmentally sound and cost-effective mercury waste treatment infrastructure in full alignment with Article 11 of the Minamata Convention.
econ's Mission: Zero uncontrolled mercury waste – safe recovery, local treatment, long-term stabilization.

Technology, products, services

econ industries offers a broad portfolio of technologies and services for the treatment of mercury waste, being able to handle all major mercury waste streams and giving a complete solution to the client, from extracting the mercury from the waste to the stabilization of the recovered elemental mercury to mercury sulphide (HgS).

VacuDry®
VacuDry® is an indirectly heated vacuum distillation process. The material is continuously mixed and heated at low material temperatures (max. 350° C) under a controlled vacuum of below 100mbar(abs) to safely evaporate and recover water, hydrocarbons and mercury. It can be utilized for all waste streams containing elemental mercury and mercury compounds with a boiling point of up to 450° C.

Capacity: 5 – 200 t/day
[500 t/day in combination with soil washing]

Mobile Mercury Conversion Unit (MMCU)
The MMCU is designed for on-site mercury conversion. Mercury is converted to stable and non-toxic HgS and packed for final disposal.

Capacity: 0.5 to 5 tons per day

High Temperature Treatment Unit (HTTU)
The HTTU is designed for industrial scale treatment of spent catalysts and other mercury and sulphur containing wastes. In the HTTU, mercury sulphide (HgS), and other mercury compounds are decomposed at high temperatures.
Hydrocarbons and sulphur are oxidized. SO2 created by the process is neutralized in the off-gas treatment system.
Capacity: 100 kg to 2.5 tons per hour

Services
- Feasibility studies & Consulting
- Pilot trials
- Process engineering and customization
- Turnkey plant delivery
- Commissioning and operator training
- Long-term service and technical support
- Knowledge transfer and local capacity building

econ provides complete solutions from mercury recovery to final stabilization.

10: econ industries

Attributes

econ industries acts as a technology enabler, allowing countries and industries to build long-term domestic mercury waste treatment capacity instead of relying solely on centralized and expensive export-based disposal models.

Advantages of econ's mercury treatment technologies:

- Highest flexibility - every mercury waste stream can be treated
- On-site treatment of mercury wastes - reduce transport emissions/hazards
- Full transparency of the waste handling process
- Safest technology - due to closed vacuum system
- Physical separation through vacuum distillation – no incineration!
- Renewable energy supply system: CO2 – emission free operation
- Flexibility to switch between different energy resources
- Best Available Technology (BAT)
- Turn-key solution - including setup of material handling and safety regulations

VacuDry® - Vacuum distillation

Applicability

econ industries offers solutions for all types of industrial scale mercury wastes from various industrial sectors such as the Oil & Gas, Chlor-Alkali, Chemical, Mining and waste management Industry, as well as soil remediation.

Typical applications that contain mercury:

- Spent catalysts
- Contaminated soil and building rubble
- Filter cakes
- Sludges
- Oily wastes containing mercury
- NORM / TENORM waste containing mercury
- Surplus mercury for conversion as preparation for final safe disposal

econ solutions are applicable for:

- National hazardous waste infrastructure development
- Regional treatment hubs
- On-site industrial remediation projects
- Developing countries seeking local mercury treatment capacity
- Projects supported by international environmental funding mechanisms

Mobile Mercury Conversion Unit

Contact information

For further information please visit our website or contact our econeers directly via sales@econindustries.com or call us at +49 8151 4463770

E-Mail Website LinkedIN

11: GMR

GMR mbH

GMR is a German company, specialized in the treatment and recycling of mercury, mercury-contaminated waste as well as NORM-contaminated waste and residues.

- Founded in 1991
- 19 employees, 2 factories

Main Activities

- Recycling of mercury containing waste
- Mercury Stabilization
- Purification of Mercury
- Sorting and Treatment of button cells
- Treatment of NORM residues
- Stabilization of NORM residues
- Mercury purification

Technology, products, services

Mercury Containing Waste

GMR runs multiple machines for the treatment of Mercury containing waste, such as:

- Dental Amalgam
- Button Cells
- Thermometers
- Rectifiers
- Contaminated Soil and Sludge
- High pressure lamps

Mercury Containing Waste

Mercury & NORM

GMR developed a technology to treat NORM-containing waste from Oil and Gas industry, which often is related to Mercury contents. For 25 years, disposal on approved domestic landfills is a unique achievement.

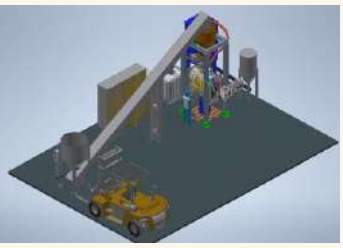
And More...

GMR developed an own technology for purifying Mercury up to 99.99995 %. Furthermore it has it's own Hg-Stabilization technology.
GMR provides service for accidents which are involving mercury, such as in schools, transport accidents, to name a few.

11: GMR

Attributes

GMR started as service provider for the treatment of Mercury containing waste. With the growing experience, GMR became also a technology provider for suppliers of the related technology and built partnerships, which contain up to this day.



The multiple and variety of technologies assures the possibility to treat every kind of Mercury containing waste.
GMR offers service on stage as well as collection of materials around central Europe.

Longterm partnerships with suppliers and clients have always been most important to GMR. This makes us a partner, which is trusted by them as well as authorities.

GMR offers safe and tracable services for treatment and disposal of liquid Mercury and Mercury containing waste.

German standards and accreditations to standards ISO 9001, ISO 14001, SCC* assure the high quality of the services and are important for longterm partnerships with Global Players.

Applicability

GMR is the biggest recycling company in Europe regarding treatment of *Dental Amalgam* (app. 100 t per year).

As special partner for Oil and Gas industry, GMR has treated more than *5.000 t of NORM- and Mercury containing residues* from this particularly field, not only from Germany, but also the Netherlands and France.

As partner for the German Battery Collection System GRS, GMR has sorted and treated big volumes of *button cells*.
Also, batteries from all over Europe and big amounts from Taiwan have successfully been Recycled at GMR's facilities.

For the German lamp industry, GMR has been a partner for the treatment of special high-pressure lamps, also Thorium containing lamps.

In a big project, GMR took care of around 50 rectifiers coming from New Zealand.

Contact information

For additional information, see our website:
www.gmr-Leipzig.de

All enquiries can be directed to:

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12: International Dental Manufacturer's Association

Profile

- IDM is the global body for National Dental Industry Associations, functioning for 25 years.
- IDM is domiciled in Switzerland
- IDM has been represented at the Minamata INC 4 and 5 and COPS 1 & 2.
- IDM participated in the East African Dental Amalgam Phase Down Project in Tanzania, Kenya and Uganda
- IDM has also attended phase down meetings in London, Johannesburg and Sao Paulo, Brazil
- IDM works with FDI – the World Dental Federation and with UNEP and WHO on the Minamata Convention

Technology, products, services

- Dental equipment manufacturers developed dental amalgam separators over 30 years ago.
- The ISO 11143 Amalgam Separator standard was published in 1999.
- No technical changes have been made to the document at the customary 5 year reviews.
- Dental amalgam separators are placed after the dental suction machine and in front of the waste water outlet of the dental surgery capturing a minimum of 95% amalgam waste.
- Amalgam waste is generated when the dentist either removes an old amalgam restoration or places a new amalgam restoration and the amalgam is polished at high speed.
- If an amalgam separator is not installed the amalgam waste goes into the municipal drains and eventually out to sea or landfill.
- Amalgam separators capture the waste amalgam and this is then collected/sent for recycling.
- The extracted mercury is then sequestered or on sold for permitted uses.
- There are several technologies available including centrifuge models, sedimentation models, filtration models and units range in capacity from large hospitals to single surgery dental practices.
- The well known brands include Durr, Metasys, Cattani, Solmetex, and other brands can be found with a simple google search on dental amalgam separators.

- The existing dental companies in the country will have the knowledge of what is available in each jurisdiction.
- As well as the installation of the amalgam separator attention should be paid to the following,
- The primary filter located in the dental chair will hold amalgam waste and this needs to be collected /stored in a separate container for recycling. This is considered contact waste and the amalgam and bodily fluids, blood, saliva, teeth may be present. This waste should be immersed in a non chlorine disinfectant and covered with a tight fitting lid.
- The non contact amalgam – what the dentist has left over and not used on the patient should also be stored in a separate container for re-cycling.
- If plumbing pipes between the chair and the amalgam separator are replaced the pipe should be capped off at both ends and sent to the recycler.
- Because of the weight of amalgam particles they may settle in the pipe between these two points.

12: International Dental Manufacturer's Association

Attributes

- The use of amalgam separators greatly reduces the amalgam waste burden in the oceans.
- Figures from the recycler in Australia show that from July to September 2018,
- 1,021 kg. of amalgam sludge was collected in 671 ISO 11143 certified Amalgam Separators and from this sludge 382 kg. of mercury was extracted.
- Furthermore 5.1 kg. of contact amalgam was collected and 1.8 kg. of mercury was extracted.

Applicability

The technology of amalgam separators has been in use for around 30 years and the separators are widely used
In Europe.
As a participant in the East African Dental Amalgam Phase Down Project, I supplied a sedimentation type of separator that relied on gravity feed, not electricity.
Some of the models are computer driven and not suitable where power outages may occur.
Discussions with waste collectors and mercury recyclers are very important in the beginnings of such a program as this.
A plan on the handling of the waste should be in place.

Further information

- Website
- Phone + 61 403244456
- Contact information
  - Mrs Pam Clark, AO
  - IDM Ambassador
- Cattani Australia Pty Ltd
- 280 Dundas Street,
- Thornbury 3071
- Australia.

13: Mekatronika Ambiental

Profile

MEKATRONIKA is a company legally established in 2007, located in the Santivañez Industrial Park, Lot No. 3, Mazano "Q", in the municipality of Santivañez, Capinota Province, Cochabamba Department, Bolivia. Under the leadership of its legal representative, Lic. Patricia Rojas Villafuerte, the company has been recognized as a Green company for its significant scientific and technological contributions in the processing of mercury-containing waste (Swisscontact). In 2017, MEKATRONIKA was awarded a national prize for excellence in the green entrepreneurship category, highlighting its commitment to environmental sustainability.

MEKATRONIKA is equipped with cutting-edge facilities for on-site mercury waste treatment and has developed innovative processes to convert mercury into artificial cinnabar. Since 2017, the company has focused on advancing its technology, designing specialized equipment and adsorbents for the effective treatment of mercury waste. These achievements reflect MEKATRONIKA's leadership in environmental innovation and its dedication to promoting sustainable practices.

Jerome 431-X Mercury Vapor Analyzer

Technology, products, services

Impact Crushers with Vacuum Systems: Equipped with gas control mechanisms to ensure safe and efficient processing.

Gravimetric Separator: Used for the separation of materials based on density.

Advanced Filtration and Retention Systems: Includes absolute particle filters, a cyclone separator, a zig-zag separation system, and molecular sieves designed for effective mercury retention.

High-Temperature and High-Vacuum Equipment: Ensures precise and controlled processing conditions.

Double-Stage Distillation System: Integrated with a cooling system for optimal recovery and purification of materials.

Stabilization and Conversion System: Converts elemental mercury into artificial cinnabar, ensuring safe stabilization.

Mercury Vapor Monitoring: Utilizes the Jerome 431-X analyzer for real-time monitoring of mercury vapor levels.

XRF Spectrometer (NITON XL3T): Enables accurate on-site analysis of material composition.

Collaborative Partnerships: Works with specialized companies, such as IBMETRO and the Applied Technologies Research Center of the Universidad Mayor de San Simón, for soil and water sample analysis using Atomic Absorption techniques.

MEKATRONIKA
AMBIENTAL

13: Mekatronika Ambiental

Attributes

MEKATRONIKA has been a trusted presence in the Bolivian market for over 14 years. With extensive experience in research and development (R&D), calculation, design, equipment manufacturing, and industrial plant construction in the recycling sector, the company has built a strong foundation of expertise. These capabilities paved the way for the creation of a new business division, MEKATRONIKA Ambiental, which leverages advanced technology to process and recover 100% of mercury-containing waste.
Additionally, MEKATRONIKA manufactures its own adsorbents, which have undergone rigorous validation and are now integral to all its processes, ensuring efficiency and reliability.

Advantages of Our Processes

Comprehensive Treatment: Capable of treating all types of mercury waste streams.

Waste Collection and Monitoring: Offers waste collection services and monitors areas contaminated with mercury.

Decentralized Treatment: Provides flexible, on-site solutions through mobile equipment, tailored to client needs.

Transparency and Traceability: Utilizes an automated information management system for continuous traceability, allowing clients to verify the process in real time.

Safe and Efficient Processing: Employs a high-vacuum, high-temperature reactor system to ensure a secure and controlled process.

Best Available Technology (BAT): Implements cutting-edge technology to deliver optimal results.

Regulatory Compliance: Meets all national and international occupational safety standards and environmental regulations.

These attributes and advantages position MEKATRONIKA as a leader in sustainable and innovative mercury waste management solutions.

Applicability

MEKATRONIKA is a leading company in Bolivia specializing in the sustainable management of hazardous waste, particularly mercury-containing materials such as lighting fixtures, contaminated soils, and elemental mercury. With over 14 years of experience, the company offers comprehensive services, including storage, collection, transportation, treatment, stabilization, and final disposal, supported by state-of-the-art equipment and processes. Its decentralized treatment capability, mobile equipment, and automated traceability system ensure efficient, transparent, and safe operations. MEKATRONIKA's adaptable technology, compliance with international standards, and ability to design custom solutions make it a valuable partner for industries, governments, and organizations seeking cost-effective and environmentally responsible waste management solutions, both locally and internationally.

In situ process, San Cristobal Mining, Potosí - Bolivia

Further information

- Facebook
- Contact information
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  - Mekatronika
  - +591 67408242
  - +591 67577164

If you have any question, feel free to contact us!

14: Nomura Kohsan Co., Ltd

Profile

Head Office : 1-3, Nihonbashi Horidomechou 2-chome, Chuo-ku, Tokyo, 103-0012 Japan

Itomuka Plant : 271-1, Fujimi, Rubeshibe-cho, Kitami-shi, Hokkaido, 091-0162 Japan

Kansai Factory : 2-4-143 Nakajima, Nishi-Yodogawa-ku Osaka-shi, Osaka, 555-0041 Japan

History :

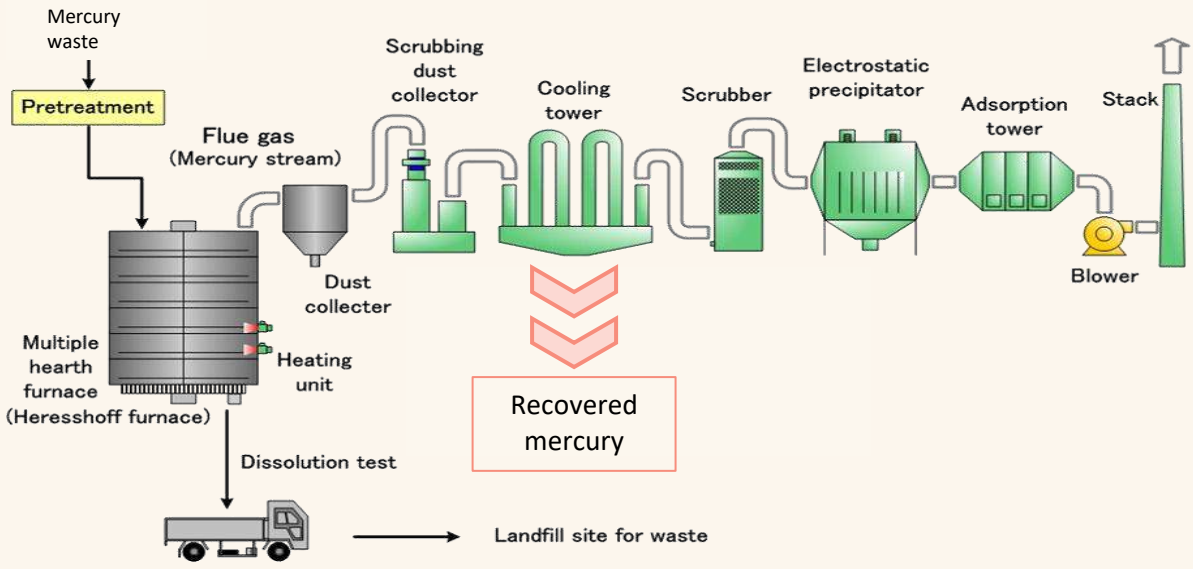
1973 Nomura Kohsan Co., Ltd. was established
1974 Nomura Kohsan started mercury waste management business
2002 Nomura Kohsan started to treat mercury wastes from abroad under the Basel Convention.
2014 Nomura Kohsan joined the Waste Management Partnership and the Supply and Storage Partnership of the UNEP GMP.
Nomura Kohsan signed a MOU with UNIDO

Our businesses :

- Collection, transportation and disposal of mercury waste
- Recycling, including the production and sales of raw material
- Measurement certification and analysis business

Technology, products, services

At Nomura Kohsan, we treat mercury wastes through a roasting process. Mercury wastes are heated at a temperature of around 600℃ to 800℃ in order to evaporate the mercury. The evaporated mercury then flow into the exhaust gas channel and be collected in the scrubber and cooling tower. In order to prevent the remaining mercury from discharging into the atmosphere, the plant is equipped with a mercury absorber at the final stage of the process. After roasting, we safely manage residues at our leachate-controlled landfill site.



14: Nomura Kohsan Co., Ltd

Attributes

Any and all types of mercury wastes covered

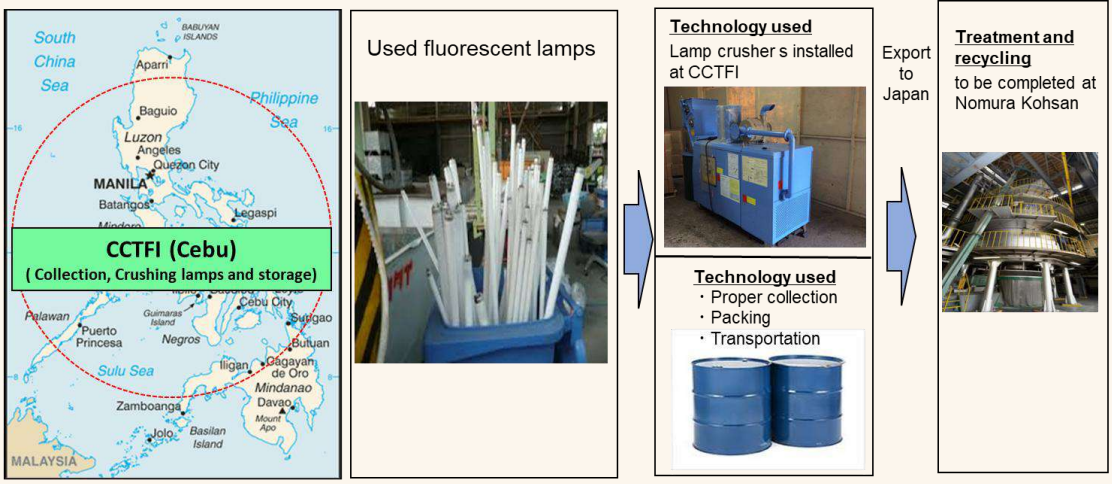
Fluorescent lamp, Dry Cell Battery, Sphygmomanometer, Catalyst, Activated carbon, Oil sludge etc.

Stabilization and Solidification

Nomura Kohsan has established a safe and reliable way to produce mercury sulfide(HgS) using the mechanochemical reaction. HgS is very stable with very little risk of volatilization and elution of mercury. Dissolution tests conducted on mercury sulfide produced using this method have shown less than o.oo5mg/L. Additionally in order to minimize mercury from coming into contact with the environment and reduce the risks of mercury sulfide converting into other forms, HgS is solidified. This is an important barrier that prevents mercury release to the environment. The solidified HgS will be dispose in leachate-controlled final landfill site.

Applicability

Developed the collection scheme for used fluorescent lamps in the Philippines



Nomura Kohsan has installed an intermediate fluorescent lamp processing system for local company. By working hand in hand with local company who crushes the lamps on their premises, this system will reduce inefficiencies by only requiring the remaining mercury waste to be sent to Japan for final treatment.

Further information

CONTACT INFORMATION

Tel: +81 3 5695 2531 / Email / Website

If you have any question, feel free to contact us!

15: REMONDIS QR

Profile

REMONDIS QR is the REMONDIS Group's expert for safe disposal of metallic mercury and mercury containing waste.

The REMONDIS Group is Europe's biggest family-owned waste management company with over 36,000 employees and nearly 1.000 business locations.

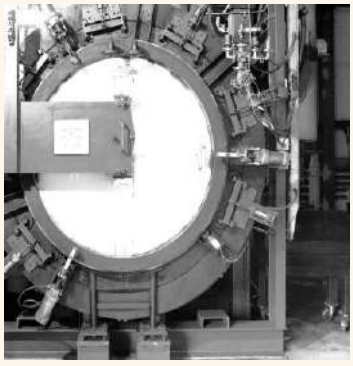
REMONDIS QR commenced its operations in Germany in 1989 and is waste management partner for chemical industry as well as for multi-national oil & gas explorers and mining companies. REMONDIS is equipped with an excellent logistical infrastructure and direct access to European shipping ports. With its longstanding experience and know-how REMONDIS QR is the partner for trans- frontier waste shipments of metallic mercury and mercury containing waste – from nearly all places of the world.

Overview of technology/product/service provided

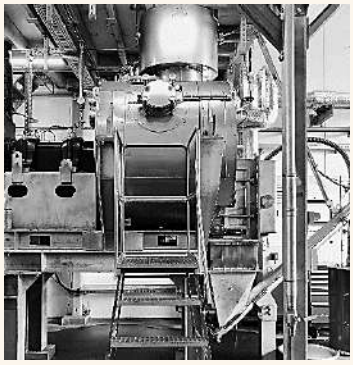
REMONDIS QR is specialised in disposing of two types of mercury waste:

1) metallic mercury (Hg)
2) mercury containing waste

Mercury containing waste – such as activated carbon, soil and sludge – is being distilled in vacuum treatment plant (VTR). By heating up the waste in the VTR, the mercury is being transformed into gas phase and removed from the waste. Later the recovered mercury is being converted into mercury sulfide (HgS) in our vacuum mixer and finally disposed of in a German underground mine. We also accept and transform metallic mercury directly into HgS in our REMONDIS plant, in Dorsten.



VTR (distillation)



vacuum mixer (Hg → HgS)

REMONDIS QR assists with application for export license under the Basel Convention and provides special containers for transport and short-term storage of metallic mercury. REMONDIS QR of course complies with all current laws and regulations – such as German Waste Law, European Mercury Regulation, Minamata Convention as well as Basel Convention.

15: REMONDIS QR

Strengthening/Advantage

REMONDIS QR is Mercury waste management "Made in Germany" - committed to stringent safety and environmental policies.

REMONDIS QR offers an all-in package for waste producers –
"collect waste local – dispose of central"

REMONDIS QR does not set any quantity limits – we care about smallest amounts as well as several hundred tons of waste. Our approved storage capacity is bigger than 500 tons.

REMONDIS QR has reliable partners - mobile field service teams for on-site-projects as well as proven shipping companies and ocean carriers.

Applicability

REMONDIS QR is a waste management specialist and a complete-service provider. In most of the world's countries metallic mercury and mercury containing waste only occurs in smaller amounts – mostly not on a regularly basis.

REMONDIS QR is serving several customers and handling successfully projects with less quantities and in the world's inhospitable areas all over the world.

REMONDIS QR promotes Mercury waste management "out of sight, out of mind" – the waste producer and its country can co-benefit and rest assure: the mercury waste is neither longer in the country anymore nor being handled there. It will be "Disposed of in Germany".

Further information

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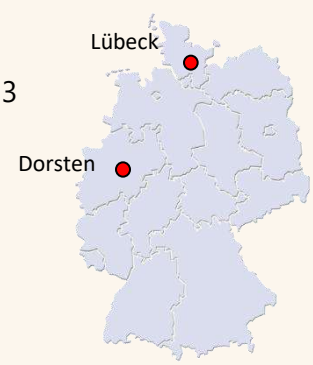
+49 (0) 49 451 58300-20

www.remondis-qr.de

"Facility for HgS-stabilization"
Gottlieb-Daimler-Straße 33
46282 Dorsten



16: TerraCycle Regulated Waste, LLC

Profile

TerraCycle Regulated Waste (TCRW) has a mission to develop tools and services that are easy to use, save money, are environmentally protective and produce effective results. Currently we work out of our offices located in Trenton, NJ and Lisle, IL.

TCRW is a result of TerraCycle Inc's acquisition of the AirCycle corporation in 2017. AirCycle was founded in 1978 and since then has been providing various storage and recycling solutions for regulated waste.
Currently we have over 12,000+ Bulb Eaters® in use world wide and since 2017 we have sold over 150+ units internationally.

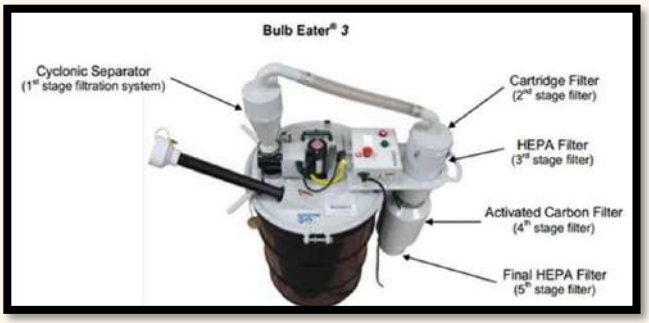
Technology, products, services

Currently, our most noteworthy product is our Bulb Eater ® The Bulb Eater® 3L is the latest generation of the Bulb Eater®. The award-winning fluorescent lamp crusher helps facilities save time, space, and money over other bulb disposal solutions. We also provide mail back programs and bulk – recycling pick up services domestically. Our EasyPak™ recycling containers provide a safe and easy way to recycle fluorescent bulbs, batteries, ballasts sharps and electronics. Our boxes utilize VaporShield® technology that contains the release of mercury vapor should the contents break. Customers order the containers, fill them with their items and then send them back to be recycled

We currently offer our Bulb Eater ® internationally however we still have yet to develop our serviced based solutions outside of the US. As a result, we are interested in and actively pursuing new partnerships that may allow us to do so.

Attributes

SAFETY – 99.99% of vapors , including mercury vapor emission, are captured with our system. Our highest quality HEPA filter works in conjunction with an activated carbon filter that neutralizes the mercury vapor released during crushing. **REDUCE STORAGE & HANDLING** – Minimize storage space by up to 80% by using the lamp crusher and crush up to 1350 T8 4' per 55 – gallon drum. By handling all the spent bulbs at once, facilities can save up to 20 hours of labor per 1000 lamps by crushing rather than boxing the lamps! **COST SAVINGS** – Save up to 50% on recycling costs. By pre-crushing lamps facilities are able to save money on their recycling costs. Savings can reach up to 1$ per lamp.



How it works:

- One size entry tube fits all lengths and diameters of linear lamps
- Powerful DC motor crushes lamps which are then filtered and sealed in drum
- 4– stage filter system (5 stage in 3® model) collects vapors
- Sensors detect when drum is full and prevent further crushing

16: TerraCycle Regulated Waste, LLC

Applicability

TCRW has a global market and we are constantly looking to develop our operations around the world. We have currently sold our Bulb Eater ® technology into a variety of locations including, Suriname, Ethiopia, India, Malaysia, Panama, Trinidad and Tobago and many other countries.

Our technology is well suited for use in the developing world because it is easy to use and provides a quick and simple solution to safely storing fluorescent lamps in an environmentally friendly way. Each unit sold increases the likelihood that mercury from spent fluorescent lamps will be contained and recovered in an environmentally sound manner rather than disposed of in a landfill and subsequently released into the environment. We currently plan on expanding our collaboration with the UN and we hope to work with its various initiatives.

There are numerous UN procurement opportunities we hope to be a part of. One initiative we are particularly keen on collaborating on is the United for Efficiency initiative aimed at implementing a broader use of LED's as a lighting source and standard in developing nations. As a result, a safe and environmentally friendly solution for the end of life management of spent fluorescent lamps is required and we hope to work with the UN and be a part of this solution. Additionally we hope to continue our participation in the Global Mercury Partnership to find solutions to safely handling and storing mercury around the world.

Further information

- For more information please visit our websites (AirCycle, TerraCycle)
- International Distributors
- **General Manager:** Joe Day

17: ZETTL GmbH

Profile

ZETTL GmbH is a German company with a history of more than 60 years.
As provider for turn-key equipment in the environmental sector, ZETTL's focus is to provide tailored solutions for companies in need of safe and well practiced technologies,

Zettl offers equipment for Mercury containing waste, liquid Mercury, NORM- and Mercury containing residues and many more.

ZETTL is an engineering company with three locations in Germany, bringing together much experience in the development of state of the art technologies for Mercury containing materials.

In 2024, ZETTL also took over the technology of former Swedish Company MRT System AB, well known for Technology for all Mercury containing materials.

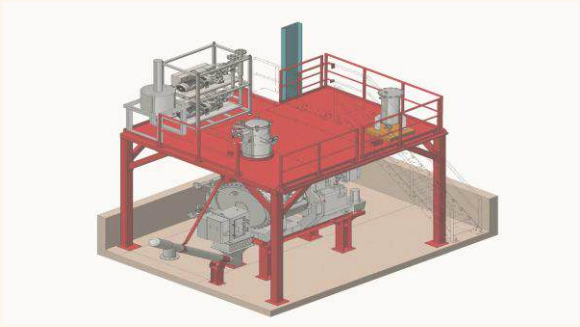
Technology, products, services

ZETTL provides the complete package for the treatment of Mercury containing waste and Liquid Mercury:

RPD – Rotating Process Dryer
A vacuum operating Paddle Dryer, used for Hg contaminated sludge from Oil and Gas or contaminated soil. With temperatures, up to 500 ° C, the dust free vacuum system, it allows the treatment of special waste streams, such as NORM-containing Hg-sludges.

RPD 1000 – Treatment of NORM- and Mercury containing waste from Oil and Gas industry

MSU – the Mercury stabilization unit



Safe disposal of HgS, allowed by the Mercury stabilization unit, with a capacities from a few kg per day up to 1,8 t per day.

- **BPD & MFD–Batch Distiller & Fine Distiller**

For waste streams like Dental Amalgam, button cells, thermometers, sludges and catalysts containing Mercury, ZETTL provides the BPD. At temperatures wup to 650 ° C, vacuum conditions and a integrated Oxidation chamber, this equipment allows the safe treatment of all Mercury containing materials with higher demands to safety and quality of the remaining materials.

17: ZETTL GmbH

Attributes

ZETTL has more than 60 years experience in plant engineering and supply.

The company, managed by its owner, puts focus on long term partnerships with research facilities as well as operators.

With its own test centers and the partnership with experienced operators in the Mercury Recycling sector, ZETTL has the unique ability, to develop the best solutions for every waste stream.

The technology is always possible to be supplied as mobile to give operators more flexibility. ZETTL also has partnerships with global operators.

ZETTL provides tailored research, engineering, development, consulting worldwide.

Applicability

More than 100 Batch Distillers have been supplied to many industries, such as Lamp industry, Mercury Recycling companies, Battery collectors, Dental Waste Recycling companies – to China, Australia, Poland, Finland, Austria, to name a few.

Soil decontamination plants have been delivered and are still working in Europe.

In partnership with Research companies and operators, ZETTL is building plants for NORM- and Mercury containing waste streams, from Oil and Gas industry. This includes the treatment of sludges, scales, flowlines, waste, usually occurring during decommissioning on Offshore platforms.

With long experience in approval processes, ZETTL can help companies worldwide when it comes to the implementation of new technologies at the operator's place.

Visiting operating technology is always possible to ZETTL's long and trustful relationship with its cliens.

Contact information

For more information, look at our website:
www.zettl-munich.de

All enquiries can be directed to:

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soeren.potrykus@zettl-munich.de

- Waste Management Area of the UNEP Global Mercury Partnership

Catalogue of Technology and Services on Mercury Waste Management

As of March 2026

Related technologies and services

18: CURIUM

Profile

CURIUM is a French company founded in 1994, specialized in the management of hazardous products and wastes. CURIUM works with toxic, corrosive, flammable, explosive, radioactive, and infectious substances.
We deploy a wide range of services for projects involving chemical and radiological risks:

- Technical studies, Consulting;
- Project Management: specifications drafting, site supervision with a focus on Health & Safety procedures;
- Contamination analysis of production and research units, equipment, processes;
- Works on site: remediation, decontamination, gas transfer, hazardous waste management;
- Chemical emergency response team to intervene 24/7.

CURIUM's expertise includes contamination assessment and decontamination operations, as well as project management for large-scale operations (dismantling, demolition, remediation) for industries using mercury.
CURIUM is involved in mercury decontamination and chlor-alkali mercury cells dismantling in Europe and Africa.

Technology, products, services

MERCURY CONTAMINATION DIAGNOSTICS

The contamination diagnosis is the first essential step before the start of the works. It allows to map the presence and quantity of liquid mercury and vapours on surfaces and/or within a process, in order to determine the most appropriate decontamination methods. The contamination diagnosis includes:

- Evaluation of the contamination on surfaces, in ducts, HVAC, and extraction systems,
- Definition of a decontamination process appropriate for mercury,
- Decontamination validation protocol for all areas.

MERCURY ELECTROLYSIS DISMANTLING

CURIUM has experience in providing support to industrial clients for the dismantling of facilities and processes using mercury, such as mercury electrolysis plants. Our services include:

- The contamination diagnostics;
- Selection and management of subcontracting companies;
- Liquid mercury repackaging, transport and disposal.

18: CURIUM

Attributes

CURIUM's personnel regularly undergoes state-of-the-art training on the use of portative devices to measure mercury vapours and surface mercury contamination.

After complete contamination diagnosis performed by CURIUM, a detailed report is issued to the client presenting the mapping of the contamination and indicating:

- The contaminated areas,
- The contamination levels,
- The threshold to reach to validate the non-contamination.

Based on this report, appropriate decontamination methods are defined. The decontamination operation can then be performed by CURIUM's experienced chemists.

Point n°	Mercury vapour measurement results (µg/m³)	Mercury Vapour measurement results (µg/m³)	Picture	Comment
1*	77 at first >1000 after	18 at first		A number of small mercury droplets presence (visible)
2	2	<2		
3	8	2		Probably mercury droplets presence (not visible)

Example of excerpt from contamination report delivered by CURIUM

When decontamination is not possible, CURIUM suggests appropriate hazardous waste treatment facilities. CURIUM has an index of all mercury treatment facilities in the world.

Applicability

CURIUM's contamination diagnosis is relevant in case of:

- Chemical spill or accident involving mercury
- Laboratory or production equipment transfer
- Dismantling operations
- Soil contamination
- Management of radioactive waste containing mercury

We intervene for the following industrial sectors:

- Pharmaceuticals
- Chemicals
- Semiconductors
- R&D centers

Our application areas include but are not limited to: production processes, laboratories, cleanrooms, HVAC systems, laboratory equipment (hoods, autoclaves, etc.), pipework and other networks.

Further information

Further details and additional information can be found at our website
You can send your enquiries to our email address
Phone: +33 (0)4 72 90 95 09

19: Hg Ops

Profile

Hg Ops GmbH is an international, specialist consultancy focused on the environmentally sound management (ESM) of mercury and mercury-containing wastes.

Hg Ops partners with you in managing mercury waste streams in **compliance** with international and national regulatory frameworks, including the **Basel Convention and the Minamata Convention.** We can help ensure that your workers are **protected from toxic mercury** exposure.

Hg Ops brings practical expertise to your project across the entire mercury waste lifecycle.

Technology, products, services

Hg Ops can join your team as the friendly mercury and mercury waste experts. Ensuring compliance and ease with:

- **Mercury waste characterisation** to quantify mercury content and determine appropriate ESM treatment options globally
- **Waste audits to ensure regulatory compliance**, compatibility with receiving facilities, and avoidance of costly shipment delays, rejections, or returns
- **Report writing** on the availability and options for the ESM of mercury waste from your location
- **Basel Convention and logistics support**, including management, routing, notifications and delivery to compliant treatment facilities
- **Advisory services on mercury waste treatment**, including stabilisation and disposal options, with a focus on cost optimisation and compliance
- **Safety in handling mercury wastes**, including writing, review and audit of procedures, worker protection measures, and oversight of packing and handling activities to the relevant standards.
- **Supply chain traceability** and audit, ensuring mercury waste movements and treatment are fully documented, traceable, and auditable
- **Technical support** with mercury removal from air, water and solids and all associated activities.

19: Hg Ops

Attributes

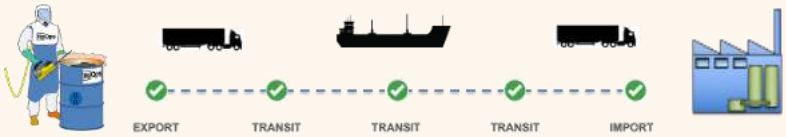
- **More than 20 years experience** dealing with mercury in industry
- **Deep technical understanding** of mercury behaviour in air, water, assets and wastes.
- **Strong knowledge of Basel and Minamata** Convention requirements
- **Global network** of ESM treatment options and facilities for mercury wastes as well as laboratories, decontamination teams and logistics networks
- **Reduce overall project risk and cost** while maintaining ESM standards
- Ensure you have the right **equipment and procedures** to protect human health and the environment from mercury
- **Up-to-date supply chain knowledge** for ESM treatment options
- **Stakeholder meetings**, we support you with technical and regulatory experience in meetings and reporting

Applicability

Hg Ops invites you to contact us and discuss how we can support your project.

Mercury projects don't happen every day, but for Hg Ops they are our regular work. We bring you the knowledge and network to ensure efficient, compliant and safe projects.

For anyone dealing with the disposal, treatment or handing of mercury wastes, get in touch and see how and where we can work together.



Further information

Further details and additional information can be found at www.hgops.com
You can send your enquiries to david.hunter@hgops.com
Phone: +41793835312

20: Picoyune

Profile

Picoyune is a technology company specializing in mercury vapor monitoring, founded on novel plasmonic sensor technology developed at UC Berkeley.

Mercury vapor monitoring is essential for worker safety when handling mercury waste, and Picoyune's MA-1 provides a real-time, personal solution. The compact, cost-effective monitor is designed for environments where mercury may be present, giving workers and safety managers immediate feedback on exposure levels.

Picoyune MA-1 worn by workers to alert them of mercury vapour

Technology, products, services

Picoyune's personal mercury vapour monitors should be worn by workers during routine operations, maintenance, cleanup, and emergency response involving mercury. Key features include:

- **Mercury vapour measurement**, providing immediate awareness of airborne mercury levels
- **Alerts for workers** when mercury vapour reaches pre-determined exposure limits, including limits on the 8 hour time weighted average.
- **Real-Time, Continuous monitoring** at short intervals (30 seconds), allowing rapid detection of changes in exposure conditions
- **Personal, wearable** format, enabling exposure monitoring directly in the worker's breathing zone
- **Data logging and download** capability for post-task analysis, exposure assessment, and record keeping
- **Cost-effective deployment**, enabling wider workforce coverage compared with traditional badges, pumped-traps or periodic sampling

Picoyune MA-1 real-time, personal mercury monitor

20: Picoyune

Attributes

Detection method .....plasmonic

Size .....150 x 65 x 30 mm
Weight ..... 280 grams

Calibrated range ..... 0 to 10,000 µg/m3
LOD in ideal conditions 1 µg/m3
LOD in typical conditions 5 µg/m3
Sample period ..... 30 seconds
Zero correction ..... automatic
Recalibration method .....factory
Battery life .....16 hours
Battery UN38.3
Alarm ..... audible 85dB, visual
Alarm level ..... high/low alarm (user set) +TWA
Data storage ..... 6 months internal
Data transfer ..... via USB to PC
Selectivity ..... no interference from VOC, humidity (non-condensing), CO_2, SO_2, NO_X, or BTEX

Picoyune MA-1 data can be downloaded to see Hg vapour exposure through the day

Applicability

Picoyune's personal mercury vapour monitors are appropriate for all workplaces where mercury may be present, including:

- Mercury waste assessment, handling & packing
- Mercury waste treatment
- Laboratories and dental facilities
- Decommissioning projects
- Remediation projects
- Maintenance activities
- Mining and metals
- Petrochemical industry

Further information

Further details and additional information can be found at www.picoyune.com
You can send your enquiries to david@picoyune.com or jay@picoyune.com
Phone: +1.510.915.0152

21: SICK AG

Profile

- SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. The company was founded by Dr. Erwin Sick more than 70 years ago.
- Today SICK has more than 9000 employees and over 50 subsidiaries worldwide. The company has extensive experience in various industries and understand the processes and requirements.
- Our devices are used for emission monitoring as well as for monitoring the effectiveness of pollution abatement systems. We have installations of continuous Mercury monitoring systems in over 40 countries around the world.
- Our contribution to the UNEP Global Mercury Partnership is our expertise in continuous on-line monitoring of gaseous mercury compounds. We support with training, consulting and wherever possible providing data for use in minimizing gaseous Mercury emissions.

Attributes

- Advantages of the MERCEM300Z include:
  * Reliable results for the actual measured values of elemental and chemically bound Hg in gases
  * Measuring ranges from 0 – 10 µg/m3 up to 0 – 1000 µg/m3 without any change of hardware
  * Smallest certified measuring range of 0 – 10 µg/m3 compliant with the newest regulations
  * Rapid response can be used for control purposes especially with rapid variation of concentration values
  * Measuring operation without using consumables for ease of use
  * Extremely low operating cost
  * Self-adjusting gas analyzer provides high long-term stability with low maintenance
  * Convenient, quick access for easy service and user-friendly remote diagnostics

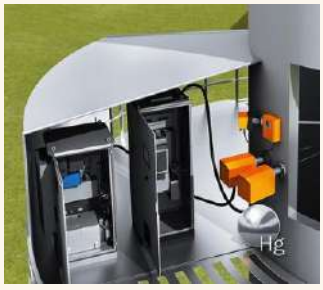
Technology, products, services

The MERCEM300Z extractive gas mercury analyzer monitors total Hg in flue gases.

- Applications include:
  * Emissions monitoring in flue gas from Waste incineration plants, in combustion of sewage sludge or hospital waste.
  * Flue gas monitoring upstream of a scrubber or flue gas treatment, to aid in the control of Mercury abatement systems.

Applicability

The MERCEM300Z has been installed in 40 countries around the world especially in Europe but also in Asia and America. The MERCEM300Z has most recently been installed in Indonesia and India to comply with the emission limits from coal fired power plants in those countries. Local service technicians perform the start-up services and can help with initial field calibration and periodic maintenance of the systems.



Further information

For more information about SICK AG and to find your local contact, please visit SICK.com (Contact / MERCEM300Z)