

2022 Submission from the United States of America in Response to Decision MC-4/6, Paragraph 2

Information on Waste Categories July 2022

Background

Article 11, Paragraph 2 of the Minamata Convention on Mercury states that for purposes of the Convention, mercury wastes are defined as substances or objects:

- a) *Consisting of mercury or mercury compounds;*
- b) *Containing mercury or mercury compounds; or*
- c) *Contaminated with mercury or mercury compounds*

in a quantity above the relevant thresholds defined by the Conference of the Parties, in collaboration with the relevant bodies of the Basel Convention in a harmonized manner, that are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law or this Convention. This definition excludes overburden, waste rock and tailings from mining, except from primary mercury mining, unless they contain mercury or mercury compounds above thresholds defined by the Conference of the Parties.

To assist with reaching agreement on thresholds for each of the three categories, the Conference of the Parties in decision MC 2/2 established a group of technical experts. At its 3rd meeting, the Conference of the Parties took note of the work of the group of experts and adopted decision MC 3/5 which states that:

- No threshold needs to be established for mercury waste falling under subparagraph 2 (a) of article 1. Waste listed in table 1 of the annex to decision MC 3/5 shall be regarded as such mercury waste.
- No threshold needs to be established for mercury waste falling under subparagraph 2 (b) of article 11, and that mercury-added products that are disposed of, are intended to be disposed of or are required to be disposed of, including those listed in table 2 of the annex to decision MC 3/5 shall be regarded as such mercury waste.

The Conference of the Parties did not reach a decision on thresholds for subparagraph 2 (c). It extended the mandate of the group of technical experts until the fourth meeting of the Conference of the Parties and requested that the group continue its work and further substantiate that a total concentration threshold may be appropriate for mercury wastes falling under subparagraph 2 (c) of article 11, including a technical analysis of options and the consideration of possible impacts. However, neither the group of experts, nor the Conference of the Parties at its fourth meeting were able to reach a consensus on threshold values for subparagraph 2 (c) mercury wastes. The Conference of the Parties adopted decision MC 4/6, which extended the mandate of the group of technical experts to undertake further work for consideration at the fifth meeting of the Conference of the Parties.

The decision also requested that:

“Share information and data on the waste categories listed in the indicative list contained in table 3 of the annex to decision MC-3/5, including with respect any relevant national or local thresholds and their establishment, and requests the secretariat to compile such information and distribute it to the group of technical experts as soon as possible and make it available electronically”.

The information in Appendix 1 represents the contribution of the United States of America in support of the work of the group of technical experts.

Appendix 1: Relevant National Regulations and Standards **United States of America - 2022**

The United States has a broad, effective system of environmental management that provides for high levels of environmental protection, including through a set of media-specific environmental laws and regulations. These environmental laws and regulations are carefully designed, effectively implemented, and enforced. They are complemented by transparency and public participation requirements, and an independent judiciary, which further underscore their effectiveness. The relevant regulations and standards are as follows:

- **Waste containing or contaminated with mercury that is not hazardous waste** which does not leach more than 0.2 mg/L mercury in the Toxic Characteristic Leaching Procedure Test¹ (TCLP) can be sent for final disposal in a municipal solid waste landfill (MSWLF) or an industrial non-hazardous waste landfill. In addition, hazardous waste containing or contaminated with less than 260 mg/kg total mercury may, after treatment to control leaching, be land disposed in a MSWLF, an industrial non-hazardous landfill, or a hazardous waste landfill. These are considered final disposal in the United States.
- **Hazardous waste containing or contaminated with 260 mg/kg or more total mercury** must undergo thermal treatment (retort) to separate and recover the mercury from the waste. The recovered elemental mercury may be considered a product (for domestic use only), or if it is not used, a waste.
- **Storage, transport, treatment, and disposal (or recycling) of hazardous wastes, including mercury** is regulated under the Resource Conservation and Recovery Act (RCRA). RCRA describes a comprehensive waste management program that requires different levels of management for waste depending on the hazards it poses. Under applicable regulations, waste containing mercury may be regulated as hazardous based on the concentration of leachable mercury in the waste, or if it exhibits another hazardous "characteristic."¹ (Part 261 under Title 40 of the Code of Federal Regulations (40 C.F.R. Part 261)). **Mercury-containing hazardous waste** is regulated under RCRA must meet specific treatment standards before land disposal. High concentration mercury wastes generally must be roasted or chemically retorted (i.e., thermally treated or distilled) to recover mercury for reuse before the wastes may be land-disposed. Low concentration mercury wastes may undergo stabilization treatment (to reduce mercury leaching) before it can be land-disposed, although recycling to recover the mercury is allowed as an option. (40 C.F.R. Part 268).
- **Industrial or commercial mercury-containing wastes** that are not regulated as hazardous waste under RCRA may be disposed of in non-hazardous waste landfills,

¹ A RCRA characteristic hazardous waste is a solid waste that exhibits at least one of four characteristics defined in 40 CFR Part 261 subpart C — ignitability, corrosivity, reactivity, and toxicity.

which are regulated by the 50 U.S. states and subject to federal minimum criteria. (40 C.F.R. Parts 257-58). Household wastes, including those that may contain mercury (e.g., spent mercury lamps), must be disposed in municipal solid waste landfills. (40 C.F.R. Part 258).

- **Sewage sludge (biosolids)** are regulated under the Clean Water Act may be used for application to land, to condition the soil or to fertilize crops or other vegetation if specified pollutant limits for mercury and other pollutants are met. The following four conditions, expressed as dry weight concentrations of mercury in the sludge, must be met before mercury-containing sludge may be used for land application: (1) the maximum concentration of mercury in the applied sludge must not exceed 57 mg/kg, (2) the cumulative pollutant loading rate must not exceed 17 kg/hectare, (3) the monthly average concentration must not exceed 17 mg/kg, and (4) the annual pollutant loading rate must not exceed 0.85 kg/hectare per 365-day period. There are also restrictions on where and how biosolids, including sewage sludge, can be applied. (40 CFR 503.13).
- Under RCRA, **export of hazardous waste** from the United States is subject to the prior informed consent procedure and other shipment tracking requirements (e.g., RCRA manifest where applicable, international movement document, confirmation of receipt and confirmation of recovery or disposal). Exports are prohibited unless EPA has received consent from the proposed importing country and any transit countries (40 C.F.R. Part 262 Subpart H). Import of hazardous waste is also subject to the prior informed consent procedure and related tracking requirements (40 C.F.R. Part 262 Subpart H). Importers are also responsible for complying with the hazardous waste generator requirements (40 C.F.R. Part 262 Subpart A – D). In addition, the U.S. Department of Transportation hazardous materials regulations have been harmonized with international recommendations on transport of dangerous goods. (49 C.F.R. Part 172).

Mercury Treatment Standards for Hazardous Wastes (40 CFR 268.40)ⁱⁱ

- **Nonwastewaters** that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the Toxicity Characteristic Leaching Procedure (TCLP) in SW846; and contain greater than or equal to 260 mg/kg total mercury that also contain **organics** and are not incinerator residues (High Mercury-Organic Subcategory). Applicable treatment standards: IMERC; OR RMERC
- **Nonwastewaters** that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the toxicity characteristic leaching procedure (TCLP) in SW846; and contain greater than or equal to 260 mg/kg total mercury that are **inorganic**, including incinerator residues and residues from RMERC (High Mercury-Inorganic Subcategory) Applicable treatment standard: RMERC

- **Nonwastewaters** that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the toxicity characteristic leaching procedure (TCLP) in SW846; and contain less than 260 mg/kg total mercury and that are residues from RMERC only (Low Mercury Subcategory). 0.20 mg/L TCLP and meet § 268.48 standards
 - **All other non-wastewaters** that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the toxicity characteristic leaching procedure (TCLP) in SW846; and contain less than 260 mg/kg total mercury and that are not residues from RMERC (Low Mercury Subcategory). 0.20 mg/L TCLP and meet § 268.48 standards
 - **All wastewaters** that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury. 0.15 mg/L TCLP and meet § 268.48 standards
-

Endnotes:

¹Toxicity characteristics (40 CFR 161.24)

- A solid waste (except manufactured gas plant waste) exhibits the characteristic of toxicity if, using the Toxicity Characteristic Leaching Procedure, test Method 1311 in “Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,” EPA Publication SW-846, as incorporated by reference in §260.11 of this chapter, the extract from a representative sample of the waste contains any of the contaminants listed in table 1 at the concentration equal to or greater than the respective value given in that table. Where the waste contains less than 0.5 percent filterable solids, the waste itself, after filtering using the methodology outlined in Method 1311, is considered to be the extract for the purpose of this section.
- D009 mercury, CAS 7439-97-6, the regulatory level is 0.2 mg/L TCLP
- Hazardous wastes from specific sources – expected to be hazardous due to mercury content based on the narrative description (40 CFR 261.32).
 - K071 Brine purification muds from the mercury cell process in chlorine production, where separately pre-purified brine is not used
 - K106 Wastewater treatment sludge from the mercury cell process in chlorine production

-
- K175 Wastewater treatment sludges from the production of vinyl chloride monomer using mercuric chloride catalyst in an acetylene-based process

ii Applicable treatment standards, technology codes and description of technology-based standards (40 CFR 268.42)

- IMERC: Incineration of wastes containing organics and mercury in units operated in accordance with the technical operating requirements of 40 CFR part 264 subpart 0 and part 265 subpart 0. All wastewater and nonwastewater residues derived from this process must then comply with the corresponding treatment standards per waste code with consideration of any applicable subcategories (e.g., High or Low Mercury Subcategories).
- RMERC: Retorting or roasting in a thermal processing unit capable of volatilizing mercury and subsequently condensing the volatilized mercury for recovery. The retorting or roasting unit (or facility) must be subject to one or more of the following: (a) a National Emissions Standard for Hazardous Air Pollutants (NESHAP) for mercury; (b) a Best Available Control Technology (BACT) or a Lowest Achievable Emission Rate (LAER) standard for mercury imposed pursuant to a Prevention of Significant Deterioration (PSD) permit; or (c) a state permit that establishes emission limitations (within meaning of section 302 of the Clean Air Act) for mercury. All wastewater and non-wastewater residues derived from this process must then comply with the corresponding treatment standards per waste code with consideration of any applicable subcategories (e.g., High or Low Mercury Subcategories).

Universal Treatment Standards from 40 CFR 268.48

- Mercury – Non-wastewater from Retort 0.20 mg/l TCLP
- Mercury – All Others – Wastewater standard 0.15 mg/l
- Mercury – All Others – Non-wastewater standard 0.025 mg/l TCLP