

Document 2-6rev: Compilation of information on national regulations or industry practices relating to the control of mercury releases from relevant sources, submitted by Parties and others

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The road map for the development of guidance on best available techniques and best environmental practices (BAT/BEP) to control releases from relevant sources pursuant to paragraph 7 of article 9 of the Minamata Convention on Mercury (UNEP/MC/COP.4/31) requests the Secretariat to circulate a call to Parties and other stakeholders to submit existing information on national regulations or industry practices relating to the control of mercury releases from relevant sources. The Secretariat, in its letter dated 13 April 2022, invited Parties and other stakeholders to submit such information by 30 June, later extended to 15 July.

Submissions were received from Brazil, Colombia, the European Union, Japan, Norway, Uganda, the United States of America and OECD. The information was posted on the [website](#) of the Convention, as well as on the [online workspace](#) of the expert group (under folder “_Submissions_June2022”).

Brazil provided the following comments:

1. Initially, it becomes urgent to clarify that the expression "Mercury releases" should be understood as "mercury releases", the concept focuses on the mercury emission in soil and water, being the object of attention of Article 9 of the Minamata Convention on Mercury, which we make available in its full content below:

Article 9 Releases

1. This Article deals with the control and, where feasible, the reduction of mercury and mercury compounds releases, generally referred to as “total mercury”, in soils and water from relevant point sources not addressed in other provisions of this Convention.

2. For the purposes of this Article:

- (a) “Releases” mean the mercury or mercury compounds releases in soils and water;*
- (b) “Relevant source” means a point source of anthropogenic release, identified by the Party and not addressed in other provisions of this Convention;*
- (c) “New source” means any relevant source whose construction or substantial modification is initiated at least one year after the date of entry into force of this Convention for the interested party;*
- (d) “Substantial modification” means the modification of a relevant source that results in a significant increase in releases, except for any change in releases resulting from the recovery of a by-product. It will be up to the Party to decide whether or not the modification is substantial;*
- (e) “Existing source” means any relevant source other than a new source;*
- (f) “Release limit value” means a concentration limit, mass or emission rate of mercury or mercury compounds, generally referred to as “total mercury”, released from a specific source.*

3. Each Party shall, within a maximum period of three years after the date of entry into force of the Convention and regularly after that date, identify categories of relevant specific sources.

4. A Party with relevant sources should take steps to control releases and may prepare a national plan establishing the measures to be taken for both, as well as the desired aims, objectives and results. Any plan shall be submitted to the Conference of the Parties within four years of the date of entry into force of the Convention for that Party. If implementation plan is developed in accordance with Article 20, the Party may include in it the plan prepared in accordance with this paragraph.

5. *The measures should include one or more of the following items, as appropriate:*

- (a) Releases limit values to control and, where feasible, reduce the releases of relevant sources;*
- (b) The use of available best techniques and environmental best practices to control releases from relevant sources;*
- (c) A multi-pollutant control strategy that results in co-benefits for the control of mercury releases;*
- (d) Alternative measures to reduce the releases from relevant sources.*

6. *Each Party shall establish, as soon as practicable but within a maximum of five years after the entry into force of the Convention for itself, an inventory of relevant source releases, which shall be maintained thereafter.*

7. *The Conference of the Parties shall, as soon as possible, adopt guidelines on:*

- (a) Best available techniques and best environmental practices, taking into account any difference between new and existing sources, and the need to minimize cross-effects among different means; and*
- (b) The methodology for preparing release inventories.*

8. *Each Party shall include information on the implementation of this Article in its reports presented in accordance with Article 21, especially information on the measures taken in accordance with paragraphs 3 to 6 and the effectiveness of these measures.*

2. Based on the issues foreseen in the text of the aforementioned Article, it is important to emphasize that Brazil, so far, does not have an inventory of mercury release sources for soil and water or any other instrument capable of identifying the various categories of specific sources relevant to paragraph 3 of Article 9 of Minamata Convention.

3. However, at least for general purposes, Brazil already has limit parameters regarding mercury for the release of effluents, it is certain that the deliberate release of mercury (or any other pollutant) into the soil is not permitted, whereas the criteria for best available techniques and best environmental practices (BAT/BEP) to avoid unintentional releases are somewhat implicit and guaranteed by the system of requiring environmental studies prior to the operation of the potentially polluting enterprise.

4. Therefore, it should be noted that Resolution CONAMA number 430/2011, which deals with effluent release conditions and standards, is the basic standard and establishes that effluents from any polluting source can only be released directly into the receiving body if they have a maximum mercury content of 0.01 mg/l (one hundredth of milligram per liter).

5. Article 5th of the same Resolution 430/2011 provides, as an enhancement to the content of the previous paragraph, that the release of effluents cannot give to the receiving water body quality characteristics in disagreement with its legal framework parameters.

Colombia provided a following list of regulations related to releases and environmental management, with brief descriptions of the measures and links to official documents.

- Law 1658 of 2013
- Decree 1594 of 1984
- Decree 351 of 2014
- Decree 1886 of 2015
- Decree 1496 of 2018

- Resolution 2189 of 1974
- Resolution 2400 of 1979
- Resolution 2115 of 2007
- Resolution 1297 of 2010
- Resolution 1511 of 2010
- Resolution 631 of 2015
- Resolution 312 of 2019

The **European Union** provided information on the applicable legal instruments under EU law and their provisions on the control of releases of total mercury to water and land. The legal instruments included (i) Directive 2010/75/EU on industrial emissions (IED) and Decisions adopted under it setting emission levels and conclusions on the BAT, (ii) Regulation (EU) 2017/852 on mercury, (iii) Directive 1999/31/EC on the landfill of waste and (iv) Directive 2000/53/EC on end-of life vehicles. Additionally, the information included EU water legislation that sets environmental quality standards (EQS) regarding allowable maximum concentrations of total mercury in freshwater bodies considering their potential impact on permit conditions applicable to industrial installations as far as the prevention or reduction of releases of mercury are concerned. The submission also included reference to applicable legal instruments and BAT for the following source categories:

- Coal combustion in power plants and in coal-fired industrial boilers (Releases to land and water from coal storage, coal washing and air-pollution-control systems).
- Biomass-fired power and heat production (Releases to land and water from air-pollution-control systems.)
- Other coal use (Releases to land and water from coal storage, coal washing and air-pollution-control systems)
- Extraction, refining and use of petroleum (Releases to land and water from oil extraction, oil refining and air-pollution-control systems)
- Extraction, refining and use of natural gas (Releases to land and water from natural-gas extraction and refining)
- Mercury (primary) mining and mineral processing (Releases to land and water from mining and mineral processing.)
- Mining, mineral processing, smelting and roasting of non-ferrous metals other than mercury (Releases to land and water from collected mine drainage, mineral processing, air-pollution-control systems, associated smelting and roasting and process residues)
- Primary ferrous-metal production (Releases to land and water from air-pollution-control systems associated with coke production, coal-tar processing, pig-iron production and process residues)
- Cement clinker production (Releases to land and water from air-pollution-control systems; possible releases to land from disposal of process residues such as cement-kiln dust.)
- Pulp and paper production (Releases to land and water from air-pollution-control systems and from process residues.)
- Production of other chemicals, minerals and materials (Releases to land and water from fertilizer production, dyes, pigments and other chemicals)
- Chlor-alkali production using mercury cell technology (Releases to land and water from the production process and from contaminated plants.)
- Dental (Releases to water, such as from new fillings or from the drilling of old fillings in dental clinics).

- Production of recycled mercury (secondary production) (Releases to land and water from air-pollution-control systems.)
- Production of recycled ferrous metals (iron and steel). (This includes the recycling of scrap vehicles.) (Releases to land and water from air-pollution-control systems.)
- Reuse or recycling of used industrial equipment (Releases may take place during the dismantling of factories, oil rigs, etc. where mercury-contaminated equipment e.g. pipelines, tanks, heat exchangers are recycled.)
- Waste incineration (Releases to land and water from air-pollution-control systems associated with hazardous waste, medical waste, municipal waste/industrial waste, and sewage sludge incinerators.)
- Controlled municipal/general waste landfills (Releases to water from landfill leachate.)

Japan provided information on national regulations relating to the control of mercury releases, including the following:

- Regulation of effluent under Water Pollution Control Act: 0.005 mg/L for total mercury and "not to be detected" for alkyl mercury compounds
- Regulation of underground penetration under Water Pollution Control Act: prohibits water discharge containing 0.0005 mg/L or more for total mercury or alkyl mercury
- Sewage Act and Mine Safety Act establishing the same discharge limit with the Water Pollution Control Act
- Waste Management and Public Cleansing Act regulating the leachate from waste landfill sites

Japan also provided an overview of technologies to control mercury releases. A sulfur-coagulation and precipitation is usually applied to the treatment of wastewater containing inorganic mercury, but the treatment using sulfur-based heavy metal adsorbents has recently become the mainstream. Other treatment methods include adsorption by activated carbon, chelating resin, amalgamation (reduction methods), and reduction vaporization methods. Additional technical information on some of these technologies were also submitted.

Norway provided information on relevant EU regulations applicable to Norway pursuant to the European Economic Area Agreement, as well as the Norwegian priority list that includes mercury. The submission also included an overview of EU BAT reference documents (BREF, available from <https://eippcb.jrc.ec.europa.eu/reference>), highlighting in bold the BREFs that specifically describe techniques and practices related to mercury releases to land and water:

- **Production of Chlor-alkali**
- Ceramic Manufacturing Industry
- **Production of Cement, Lime and Magnesium Oxide**
- **Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector**
- Economics and Cross-media Effects
- **Emissions from Storage**
- Energy Efficiency
- Food, Drink and Milk Industries
- Ferrous Metals Processing Industry

- Manufacture of Glass
- Industrial Cooling Systems
- Intensive Rearing of Poultry or Pigs
- **Iron and Steel Production**
- **Large Combustion Plants**
- **Large Volume Inorganic Chemicals**
- **Large Volume Inorganic Chemicals – Ammonia, Acids and Fertilisers**
- **Large Volume Inorganic Chemicals – Solids and Others Industry**
- **Production of Large Volume Organic Chemicals**
- **Non-ferrous Metals Industries**
- Manufacture of Organic Fine Chemicals
- Production of Polymers
- **Production of Pulp, Paper and Board**
- **Refining of Mineral Oil and Gas**
- Monitoring of Emissions to Air and Water from IED Installations
- Slaughterhouses and Animals By-products Industries
- Smitheries and Foundries Industry
- **Production of Speciality Inorganic Chemicals**
- **Surface Treatment Of Metals and Plastics**
- Surface Treatment Using Organic Solvents including Wood and Wood Products Preservation with Chemicals
- Tanning of Hides and Skins
- Textiles Industry
- Wood-based Panels Production
- **Common Waste Gas Management and Treatment Systems in the Chemical Sector**
- **Waste Incineration**
- **Waste Treatment**

Uganda provided the following information on national regulations:

- Guidelines for the Management of Landfills in Uganda (NEMA, December 2020). Mercury (Hg) levels of 0.01 mg/l as an indicator parameters for surface water monitoring on a Quarterly (4 times a year). Mercury (Hg) in µg/l and 0.02 mg/kg TS leachate detection limit whereas Leachate Sediment detection limit is 0.2 and is monitored 2 Or 4 times a year.
- The National Environment (Standards for Discharge of Effluent into Water or Land) Regulations, S.I. No. 144/2020, which provides a maximum permissible limit for mercury in effluent discharged to the environment. Mercury has Maximum permissible Limit of 0.01 mg/L.
- National Environment (Waste Management) Regulations, S.I. No. 49/2020, provides for characterization of waste containing mercury or mercury compounds
- The National Environment Act No.5 of 2019. Regulations currently under development.
- East African Standard for Air Quality Specification EAS 751:2020
- The National Environment (Management of Hazardous Chemicals and Products Containing Hazardous Chemicals) Regulations, Draft of June 2022
- The air quality regulations under development, which will provide emission limits.

The **United States of America** informed that it continues to not have identified any relevant source releases but will continue to assess the presence of any relevant point source categories on a regular basis, as required by the Convention.

OECD submitted its recent publication “BAT Project Activity – Best Available Techniques (BAT) to Prevent and Control Mercury Releases to Land and Water”. The report aimed to:

- compile the best available techniques for reducing or controlling mercury releases to water and land in place across countries;
- contribute information needed for the development of Guidance on Best Available Techniques and Best Environmental Practices for reducing or controlling mercury releases to water and land under Article 9 of the Minamata Convention on Mercury; and
- support other articles of the Convention that address specific practices and are potential sources of releases to water and land.

The report compared the BATs on the following sectors:

- Large-scale mining
- Non-ferrous metals
- Waste
- Organic chemicals
- Chlor-alkali
- Oil refining
- Thermal Power Plants
- Cross-sectorial

The techniques included the following:

- Mercury removal from wastewater
 - Precipitation of metals
 - Adsorption on ion-exchange resins
 - Adsorption on activated carbon
 - Biological treatment
 - Innovative techniques (solids removal/filtration techniques, microbial mats or algae usage)
- Mercury removal from soil and waste
 - Mechanical or physical treatment for decontamination
 - Chemical treatment for decontamination
 - Thermal treatment for decontamination
 - Solidification and stabilisation (including amalgamation)
- Management of mercury-containing waste
 - Short-term storage of metallic mercury on site
 - Monitoring mercury concentration in applied sludge
 - Containment of contaminated soil