



Minamata COP 2

Brief on Mercury Waste Definitions

October 2018

One of the important technical issues that will be discussed at COP 2 is the definition of mercury waste. Since COP 1, an expert group has been developing compilations of substances and articles that are likely considered to be mercury waste. In addition, the expert group has been proposing different approaches to establishing thresholds for mercury waste. The result of these activities is two documents that will be presented and debated at COP 2. The first, UNEP/MC/COP.2/6, is a report on the outcomes of the expert group deliberation for the COP to consider. The second, UNEP/MC/COP.1/INF/10, is information submitted by experts on approaches to establishing thresholds for mercury waste.

Why are mercury waste definitions important?

Definitions of mercury waste are important because they will establish what substances, materials and articles are subject to environmentally sound management as waste under the provisions of the Mercury Treaty. If the definitions are limited and the thresholds established are weak, then globally, large volumes of material may not be treated as mercury waste and therefore continue to cause human exposure and environmental impacts. In order to meet the objectives of the Mercury Treaty, waste definitions should capture the largest possible amount of material necessary to protect the environment and human health. Therefore, the *definitions and thresholds* established should be based on the risk the waste presents to human health and the environment, and not on minimising the cost to business or other vested interests. The type of thresholds established are also critical to reducing mercury pollution. If thresholds are set with approaches that facilitate the ongoing use of environmentally unsound waste management practices such as landfill, then the Treaty will enshrine ongoing mercury pollution of the environment instead of reducing it. One approach known as 'leaching tests' seeks to measure how much mercury is released from waste under simulated landfill conditions. ***IPEN opposes any attempt to use leaching thresholds to define mercury waste under the Treaty as it predetermines that the management option for the waste is landfill.***

What types of mercury waste categories are being proposed?

Article 11 of the Treaty requires definitions and/or thresholds to be developed for three types of substances or objects as waste;

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

Category (a) refers to elemental mercury or commercial mercury compounds that may be stored, stockpiled or are being 'retired' from the market due to import/export bans or other regulations that require that they be treated as 'waste.' In fact, metallic mercury is currently a 'commodity' traded on the global market. However, in some circumstances, that 'commodity' can be deemed to be 'mercury waste' depending on the situation. This is not because it has ended its useful life as mercury, but because of legal

and policy circumstances. It may be that a country has banned exports and the stockpile of mercury in the country has been sent to permanent storage as 'waste.' There may also be circumstances where the mercury has been confiscated by authorities due to illegal mining, trade or other factors, and, because it cannot be 'destroyed' (it is an element), it is then classified as 'waste' for permanent disposal. Trading mercury from the closure or conversion of chlor-alkali plants is not permitted by the Treaty. Mercury from this source may also be designated as 'waste,' whereas in the past it was a commodity.

There is some debate as to whether elemental mercury 'waste' should be defined on a 'purity' basis (e.g. a minimum purity of 95% or 99.999%) for this purpose. IPEN supports a definition of 95% purity or above for elemental mercury (as traded mercury may not have >99.9% purity) as long as any waste substance with <95% purity is categorised as a *waste contaminated with mercury* or mercury compounds and is treated as 'mercury waste.' In this way, there are no loopholes to allow mercury-related substances to avoid classification as waste when they should be subject to the waste definitions. In some cases, mercury of low purity (<90%) has been traded for ASGM activity, and if only 'pure' mercury is used as a definition under the Treaty, low grade mercury may escape regulation via this loophole. Elemental mercury of 95% or greater purity has laboratory reagent status according to the American Chemistry Society (ACS Reagent Chemicals, 10th Edition), and is an established measure to define metallic mercury.

Category (b) largely refers to former products or objects containing mercury or mercury compounds (e.g. e-waste, batteries, CFLs, thermometers, etc.) and could be defined by either a minimum concentration threshold (milligrams of Hg content), or simply the presence of any added mercury to the object. In the latter case, any information indicating the presence of mercury in the product should render it 'mercury waste.' Consensus is emerging among the expert group that any article or product containing mercury, upon the end of its useful life, should be deemed mercury waste without the need for a concentration threshold. IPEN supports this position and, in addition, is of the view that such articles and products should be labelled as 'containing mercury' to ensure they are easily identified and managed as a mercury waste at the end of their useful life.

The mercury-added article should be subject to treatment to recover the mercury and decontaminate the object to permit recycling of the non-toxic components of the object. Mercury recovered from discarded articles containing mercury should be identified and prevented from re-entering the global market for commodity mercury to prevent further releases and emissions that may result from its future uses.

Category (c) comprises the largest share by volume of the waste categories, as it may include industrial wastes, contaminated soils, contaminated mixed wastes and so on. This category is best defined according to the mercury concentration present in the waste 'matrix' (i.e. soil, sludge, etc.). **IPEN supports a concentration threshold to define waste contaminated with mercury or mercury compounds >1 ppm.** Any waste containing mercury above this threshold should be subject to treatment to recover and extract the mercury.

Technology such as indirectly heated vacuum distillation units can recover mercury from contaminated soils, sediments, sludges and other wastes, leaving the treated soils in a reusable state with levels of mercury at < 1 ppm.

IPEN does not support any form of leaching test to define waste contaminated with mercury or mercury compounds, as this test assumes that the waste will be landfilled, and this is not an environmentally sound method to manage mercury waste. Leaching tests are intended to simulate landfill conditions and involve subjecting a sample of waste to a procedure where water or weak acid are applied and the concentration of substances- such as mercury that leaches from the waste into the liquid -are measured. Theoretically, the more toxic material that leaches from the waste, the higher the level of landfill containment that is required (such as multi-lined landfilled cells). A number of members of the expert group are proposing this approach to define category c mercury waste. To accept this approach in the waste guidance will

undermine the objective of the Convention and allow business-as-usual practices to persist and ongoing mercury contamination of the environment.

IPEN does not support this approach, as the definition presupposes the disposal method – which in this case is landfill. Leachate threshold definitions can be identified by the unit of measurement, which is usually ug/litre or mg/litre. Solid and sludge waste mercury threshold concentrations should be measured in mg/kg or ppm, which does not presuppose the final disposal or treatment arrangements. Experts also agree that incineration of mercury waste is not appropriate (Merly and Hube 2014), and threshold concentrations should not be constructed to facilitate incineration of mercury wastes. Concentration thresholds that protect human health and the environment while capturing the greatest possible amount of mercury waste for treatment should be established.

The need to harmonise ‘mercury waste’ definitions and ‘mercury contaminated sites’ definitions

There is an important overlap between the definition of mercury wastes (wastes contaminated with mercury) and the definition of sites contaminated with mercury. A key reason for IPEN supporting a 1 ppm Hg threshold to define mercury waste is to address mercury wastes excavated from contaminated sites. IPEN also supports a threshold to define a site contaminated with mercury as a site that has a soil concentration above 1 ppm mercury. The definition of waste contaminated with mercury or mercury compounds and sites contaminated with mercury or mercury compounds should be harmonised at 1 ppm to prevent ‘leakage’ from the waste management system where contaminated soil is not managed correctly as mercury waste.

To give a simplistic example, if the Mercury Treaty defines ‘mercury waste’ as waste contaminated with mercury or mercury compounds at 1ppm or above, but a national jurisdiction defines a mercury contaminated site as soil levels > 25 ppm mercury, then the soil on the site between 1-25 ppm mercury is ‘mercury waste’ under the Treaty definition, but does not have to be remediated or cleaned up under national laws - which only define the site as contaminated above 25 ppm. This creates an impasse where mercury waste may remain untreated and pose a threat to humans and the environment because the definitions are not harmonised at 1 ppm. The UK has established a maximum threshold concentration of mercury for residential land at 1 ppm.

Conversely, if a mercury waste threshold concentration is adopted that is higher than national thresholds for mercury contaminated sites, then contaminated soils excavated from such contaminated sites may not have the status of ‘mercury waste’ and may be dumped, exported or otherwise inappropriately managed. IPEN supports a low definition threshold for both mercury waste and mercury contaminated sites that is harmonised at 1 ppm.

References: Merly. C., and Hube. D., (2014) Remediation of Mercury Contaminated Sites. Snowman Network: Knowledge for sustainable soils. Project No. SN-03/08. February 2014.

UNEP/ISWA (2015) Practical Sourcebook on Mercury Waste Storage and Disposal.

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