

Waste categories including any relevant thresholds and their establishment

Government of Japan

Introduction

Japan welcomes a decision MC-4/6 on mercury waste thresholds, particularly on the adoption of the decision on thresholds for tailings from artisanal and small-scale gold mining and relevant thresholds on tailings from mining other than primary mining that are not excluded from the definition of mercury wastes under Article 11.

We would like to hereby share information and data on the waste categories listed in the indicative list contained in table 3 of decision MC-3/5, including with respect to any relevant national or local thresholds and their establishment. However, Japan has already submitted relevant information on waste categories as reflected in UNEP/MC/COP/2/INF/10. Therefore, a submission below is information on the establishment of relevant thresholds that have not been submitted in the inter-sessional period by the government of Japan. Please be noted that further information may be submitted by a technical expert potentially nominated by the government of Japan during the inter-sessional period leading up to the COP5.

Categorization of wastes contaminated with mercury or mercury compounds in Japan

Under the Waste Management and Public Cleansing Act, Japan categorizes industrial wastes contaminated with mercury or mercury compounds as either “*Specially-controlled industrial wastes*”, “*Dust and others contaminated with mercury*” or other industrial wastes (see Figure 1). Necessary measures to ensure environmentally sound management vary by category¹.

Specially-controlled industrial wastes are the following wastes generated at designated facilities relevant to specific types of waste stream:

- slag, soot and dust, sludge, treated substances or objects thereof and treated waste acid and waste alkali that leach more than 0.005 mg-Hg/L; or
- waste acid and waste alkali which contain more than 0.05 mg-Hg/L.

Dust and others contaminated with mercury or mercury compounds are slag, soot and dust, sludge, waste acid and waste alkali that do not fall under “*Specially-controlled industrial wastes*” but contain more than **15 ppm** of mercury.

Remaining wastes contaminated with mercury or mercury compounds are categorized as industrial wastes in general.

¹ In Japan, soot and dust captured by dust collectors of municipal waste incineration facilities whose incineration capacity is at least 200kg/h or grate area is at least 2m² are categorized as “*Specially-controlled municipal wastes*”. Soot and dust contaminated with mercury or mercury compounds generated from waste incinerators fall into this category.

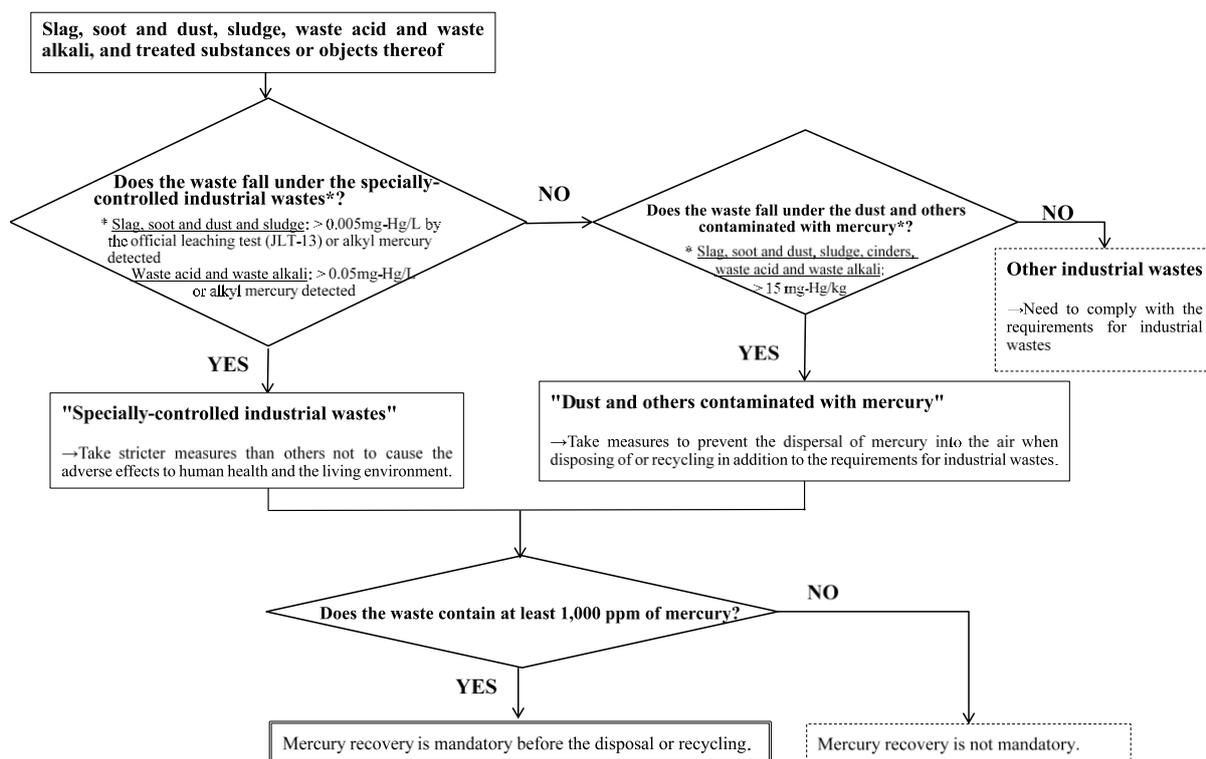


Figure 1 Flow chart to categorize industrial wastes contaminated with mercury or mercury compounds in Japan

Japan applies two-tiered approaches to classify (mercury) wastes. First-tier is to judge whether wastes fall under **hazardous wastes (called "Specially-controlled wastes") based on a leaching potential**. Under the Act, stricter measures shall be put in place for the management of "Specially-controlled wastes". Criteria to judge whether the waste in question falls under "Specially-controlled wastes" are set for different hazardous substances (e.g., lead, cadmium, arsenic) based on their leaching potential, and those values (leaching thresholds) are equivalent to acceptance criteria at leachate control-type landfills. This would mean that if wastes exceed one of the leaching thresholds, they cannot be disposed of in leachate-controlled-type landfills. In summary, Japan uses a leaching potential as one of the ways to control wastes to be disposed of at leachate control-type landfills to protect the surface water and groundwater from leachate from landfill sites (and eventually source of drinking water). The leaching threshold for mercury and its compounds (0.005 mg-Hg/L) has been set as tenfold of the Environmental Quality Standard for surface water and groundwater (0.0005 mg-Hg/L).

Wastes that do not fall under "Specially-controlled wastes" undergo a second tier to judge whether the wastes fall under "**Dust and others contaminated with mercury**" based on mercury concentration. In Japan, some slag, soot and dust, sludge, waste acid and waste alkali are treated with thermal processes while most of them are likely to be treated with physico-chemical processes. In order to minimize

mercury emissions from thermal treatment of wastes contaminated with mercury or mercury compounds, mercury concentration is used for identifying wastes with relatively higher mercury emission potential. If the mercury concentration of the waste is more than 15 ppm, it falls under “*Dust and others contaminated with mercury or mercury compounds*” for which additional measures shall be taken to prevent the emission of mercury.

Steps to have established the national threshold for wastes contaminated with mercury or mercury compounds

As noted above, the threshold for “Dust and others contaminated with mercury or mercury compounds” in Japan is **15 ppm**. This standard was derived so that standards for mercury emission from waste incineration facilities* could be satisfied. The following steps show how Japan derived this value.

*Note: 0.03/Nm³ for new facilities and 0.05 mg/Nm³ for existing facilities (draft, at that time).

Step 1: Identified the average mercury concentration in wastes to be incinerated

The national government conducted an on-site survey to identify the average mercury concentration in wastes to be incinerated. The survey found that the average mercury concentration of mixed industrial wastes was 0.33 mg/kg without an outlier (The average of all samples was 12.7 mg-Hg/kg (n=33) including one outlier whose mercury concentration was 410 mg-Hg/kg, while mercury concentrations for most of the samples were 1.0mg /kg or less).

Step 2: Specified the average mercury removal rates of air pollution control systems

The on-site survey found that about 60 % of incineration facilities for industrial wastes employed bag filters or the combination of bag filters and other treatment equipment to abate the emissions of air pollutants. Based on the mercury removal rate of such techniques obtained through the on-site measurement and those described in the Guidance on Best Available Techniques and Best Environmental Practices developed pursuant to Article 8 of the Convention, the average mercury removal rate for incineration facilities for industrial wastes was set as 85 %.

Step 3: Calculated the limit of mercury concentration to satisfy the emission standards for waste incineration facilities under the condition of mixed incineration

The maximum mercury concentration of wastes to be incinerated while satisfying the emission standards for waste incineration facilities (0.03 mg/Nm³ for new facilities and 0.05 mg/Nm³ for existing ones, as of June 2016) was calculated under the condition below.

- (i). the average mercury concentration in wastes is 0.33 mg/kg
- (ii). the average mercury removal rate for incineration facilities for industrial wastes is 85 %, and

(iii). the ratio of ordinary wastes (those not supposed to be contaminated with mercury) to wastes contaminated with mercury to be incinerated is 9 to 1².

The result of the calculation showed that incineration of wastes with 18 mg/kg of mercury could satisfy the emission standards for existing facilities (0.05 mg/Nm³) with a mercury removal rate of 85 %. A result of a similar calculation with an assumption that mercury could be removed by 90% at new facilities showed that incineration of wastes with 16 mg/kg of mercury could satisfy the emission standard for new facilities (0.03 mg/Nm³).

Based on these results, Japan concluded that the maximum mercury concentration of wastes to satisfy the emission standards for waste incineration facilities should be 15 ppm. This value was designated as the threshold for "*Dust and others containing mercury*".

² The interviews with waste treatment business operators found that all facilities incinerate mercury wastes together with other wastes.