

Submission by the Government of Japan for
“Further work made at the sixth session of the Intergovernmental Negotiation
Committee”

In response to the request from the secretariat to Governments to submit information relating to the development of guidance on a number of Articles under the Convention, the Government of Japan submits relevant information on Article 10.

Technical standards for the storage and transportation of mercury. (Example of “Poisonous and Deleterious Substances Control Act”)

Technical standards for the storage and transportation of Poisonous and Deleterious Substances under the Poisonous and Deleterious Substances Control Act¹ are summarized in Table 1 and Table 2.

Table 1: Technical standards for the storage of Poisonous and Deleterious Substances under the Poisonous and Deleterious Substances Control Act

Item		Technical standards on storage under the Poisonous and Deleterious Substances Control Act
Responsible party		Business operators involved with Poisonous and Deleterious Substances*, Researchers involved with specified Poisonous Substances**
Target substances (regarding mercury and its compounds targeted in the Minamata Convention)		<ul style="list-style-type: none"> Poisonous substances² : mercury, mercury oxide, formulations containing more than 5% mercury oxide, mercuric sulfate and formulations containing mercuric sulfate, mercuric nitrate and formulations containing mercuric nitrate Deleterious substances : mercurous chloride and formulations containing mercurous chloride, formulations containing 5% or less of mercury oxide <p style="text-align: right;">*Mercury sulfide (cinnabar) is exempted.</p>
Container	General provisions	<ul style="list-style-type: none"> Prohibition on the use of any item that is usually used as a

¹ <http://www.japaneselawtranslation.go.jp/law/detail/?id=2300&vm=04&re=02>

² As per the Poisonous and Deleterious Substances Control Act, mercury is designated as a poisonous substance. Further, as per Poisonous and Deleterious Substances Ordinance, mercury compounds and formulations containing mercury compounds are designated as poisonous substances (Exemptions : aminomercuric chloride and its formulations, mercurous chloride and its formulations, mercury oleate and its formulations, formulations with 5% or less of mercury oxide, mercurous iodide and its formulations, mercury (II) fulminated and its formulations, mercuric sulfide and its formulations).

Item		Technical standards on storage under the Poisonous and Deleterious Substances Control Act
		<p>container for foods and drinks, as the container for Poisonous Substances, or the Deleterious Substances</p> <ul style="list-style-type: none"> Containers should not have the risk of scattering, leaking, draining or seeping of mercury
	Labelling on the container	<ul style="list-style-type: none"> Indicate, on the containers and packaging of any Poisonous Substance or Deleterious Substance, the letters "医薬用外 (not for medical use)" and, in the case of a Poisonous Substance the letters "毒物 (Poisonous Substance)" in white on red background or in the case of a Deleterious Substance the letters "劇物 (Deleterious Substance)" in red on white background Indicate the name, ingredients and their respective contents and manufacturer of the substances
Storage facility	General provisions	<ul style="list-style-type: none"> A storage facility should have a lock or should be surrounded by a robust fence The storage area should have a lock or should be surrounded by a robust fence
	Storage method	<ul style="list-style-type: none"> Should be able to store Poisonous and Deleterious Substances by separating from other materials
	Display on the storage facility	<ul style="list-style-type: none"> Indicate, at the place where Poisonous Substances or Deleterious Substances are stored or displayed, the letters "医薬用外 (not for medical use)" and, in the case of a Poisonous Substance the letters "毒物 (Poisonous Substance)" and in the case of a Deleterious Substance the letters "劇物 (Deleterious Substance)".
Information Management		<ul style="list-style-type: none"> Record the name, amount, date of the substance sold or given, and name, profession and address the recipient of the substance Keep the record for 5 years from the day the substance is sold or given
Necessary measures	Measures during an accident	<ul style="list-style-type: none"> Immediately notify the health center, police station, or fire defense organization, while taking emergency measures necessary to prevent public health hazards, if the Poisonous Substance or Deleterious Substance which they handle scatters, leaks, drains, seeps out, or seeps underground, and there is a risk of public health hazards to unspecified or

Item		Technical standards on storage under the Poisonous and Deleterious Substances Control Act
		<p>many persons</p> <ul style="list-style-type: none"> • Immediately notify the police station if any of the Poisonous Substances or Deleterious Substances which they handle is stolen or lost

* “Business operators involved with poisonous and deleterious substances” means manufacturers, importers or vendors of the poisonous or deleterious substances.

** “Researchers involved with specified poisonous substances” means personnel who have been permitted by the prefectural governors to manufacture or use specified poisonous substances for the purpose of academic research.

Table 2 Technical standards for the transportation of Poisonous and Deleterious Substances in the Poisonous and Deleterious Substances Control Act

Item		Technical standards on the transportation under the Poisonous and Deleterious Substances Control Act
Responsible party		Not specified (Required when there is a necessity to prevent harm from the viewpoint of health and hygiene)
Target substances (regarding mercury and its compounds targeted under the Minamata Convention)		Same as the standards for storage
Usage of containers or packaging		<ul style="list-style-type: none"> • Placed in a container or in enveloping packaging • Container or enveloping packaging to be sealed tight • When transporting 1,000 kg or more at a time, indicate the name and ingredients of the substance as a label on the outside part of the container or the enveloping packaging
Container	General provisions	<ul style="list-style-type: none"> • No leakage or breakage due to changes in pressure, temperature or humidity • There is no compromise in safety due to degradation of chemical changes of the substance • Protect the inner container made of glass by using cushioning
	Quality of material	<ul style="list-style-type: none"> • The type of container, quality, maximum interior volume and maximum storage weight to satisfy the requirement of the standard. • Item that has been confirmed to satisfy the stipulation as

Item		Technical standards on the transportation under the Poisonous and Deleterious Substances Control Act
		required by the section on “test of containers”
	Shape or form	Same as above
	Method of storage	<ul style="list-style-type: none"> To be sealed Storage rate to be 98% or less at 55°C and airspace to be left The exterior container not to be mixed and placed with other materials
	Performance testing	<ul style="list-style-type: none"> Needs to pass the performance test (drop, air tightness, hydraulic pressure, stacking)
	Labelling on the container	<ul style="list-style-type: none"> The fact that the container has passed the performance test to be labelled on the container
Transport	General provisions	<ul style="list-style-type: none"> Prevention of friction and agitation Protective equipment to be made available when transporting 5 tons or more at a time
	Vehicle	<ul style="list-style-type: none"> Vehicle with no risk of scattering or leaking
	Mode of loading	<ul style="list-style-type: none"> Prevention of breakage, toppling over or drop Not to exceed the length and width of the loading equipment Opening of the housing to be facing upwards Stock height to be 3m or less To be loaded without exceeding the length and width of the vehicle Prevent the leaking of rain water or direct sunlight to the container
	Display on the vehicle	<ul style="list-style-type: none"> Include marking on the vehicle when transporting 5 tons or more at a time
Information Management		<ul style="list-style-type: none"> Record the name, amount, date of the substance sold or given, and name, profession and address the recipient of the substance Keep the record for 5 years from the day the substance is sold or given
Necessary measures	Measures during an accident	<ul style="list-style-type: none"> Immediately notify the health center, police station, or fire defense organization, while taking emergency measures necessary to prevent public health hazards, if the Poisonous Substance or Deleterious Substance which they handle scatters, leaks, drains, seeps out, or seeps

Item		Technical standards on the transportation under the Poisonous and Deleterious Substances Control Act
		<p>underground, and there is a risk of public health hazards to unspecified or many persons</p> <ul style="list-style-type: none"> • Immediately notify the police station if any of the Poisonous Substances or Deleterious Substances which they handle is stolen or lost

**Submission by the Government of Japan for “Further work made at the sixth session of the
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In response to the request from the secretariat to Governments to submit information relating to the development of guidance on a number of Articles under the Convention, the Government of Japan submits relevant information on paragraph 5 (a) of Article 3 and Article 10¹.

In June 2015, Japan promulgated a new act (Act on Preventing Environmental Pollution of Mercury, hereinafter referred to as “the new act”) to implement the Minamata Convention coupled with other existing laws, regulations and their amendments. Chapter 7 (Measures for storage of mercury and mercury compounds) of the new act provides a basic framework to implement Article 10 of the Minamata Convention (hereinafter referred to as “the Convention”), and it also contributes to implement the paragraph 5(a) of Article 3 of the Convention by an annual reporting obligation on storage of mercury and mercury compounds.

As provided in Article 21 of the new act, Japan will develop technical guidelines for storage of mercury and mercury compounds taking into account the technical standards for the storage of mercury under the Poisonous and Deleterious Substances Control Act. The technical guidelines will include 1) storage of mercury and mercury compounds in containers having no risk of scattering, leaking, or seeping of the contents, 2) labelling of the containers with name, ingredients and contents, 3) placement of the containers in a storage facility with a lock or surrounded by a robust fence, and 4) provision of necessary information from the owner of mercury or mercury compounds to an entity consigned for their storage. When the guidelines on environmentally sound storage of mercury or mercury compounds are adopted by the COP under the paragraph 3 of Article 10 of the Convention, Japan will revise the national technical guidelines accordingly.

Japan has introduced an annual reporting obligation on storage of mercury and mercury compounds as provided in Article 22, Chapter 7 of the new act in order to ensure the environmentally sound interim storage to implement Article 10 of the Convention. This obligation, estimated to require annual report of the mercury and mercury compounds storage of 30kg or more each, can contribute to identifying individual stocks of mercury and mercury compounds and possible sources of mercury supply as provided in paragraph 5(a) of Article 3 of the Convention. The report includes conditions, purposes, amount used by purposes, amount transferred to waste of the storage.

¹ Although the Government of Japan has already submitted relevant information on Article 10 based on an existing law which specify technical standards for the storage of mercury, the information is updated based on a new act Japan recently promulgated to implement the Minamata Convention.

Act on Preventing Environmental Pollution of Mercury (excerpt) (tentative translation)

Chapter 7: Measures for storage of mercury and mercury compounds

(Guidelines for storage)

Article 21.

1. The competent minister shall develop and publish technical guidelines for those carrying out storage of mercury and mercury compounds (hereinafter referred to as “those involved in storage of mercury and mercury compounds”)² to take measures to prevent environmental pollution by the storage of mercury and mercury compounds.

2. The competent minister, after publishing the technical guidelines specified in the previous clause, when the minister finds it necessary in order to prevent environmental pollution, may recommend those involved in storage of mercury and mercury compounds, after taking into consideration the technical guidelines, the measures to be taken in order to prevent environmental pollution of mercury and mercury compounds.

3. The Minister of the Environment and the Minister of Economy, Trade and Industry, in regards to the implementation of the recommendation mentioned in the previous clause, may state their opinions to the competent minister mentioned in the previous clause.

(Reporting on storage)

Article 22.

1. Those involved in storage of mercury and mercury compounds, if the storage amount of mercury and mercury compounds over the each requirement set by the competent ministerial ordinance, as provided for by the ordinance, shall periodically report on the items concerning the storage of mercury and mercury compounds required by the ordinance to the competent minister.

2. The competent minister, after receiving the report provided in the previous clause, is to promptly send a copy of the report to the Minister of the Environment and the Minister of Economy, Trade and Industry.

Chapter 10: Penal provision

Article 33.

Any person who falls under any of the following items is punished with a fine not exceeding 300,000

² Mercury and mercury compounds are limited to those specified by the government ordinance as specially requiring regulations for storage. Recyclable resources containing mercury and waste provided by Article 2 paragraph (1) of the Wastes Disposal and Public Cleansing Act are excluded. Similar definition applies to the following sections.

Japanese yen.

- (ii). A person who has failed to report, as provided for in paragraph (1) of Article 22, or made a false report.

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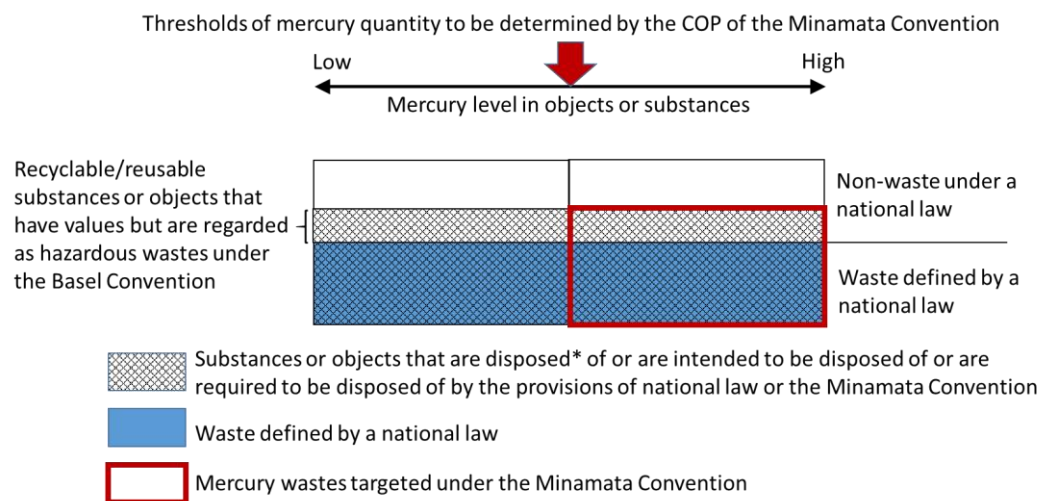
In response to the request from the secretariat to Governments to submit information relating to the development of guidance on a number of Articles under the Convention, the Government of Japan submits relevant information on Article 11.

Japan’s submission on thresholds of mercury wastes

Japan has the following three types of thresholds of mercury wastes under the current legislation.

- I. Thresholds for the specified hazardous wastes subject to the import/export regulations under the Basel Convention
- II. Thresholds for the specially-controlled industrial wastes subject to special management under the Waste Management and Public Cleansing Law
- III. Thresholds for the treated wastes that are required to be disposed of in landfills for hazardous industrial wastes (isolated type)

Since recyclable/reusable substances or objects those have values in Japan but are regarded as hazardous wastes under the Basel Convention are not categorized as wastes under Japan’s waste management law (see the figure below), Japan is planning to designate those materials as “recyclable materials containing mercury” that are subject to new regulation to ensure their environmentally sound management provided by the Minamata Convention.



* For the Parties to the Basel Convention, its definitions are applied to mercury wastes under the Minamata Convention. Under the Basel Convention, “disposal” includes not only treatment and final disposal but also resource recovery, recycling, direct-reuse or alternative uses of materials legally defined as or considered to be hazardous wastes.

Figure: Relationship between wastes defined by the Japan’s waste law and mercury wastes targeted under the Minamata Convention

Table: Thresholds of mercury wastes in Japan

Category of waste	Thresholds	Legal bases	Analysis methods
I. Materials which fall under the category of specified hazardous wastes and other wastes based on the Law for the Control of Export, Import & Others of Specified Hazardous Wastes and Other Wastes (Article 2, paragraph (1), item (i) (a) and the item No. 27 set forth in Appended Table 3 of the law), and are subject to import and export regulations set forth in the Basel Convention.			
(1)Specified mercury compounds ¹	0.1wt% or more	The law stated above	
(2)Wastes containing Mercury nucleate, Mercurous acetate, Phenylmercury acetate, Phenylmercuric nitrate, Thimerosal	1 wt% or more		
(3)Wastes containing mercury compounds other than those listed in items (1) and (2)	No threshold		
(4)Wastes in solid form to be exported or imported for the purpose of disposal operations listed in D1 to D4 or R10 of Annex IV of the Convention	<u>Total mercury</u> : Over 0.0005 mg per liter <u>Alkyl mercury</u> : Detected	The environmental conditions set forth in Appended Table of the Ambient Soil Quality Standards	<u>Total mercury</u> : (1)Reduction – CVAAS, or (2)Dithizone extraction - heating vaporized AAS <u>Alkyl mercury</u> : (1)Gas Chromatography, or

¹ Wastes containing Mercury, Mercury benzoate, Ethylmercury chloride, Mercurous chloride, Mercuric chloride, Mercury ammonium chloride, Methylmercuric chloride, Mercuric oxycyanide, Mercury oleate, Mercury gluconate, Mercury acetate, Mercury salicylate, Mercuric oxide, Mercury cyanide, Mercuric potassium cyanide, Diethyl mercury, Dimethyl mercury, Mercuric bromide, Mercurous nitrate, Mercuric nitrate, Phenylmercuric hydroxide, Mercuric thiocyanate, Mercuric arsenate, Mercuric iodide, Mercuric potassium iodide, Mercury fulminate, Mercury sulphide, Mercurous sulfate, Mercuric sulfate

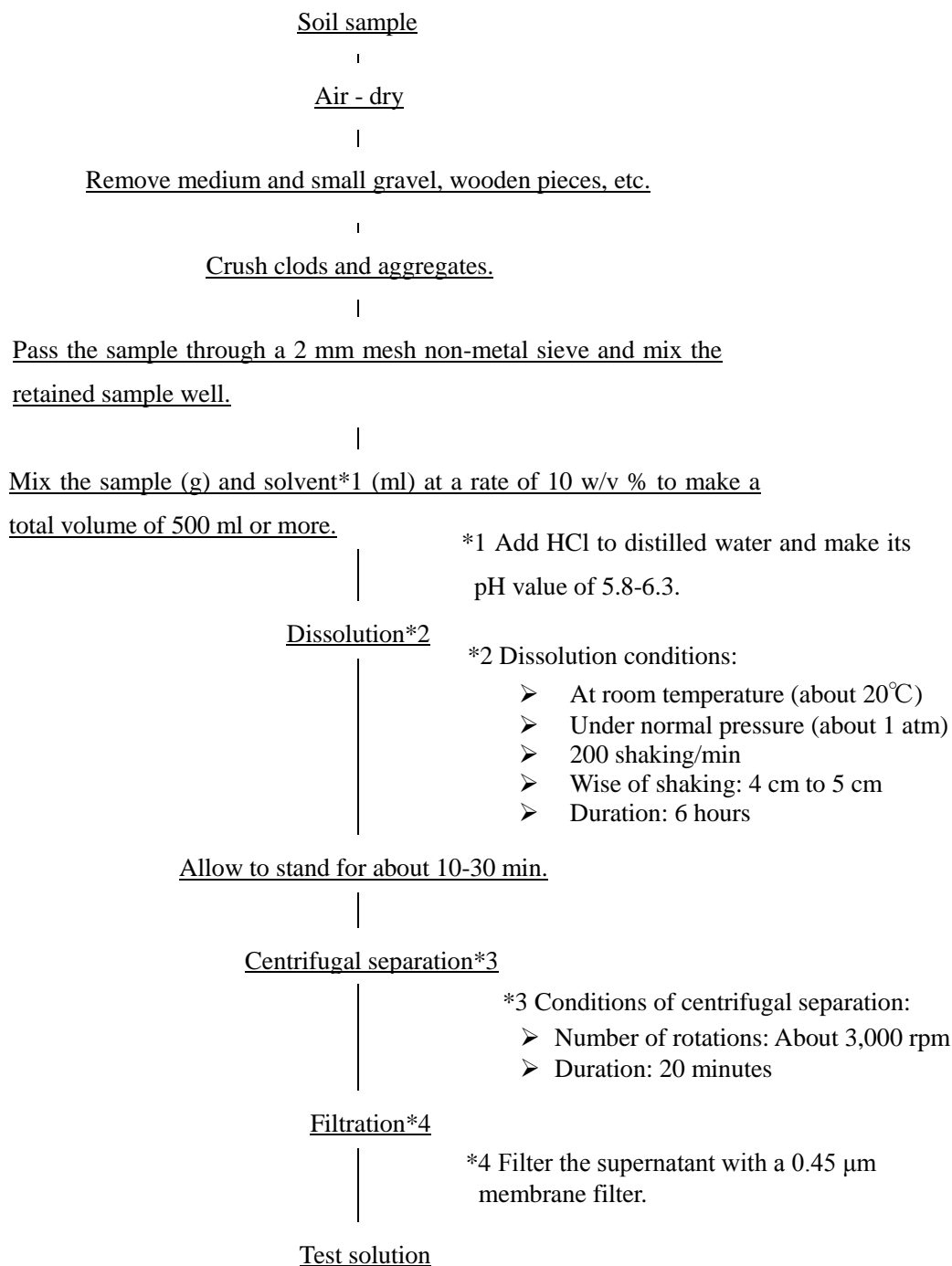
Category of waste	Thresholds	Legal bases	Analysis methods
			(2)Thin-layer chromatograph separation –AAS (See Annex 1)
(5)Wastes in liquid form to be exported or imported for the purpose of disposal operations listed in D1 to D4 or R10 of Annex IV of the Convention	<u>Mercury, alkyl mercury and the other mercury compounds</u> : Over 0.0005 mg Hg per liter <u>Alkyl mercury compounds</u> : Over 0.0005 mg Alkyl Hg per liter	The requirements prescribed in Article 6-2 of the Enforcement Ordinance for the Water Pollution Prevention Law	<u>Total mercury</u> : (1)Reduction – CVAAS, or (2)Dithizone extraction - heating vaporized AAS <u>Alkyl mercury</u> : (1)Gas Chromatography, or (2)Thin-layer chromatograph separation –AAS (See Annex 2)
(6)Wastes in solid form to be exported or imported for purposes of disposal operations other than those listed in item (5)	<u>Mercury or its compounds</u> : Over 0.0005 mg Hg per liter <u>Alkyl mercury compounds</u> : Detected	The standards listed in Appended Table 3 of the Verification Standards for Industrial Wastes (For sample preparation, see section B) ocean disposal in Annex 3)	<u>Total mercury</u> : (1)Reduction – CVAAS, or (2)Dithizone extraction - heating vaporized AAS <u>Alkyl mercury</u> : (1)Gas Chromatography, or (2)Thin-layer chromatograph separation –AAS (See Annex 3)
(7)Wastes in liquid form to be exported or imported for purposes of disposal operations other than those listed in item (5)	<u>Mercury, alkyl mercury and the other mercury compounds</u> : Over 0.005mg Hg per liter	The standards listed in Appended Table 1 of the Effluent Quality Standards	<u>Total mercury</u> : (1)Reduction – CVAAS, or (2)Dithizone extraction - heating vaporized AAS

Category of waste	Thresholds	Legal bases	Analysis methods
	<u>Alkyl mercury compounds</u> : Detected		<u>Alkyl mercury</u> : (1) Gas Chromatography, or (2) Thin-layer chromatograph separation –AAS (See Annex 4)
II. Specially-controlled industrial wastes subject to special management under the Waste Management and Public Cleansing Law			
(1)Waste except acid and alkali (dusts, sludge or slag or their treated materials for disposal, or treated waste acid and alkali) from specified facilities (see Annex 5) which fall under the category of specially-controlled industrial wastes	<u>Mercury or its compounds</u> : Over 0.005 mg Hg per liter <u>Alkyl mercury compounds</u> : Detected	The judgement standards for specially-controlled industrial wastes	<u>Total mercury</u> : (1)Reduction – CVAAS, or (2)Dithizone extraction - heating vaporized AAS <u>Alkyl mercury</u> : (1)Gas Chromatography, or (2)Thin-layer chromatograph separation –AAS (See Annex 3)
(2)Waste acid and alkali (including treated dusts, sludge and slag) from specified facilities (see Annex 5) or their treated materials for disposal which fall under the category of specially-controlled industrial wastes	<u>Mercury or its compounds</u> : Over 0.05 Hg mg per liter <u>Alkyl mercury compounds</u> : Detected	The judgement standards for specially controlled industrial wastes	<u>Total mercury</u> : (1)Reduction – CVAAS, or (2)Dithizone extraction - heating vaporized AAS <u>Alkyl mercury</u> : (1)Gas Chromatography, or (2)Thin-layer chromatograph separation –AAS (See Annex 3)
III. Treated wastes that are required to be disposed of in landfills for hazardous industrial wastes (isolated type)			

Category of waste	Thresholds	Legal bases	Analysis methods
(3)Treated burnt residues, dusts and sludge for disposal which are required to be disposed of in landfills for hazardous industrial wastes (isolated type)	<u>Mercury or its compounds</u> : Over 0.005 mg Hg per liter <u>Alkyl mercury compounds</u> : Detected	The Verification Standards for Industrial Wastes	<u>Total mercury</u> : (1)Reduction – CVAAS, or (2)Dithizone extraction - heating vaporized AAS <u>Alkyl mercury</u> : (1)Gas Chromatography, or (2)Thin-layer chromatograph separation –AAS (See Annex 3)

Annex 1 The verification methods set forth in Appended Table of the Ambient Soil Quality Standards

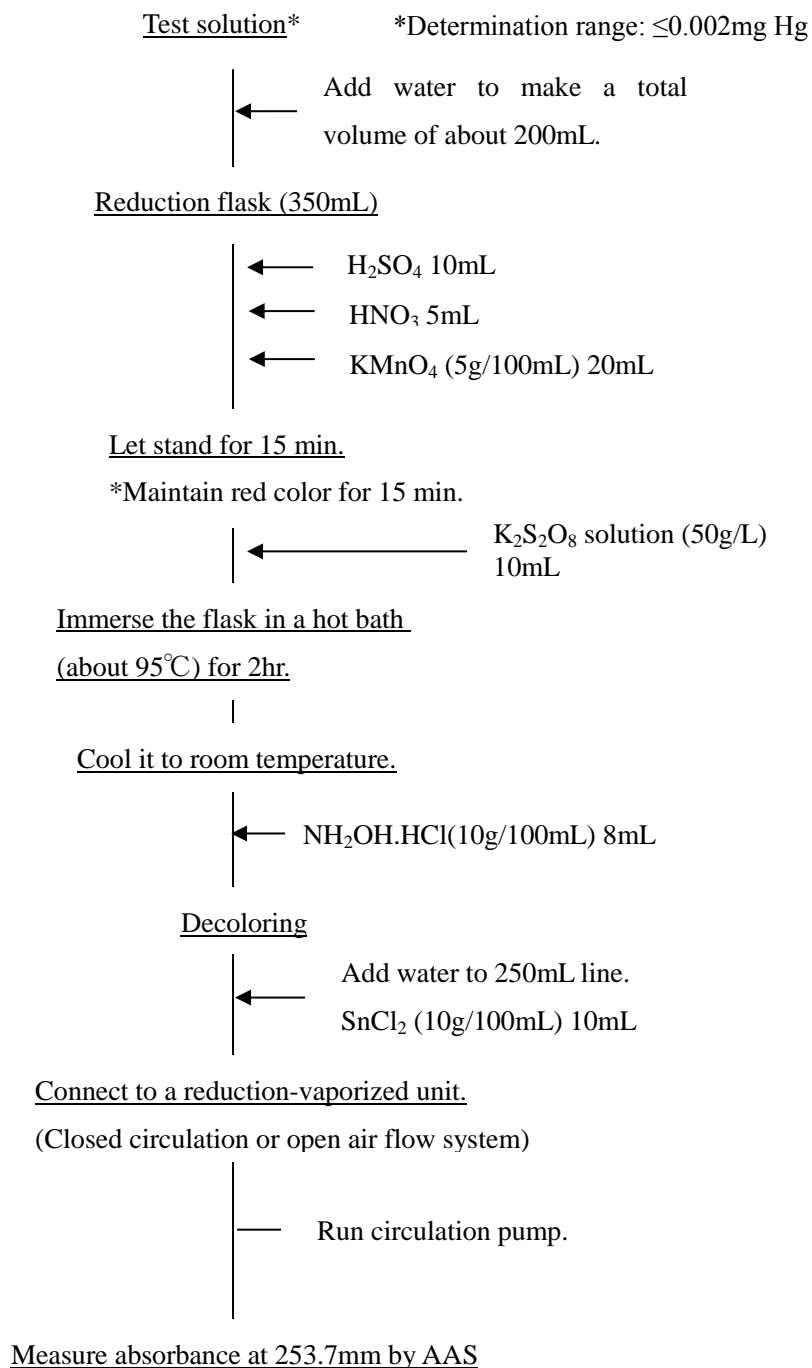
[Sample preparation]



[Analysis method]

1. Total mercury

A) Reduction - cold vapor atomic absorption spectrometry (CVAAS)



B) Dithizone extraction - heating vaporized AAS²

Test solution* *Determination range: $\leq 0.002\text{mg Hg}$

 | ← Add water to make a total volume of about 200mL.

Conical flask

 | ← H_2SO_4 10mL
 | ← HNO_3 5mL
 | ← KMnO_4 (5g/100mL) 20mL

Let stand for 15 min.

*Maintain red color for 15 min.

 | ← $\text{K}_2\text{S}_2\text{O}_8$ solution (50g/L) 10mL

Immerse the flask in a hot bath
(about 95°C) for 2hr.

Cool it to room temperature.

 | ← $\text{NH}_4\text{OH} \cdot \text{HCl}$ (10g/100mL) 8mL

Decoloring

500ml separating funnel

 | ← Dithizone – CHCl_3 (200mg/L) 5mL

Extraction (Shake (2min.))

CHCl_3 layer (A)

Water layer

 | ← Dithizone – CHCl_3 (200mg/L) 5mL

Extraction

 | Repeat until color of dithizone layer does not
 change any more.

 | ← CHCl_3 layer (B)

Add (B) to (A), and top up.

Take a certain amount and put it into a porcelain board. (*)

 | ← BAL – CHCl_3 (0.1mL/100mL) 0.1mL

Vaporize the solvent by aeration.

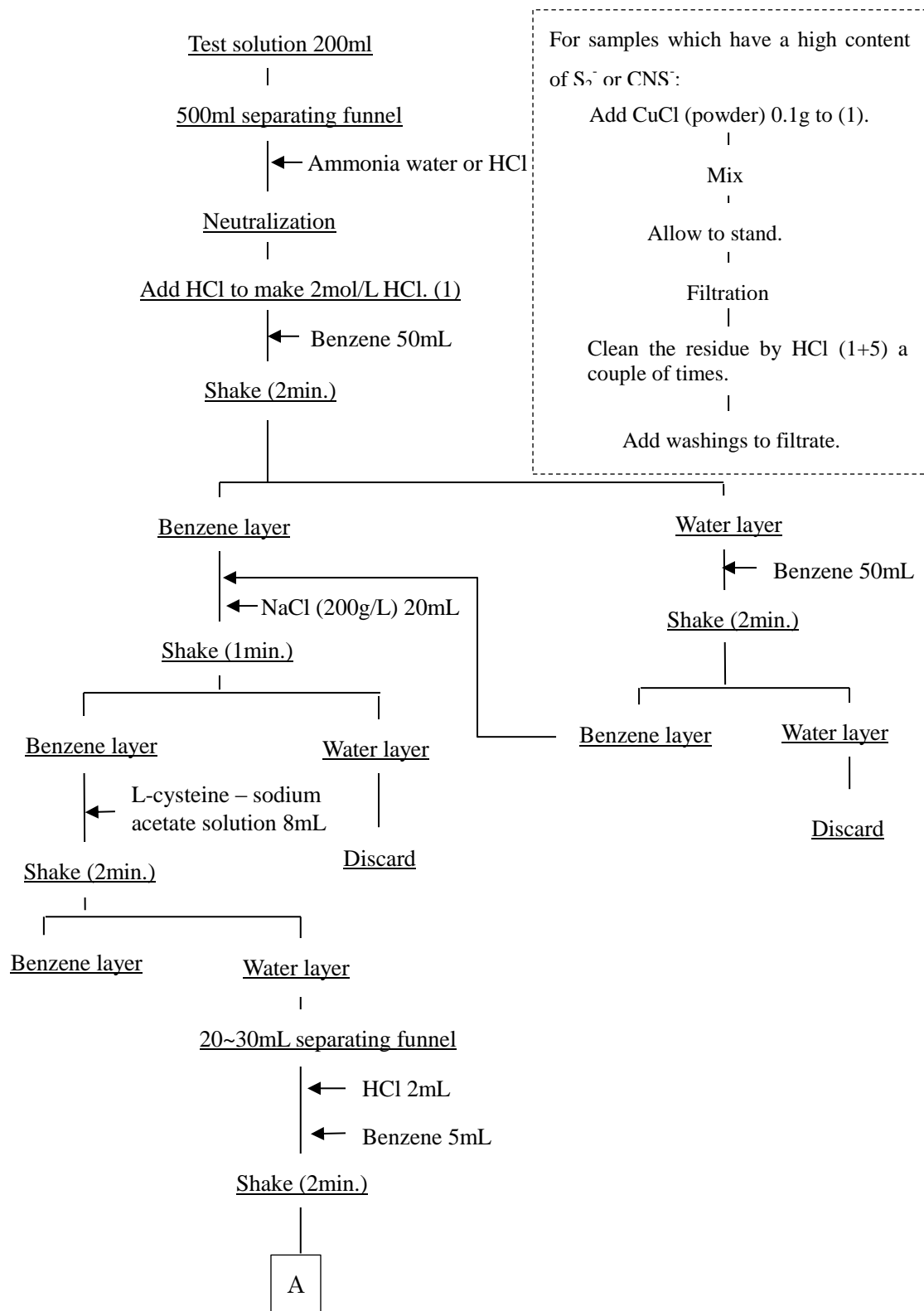
Insert the sample into a heating vaporization system.

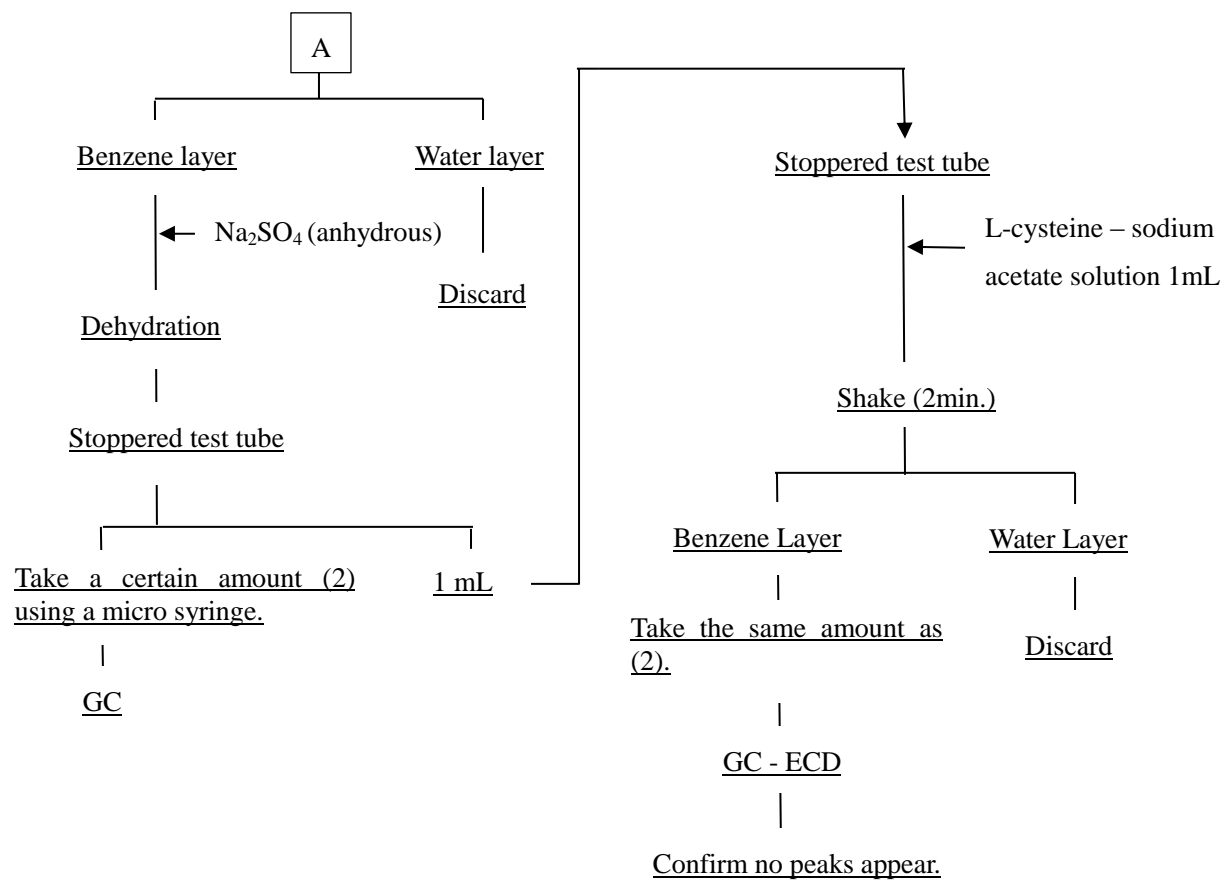
Measure absorbance at 253.7nm by AAS

² This method may be used alternatively in case where determination precision by Reduction – CVAAS method is not sufficient due to coexisting materials like organic substances with complex constituents.

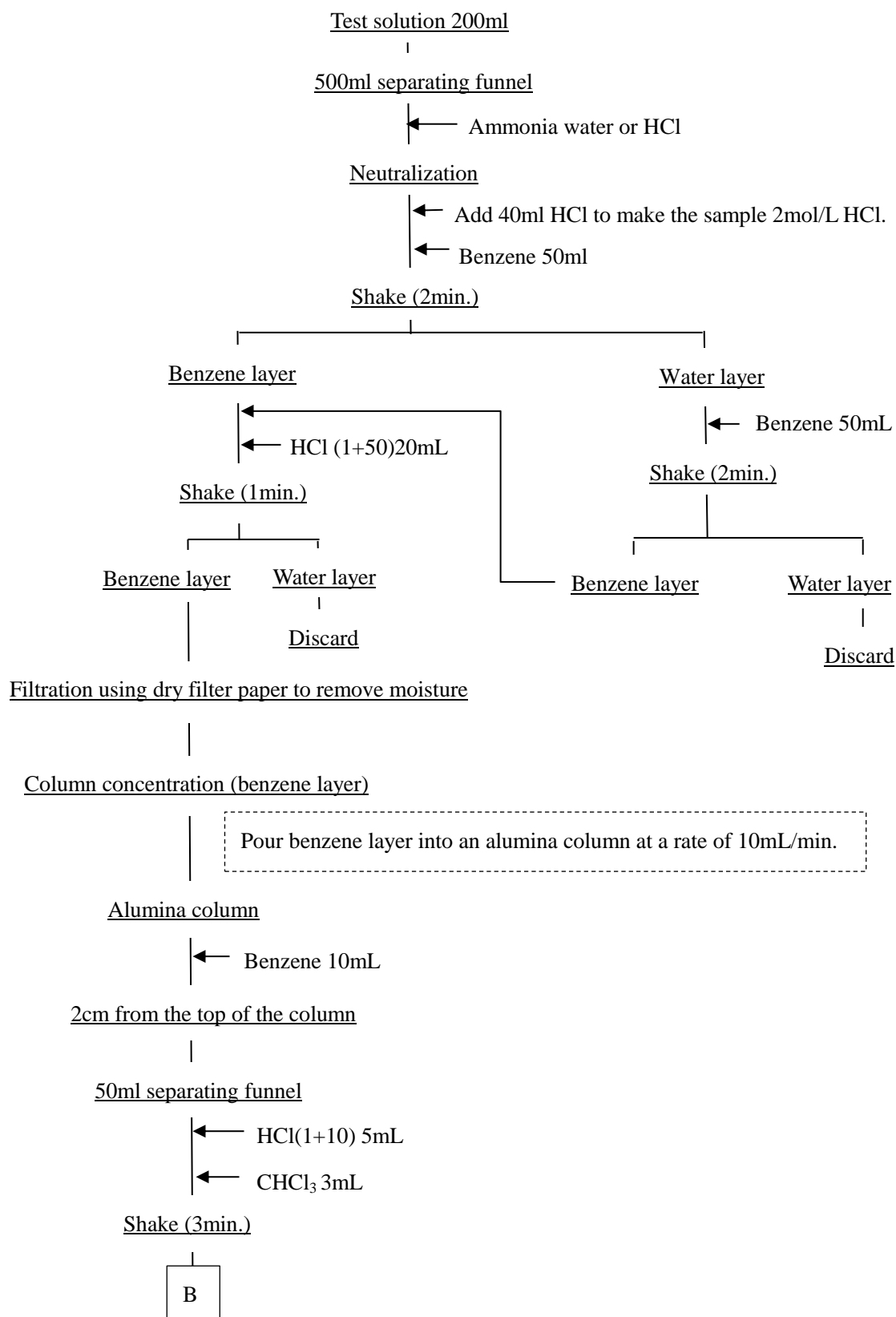
2. Alkyl mercury

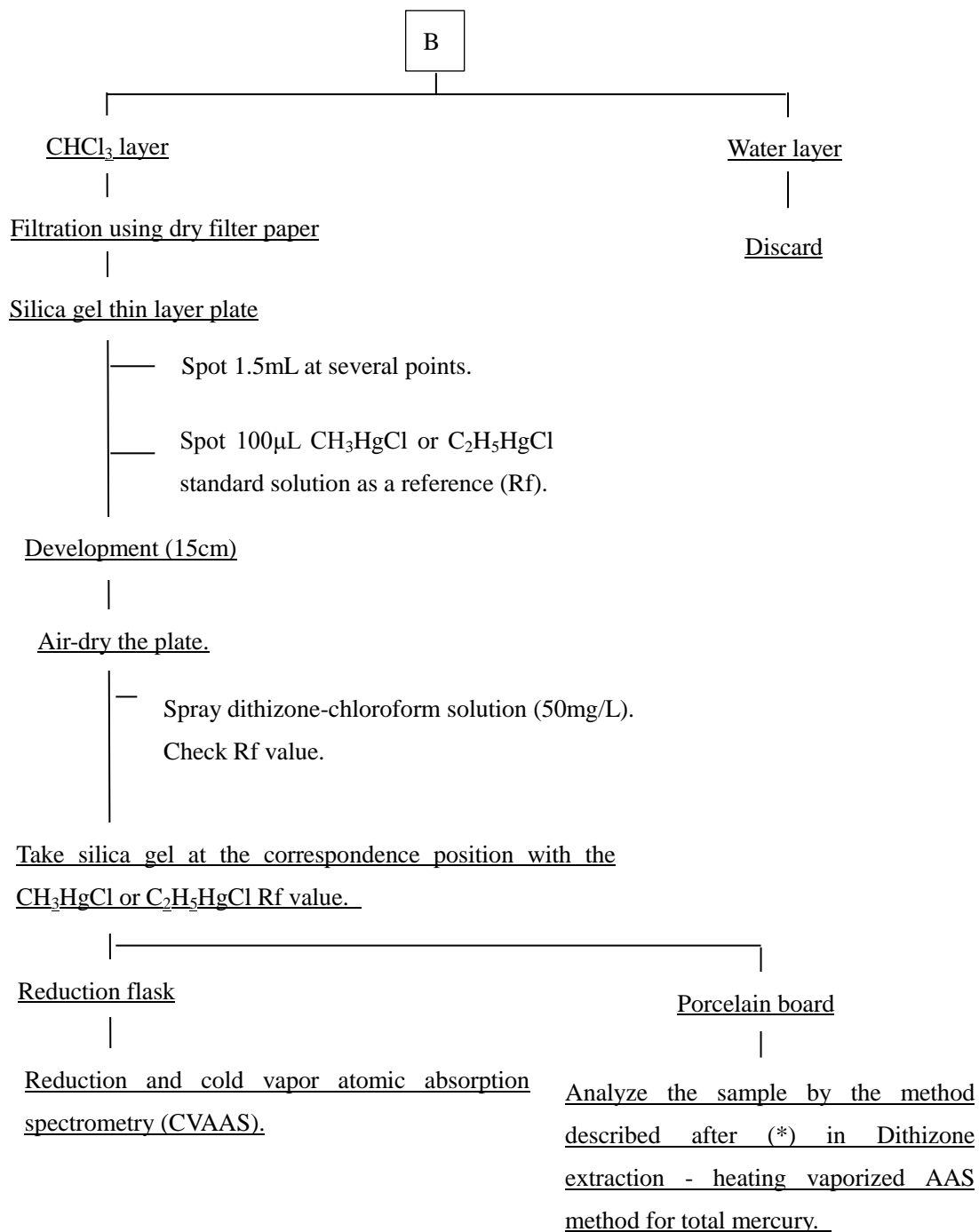
A) Gas Chromatography (GC)





B) Thin-layer chromatograph separation –AAS





Annex 2 The verification methods set forth in Article 6-2 of the Enforcement Ordinance for the Water Pollution Prevention Law

[Sample preparation]

Not necessary.

[Analysis method]

The methods are the same as ones described in Annex 1.

Annex 3 The verification methods set forth in the Verification Standards for Industrial Wastes

[Sample preparation]

A) Heavy metals

Sample preparation

Add distilled
water. →

A) Burnt residues, sludge and fall dusts

Take a sample as its shape is retained, and remove foreign substances (e.g. pebbles).

B) Industrial wastes other than burnt residues, sludge and fall dusts

- 5 mm or less in diameter – Take as it is.
- The others – Take as it is, and crush it. Then pass it through 0.5 mm and 4.75 mm mesh sieves.

A) For landfill except for sea area landfill:

Mix the sample and solvent (distilled water) at a rate of 10 w/v % to make a total volume of 500 ml or more.

B) For sea area landfill of treated wastes (burnt residues, sludge, slag and fall dusts) and slag:

Mix the sample and solvent (distilled water) at a rate of 10 w/v % to make a total volume of 500 ml or more.

C) For sea area landfill of burnt residues, sludge, fall dusts, and treated sludge (burnt residues, slag and fall dusts), and for ocean disposal of inorganic sludge:

Add solvent (distilled water) to the sample at a rate of 3 w/v % based on the solid content to make a total volume of 500 ml or more.

*1 Dissolution conditions:

- Horizontally shaking
- At room temperature (about 20°C)
- Under normal pressure (about 1 atm)
- 200 shaking/min
- Wise of shaking: 4 cm to 5 cm
- Duration of shaking: 6 hours

Dissolution*1

Allow to stand.

*2 Conditions of centrifugal separation:

- Centrifugal acceleration: 3,000G
- Duration: 20 minutes

Centrifugal separation*2

Filtration *3

*3 Filter the supernatant with a 1µm membrane filter to make a sample for analysis.

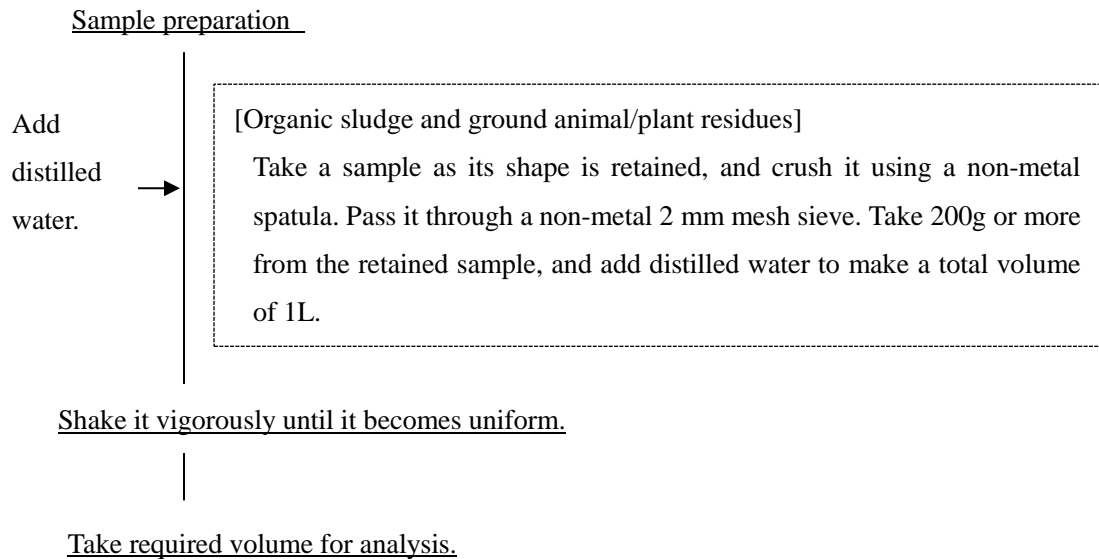
Analysis

$$G = 1,118 \times R \times N^2 \times 10^{-8}$$

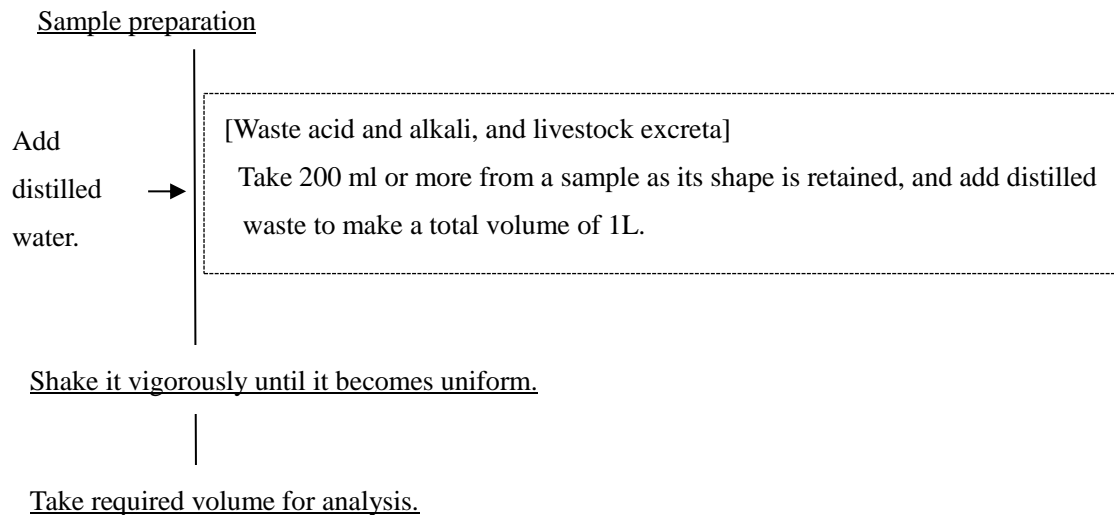
G: centrifugal acceleration (G)
R: radius of gyration (cm)
N: number of rotations (rpm)

B) Wastes to be disposed of into ocean

- Organic sludge to be disposed of into ocean (except for test for PCB, VOC, pesticides and organic chloride compounds)



- Waste acid and alkali, and livestock excreta to be disposed of into ocean



[Analysis method]

The methods are the same as ones described in Annex 1.

Annex 4 The verification methods set forth in the Effluent Quality Standards

[Sample preparation]

Not necessary.

[Analysis method]

The methods are the same as ones described in Annex 1.

Annex 5 Specified facilities listed in Waste Management and Public Cleansing Law

[Dusts]

No.	Facilities	Scale
1	Roasters, sintering furnaces and calcining furnaces for metal refining or inorganic chemical product manufacturing	Raw material treatment capacity: 1t/h or more
2	Melting furnaces for metal refining or casting	a) Fire grate area: 1m ² or more, b) Cross-sectional area of tuyere: 0.5m ² or more, c) Burner combustion capacity: heavy oil 50L/h or more, OR d) Transformer rating capacity: 200 KVA or more.
3	Reactors or direct heating furnaces for inorganic chemical product or food manufacturing	a) Fire grate area: 1m ² or more, b) Burner combustion capacity: heavy oil 50L/h or more, OR
4	Dry kilns (excluding kilns used for Cu, Pb or Zn refining)	c) Transformer rating capacity: 200 KVA or more.

[Sludge, and Waste acid and alkali]

No.	Category of industry	Facilities
1	Caustic soda or caustic potash manufacturing by mercury electrolysis process	a) Salt water purification facilities b) Electrolysis facilities
2	Inorganic pigment manufacturing	a) Cleaning facilities b) Filtering facilities c) Waste gas cleaning facilities
3	Inorganic chemical product manufacturing excluding those corresponding to the preceding two items	a) Filtering facilities b) Centrifuge c) Waste gas cleaning facilities d) Wet dust collection facilities
4	Acetylene derivative manufacturing by calcium carbide method	Vinyl chloride monomer cleaning facilities
5	Organic chemical product manufacturing excluding those listed at *1	a) Rinsing facilities b) Filtering facilities c) Waste gas facilities
6	Medicine manufacturing	a) Filtering facilities

No.	Category of industry	Facilities
		b) Separating facilities c) Mixing facilities d) Waste gas cleaning facilities
7	Reagent*2 manufacturing	Reagent manufacturing facilities
8	Non-ferrous metal manufacturing	a) Mercury refining facilities b) Waste gas cleaning facilities c) Wet dust collection facilities
9	Metal product manufacturing or instrument manufacturing	a) Mercury refining facilities b) Waste gas cleaning facilities
10	Facilities installed in organizations which are specified by an Ordinance of the Ministry of the Environment*3 and conduct research, experiments, inspection or professional education regarding science and technology	a) Cleaning facilities
11	Acetylene refining facilities	
12	Designated sewage sludge	

- *1 Acetylene derivative manufacturing by calcium carbide method/ coal tar product manufacturing/ fermentation industry/ methane derivative manufacturing/ organic pigments or synthetic dye manufacturing/ synthetic resin manufacturing/ synthetic rubber manufacturing/ organic rubber chemical manufacturing/ synthetic detergent manufacturing/ petrochemical industry excluding those corresponding to the preceding six categories and oil refineries/ soap manufacturing/ surfactant manufacturing/ hardened oil manufacturing/ fatty acid manufacturing/ spice manufacturing/ gelatin or glue manufacturing/ photographic film manufacturing/ natural resin product manufacturing/ wood chemical industry
- *2 Reagents containing cadmium and its compounds, cyanogen compounds, organophosphorous compounds (limited to diethyl paranitrophenyl thiophosphate (alias parathion), dimethylparanitrophenyl thiophosphate (alias parathion-methyl), dimethylethylmercapto ethylthiophosphate (alias demeton-methyl) and ethylparanitrophenylthiono benzenephosphonate (alias EPN), lead and its compounds, hexavalent chromium compounds, arsenic and its compounds, mercury, alkyl mercury and the other mercury compounds, polychlorobiphenyl, trichloroethylene, tetrachloroethylene, dichloromethane, carbon tetrachloride, 1, 2 - dichloroethane, 1, 1 - dichloroethylene, 1, 2 – dichloroethylene, 1, 1, 1 – trichloroethane, 1, 1, 2 – trichloroethane, 1, 3 – dichloropropene, tetramethylthiuram disulfide (alias thiuram), 2-chloro-4,6-bis (ethylamino)- S-Triazine (alias simazine), N,N-Diethylthiocarbamic acid S- (4-chlorobenzyl) ester (alias

Thiobencarb), benzene, selenium and its compounds, boron and its compounds, fluorine and its compounds, ammonia, ammonium compounds, nitrous acid compounds and nitric acid compounds, vinyl chloride monomer, and 1, 4 - dioxane

*3

1. National or local government research and development institutes (excluding those pertaining only to humanities and social sciences)
2. Universities and research and development institutes affiliated with the universities (excluding those pertaining only to humanities and social sciences)
3. Institutes conducting research and development related to academic research (excluding those pertaining only to humanities and social sciences), product manufacturing, or technology improvement, device or invention (excluding institutes corresponding to the preceding two items)
4. High schools, colleges of technology, specialized training colleges, schools for specialized education, employee training facilities or vocational training facilities conducting professional education including courses related to agriculture, fisheries or industries
5. Health centers
6. Quarantine stations
7. Animal quarantine stations
8. Plant protection stations
9. Livestock hygiene service centers
10. Work places belong to inspection business
11. Work places belong to commodity inspection business
12. Work places belong to clinical inspection business
13. Criminal identification facilities

Submission by the Government of Japan for the “information on the availability of monitoring data”

In response to the request from the secretariat to Governments to submit information relating to the compilation and analysis of the means of obtaining monitoring data for consideration by the committee at its seventh session, with an emphasis given to the capacity-building needs of developing countries and countries with economies in transition; to the role played by regional activities; and to the value of partnerships.

Japan has various mercury monitoring schemes including both mandatory and voluntary programmes. National government and local governments are undertaking mercury monitoring of ambient air, public water body, bio-samples, food, etc. following tables summarize the monitoring media/substances, analytical methods, monitoring sites, period and frequency and responsible parties of the monitoring.

Mercury Monitoring in Japan

Monitoring conducted by National Government and Institute

Media & Substance	Measuring Method / Analytical Method	Monitoring Site/ number of samples	Monitoring Period & Frequency	Responsible party	Note
Atmospheric Gaseous Elementary Mercury (GEM), Gaseous Oxidized Gaseous Organic Mercury (GOM) and Particle Bound Particulate-bound Mercury (PBM)	Using TEKRAN	Cape Hedo (Okinawa pref.)	GEM: Since 2007.Oct. GOM, PBM: Since 2009.Oct. Continuous Measuring	Ministry of the Environment (MOE) / National Institute for Environmental Studies (NIES)	
		Oga Peninsula (Akita pref.)	Since 2014.Aug. Continuous Measuring	MOE / (NIES)	
		Fukuoka (Fukuoka pref.)	Since 2013.Jun. Continuous Measuring	National Institute for Minamata Disease (NIMD)	
		Kashiwazaki (Niigata pref.)	2013.Nov.1 - Dec.17	NIES / Niigata Institute of Technology	
		Yaizu (Shizuoka pref.)	2010.Feb. - Mar., 2011.Jan. - Mar., 2011.Dec. - 2012.Mar., 2013.Jan. - Mar.	NIES	
Atmospheric PBM, GEM, GOM and Total Gaseous Mercury (TGM)	- Filter Pack Method (PBM) - Manual sampling for GEM, GOM and PBM - TGM using NIC Hg monitor	Minamata (Kumamoto pref.) Hirado (Nagasaki pref.)	Since Mar. 2011 - FP Method: Weekly Since 2008.Sep. (Minamata), Since 2011.Jun. (Hirado) - Manual sampling: 6 -8 days for a month or for seasonally 2011.Jan- 2013 Dec. (Minamata), 2011.Aug.-2014 Apr. (Hirado) - NIC Hg monitor: one week per month Since 2011 Mar.	NIMD	
Atmospheric PBM	Filter Pack Method	Omaezaki (Shizuoka pref.) Fukuoka (Fukuoka pref.)	Since 2013.Dec. (Omaezaki), Since 2013.Jun. (Fukuoka), Weekly	NIMD	
Wet deposition Total Mercury (THg)		Cape Hedo (Okinawa pref.)	Since 2008 Apr., Weekly	MOE / NIES	
		Oga Peninsula (Akita pref.)	Since 2014 Sep., Weekly	MOE / (NIES)	
Fukuoka (Fukuoka pref.)		Since 2013.Jun., Weekly	NIMD		
Minamata (Kumamoto pref.)		Since 2008.Sep., Weekly (MeHg: finished on 2013.May.)			
Hirado (Nagasaki pref.)		Since 2011.Jun., Weekly (MeHg: finished on 2013.May.)			
Wet deposition Total Mercury (THg)		Omaezaki (Shizuoka pref.)		Since 2013.Dec., Weekly	
Atmospheric TGM	Atomic absorption method, with gold amalgam collecting and heating vaporization (in MOE “Monitoring Manual for Hazardous Air Pollution Survey”, (2011))	Nationwide 261 sites (in 2013)	Since 1998 Monthly, 24 hour continuous sampling	MOE Local Government	“Monitoring Surveillance of Hazardous Air Pollutants” URL: <https://www.env.go.jp/air/osen/monitoring/> in Japanese NIES “Environment-GIS” site: <http://tenbou.nies.go.jp/gis/> in Japanese
Water (River, Lake/Reservoir, Sea) THg Alkyl Mercury	THg: Atomic absorption method Alkyl Mercury: Gas chromatography analysis (in MOE “Monitoring Manual for Water Quality Survey” (1961))	THg (in 2013): Nationwide: River 2,988 sites, Lake/Reservoir 248 sites, Sea 833 sites Alkyl Mercury (in 2013): Nationwide: River 651 sites, Lake/Reservoir 68 sites, Sea 175 sites	Since 1971 Monthly in General	MOE Local Government	“Water Quality Survey of Public Water Areas” URL : <https://www.env.go.jp/water/suiiki/index.html> in Japanese NIES “Environment-GIS” site: <http://tenbou.nies.go.jp/gis/> in Japanese

Media & Substance	Measuring Method / Analytical Method	Monitoring Site/ number of samples	Monitoring Period & Frequency	Responsible party	Note
Surface and Deep Seawater and Sediment	Sea Water: (in MOE “Marine Environment Monitoring Guidelines”) Sediment: MOE “Monitoring Manual for Sediment Survey” (2012)	Coastal sea and offshore deep sea area around Japan	Since 1998 (“Marine Environment Monitoring Survey”)、 1975-1994 (“Japanese Coastal Waters Survey”)	MOE	Marine Environment Monitoring Survey since 1998 URL: < https://www.env.go.jp/water/kaiyo/monitoring.html > Status Report (2009) URL: < http://www.env.go.jp/water/kaiyo/monitoring/status_report.html > English version available NIES “Environment-GIS” site: < http://tenbou.nies.go.jp/gis/ > in Japanese
Surface and Deep Seawater	Cold vapor atomic absorption spectrophotometry with hydride generation and gold trap separation	Sea area around Japan and the western North Pacific (long.137E and 165E observation lines).	Since 1972 (Reliable data are available since 1995)	Japan Meteorological Agency (JMA)	“Air-Sea Environment Observation” JMA “Health Diagnosis of the Ocean” Comprehensive Diagnosis Result - rev. 2 URL: < http://www.data.jma.go.jp/kaiyou/shindan/sougou/index.html > URL: < http://www.data.jma.go.jp/kaiyou/shindan/sougou/html_vol2/3_3_vol2.html > Data: < http://www.data.jma.go.jp/gmd/env/data/report/data/ >
Wet Deposition		Minamitorishima(Tokyo Metropolis)	Since 1996 Jan. ,Daily		
Surface Seawater, Sediment	Seawater: Atomic fluorescence spectrometry (Cold vapor method), with hydride generation and gold trap separation Sediment: Atomic absorption spectrophotometry (Cold vapor method) with heating vaporization, and gold trap separation	12 coastal seas (including Tokyo bay, Ise bay, and Osaka Bay)	Since 1973	Japan Coast Guard	“Report of Marine Pollution Surveys” The Hydrographic and Oceanographic Department, Japan Coast Guard website “Results of Marine Pollution Surveys” URL: < http://www1.kaiho.mlit.go.jp/KANKYO/OSEN/osen.html > in Japanese
Human Blood THg		Approx. 100,000 expecting mothers	Since 2014	MOE	the Japan environment and children’s study (JECS) URL: < http://www.env.go.jp/chemi/ceh/ > Research paper: < http://www.biomedcentral.com/1471-2458/14/25 >
Umbilical Blood, Urine, Breast Milk, Hair THg			To be started		
Human THg (Blood, Food), MeHg (Food)		Approx. 80 persons per year (Blood: THg, Total 253 persons in 2011-2013) (Food: THg and MeHg, Total 45 persons in 2011-2013)	Since 2011	MOE	“Survey of the Exposure to Dioxins and other chemical compounds in Humans” URL: < http://www.env.go.jp/chemi/dioxin/pamph/cd/index.html > Brochure “The Exposure to Dioxins and other chemical compounds in the Japanese People”: < http://www.env.go.jp/chemi/dioxin/pamph/cd/en_full.pdf > in English
Food (Fishery Product) THg and MeHg		Total 501 samples (15 fish species)	FY2002～2004	Fisheries Agency	MAFF official site: “Substances contained in Fishery Products that can cause health deterioration” URL: < http://www.maff.go.jp/j/syouan/tikusui/gyokai/g_kenko/busitu/index.html > “Results of Mercury Concentration Survey in Fishery Products”, Fisheries Agency, FY2002-2004 URL: < http://www.maff.go.jp/j/syouan/tikusui/gyokai/g_kenko/busitu/pdf/suigin0.pdf >
		Total 1800 samples (120 samples for each 15 fish species) within 4 fiscal years	FY2007～2010	Ministry of Agriculture, Forestry and Fisheries (MAFF)	“ Data Collection of the Results of Surveillance / Monitoring for Chemical Hazards in Foods”, MAFF, FY2003-2010 URL: < http://www.maff.go.jp/j/syouan/seisaku/risk_analysis/survei/pdf/chem_15-22.pdf > (P168-169), in Japanese
Food (Agricultural Product) THg		Total 4024 samples (cereal grains, pulses, vegetables, fruits, edible fungi; 31 commodities)	FY2003～2010	MAFF	“Data Collection of the Results of Surveillance / Monitoring for Chemical Hazards in Foods”, MAFF, 2003-2010 URL: < http://www.maff.go.jp/j/syouan/seisaku/risk_analysis/survei/pdf/chem_15-22.pdf >, (P17,27,34,38,43,44,47,52,58,63,74,81,86,91,92,97,103,111,112,117,123,130,133,138,143,147,148,151,156,161,165), in Japanese
Food (Canned Vegetable) Mercury		Sweet corn: 39 samples Red beans: 39 samples Tomatoes: 33 samples	FY2011	MAFF	“Data Collection of the Results of Surveillance/ Monitoring for Chemical Hazards in Foods”, MAFF, 2011-2012 URL: < http://www.maff.go.jp/j/syouan/seisaku/risk_analysis/survei/pdf/chem_23-24_.pdf >, (P116), in Japanese
Food (Fishery Product) THg and MeHg		“Results of Mercury Concentration Survey in the Fishery Product (Summary)” Results of analyses in Japan: Total 16,437 samples (453 fish species)		Ministry of Health, Labour and Welfare, Local Governments	URL: < http://www.mhlw.go.jp/shingi/2010/05/s0518-8.html >, in Japanese Hand out of section meeting for veterinary and fishery food, Subcommittee for food sanitation, Pharmaceutical Affairs and Food Sanitation Council held in May 18 2010

Media & Substance	Measuring Method / Analytical Method	Monitoring Site/ number of samples	Monitoring Period & Frequency	Responsible party	Note
Tap water THg	The method determined by the Minister of Health, Labour and Welfare on the basis of the Ordinance of the provisions relating to water quality standards (Ministry of Health, Labour and Welfare Notification No. 261, 2003)	Raw water: 5,206 sites (Surface Stream Water, Lake/Reservoir, Ground Water) Clarified water: 5,357 sites (Surface Stream Water, Lake/Reservoir, Ground Water)	Annual	Public Water Supplier	Cabinet Office, Food Safety Commission The 7 th Executive Board Meeting of Expert Panel for Chemical Substance and Contaminated Substance Handout No.1: the Evaluation Report on Soft Drink (draft) –Mercury P25 URL: <https://www.fsc.go.jp/fsciiis/meetingMaterial/show/kai20120127ka1>, in Japanese “Inspection Method for Water Quality Standards” URL: <http://www.mhlw.go.jp/stf/seisakunitsuite/bunya/topics/bukyoku/kenkou/suido/suishitsu/06.html>, in Japanese

Monitoring Examples operated by Local Governments in Japan (Niigata Prefecture, Kumamoto Prefecture and Kagoshima Prefecture)

Media & Substance	Measuring Method / Analytical Method	Monitoring Site/ number of samples	Monitoring Period & Frequency	Responsible party	Note
River water, Sediment THg and Alkyl Mercury		Agano river River water: 5 samples Sediment: 6 samples	Since 2014	Niigata Prefectural Government, Ministry of Land, Infrastructure, Transport and Tourism, Hokuriku Regional Development Bureau	“Water quality survey for public water body and groundwater (2014) < http://www.pref.niigata.lg.jp/kankyotaisaku/1356804294956.html >, in Japanese
Groundwater THg and Alkyl Mercury		Agano river basin 13 samples	Since 2014	Niigata Prefectural Government,	
Fish THg and Alkyl Mercury		Agano river 3 sites, total 45 samples	Since 2014	Niigata Prefectural Government, Niigata Prefectural Institute of Public Health and Environmental Science	“Mercury Content Survey in Fish at the Agano River” URL: < http://www.pref.niigata.lg.jp/hokanken/1356782993697.html > in Japanese
Sea Water, Groundwater, Sediment THg		Minamata Bay (in 2013) Sea Water: 8 samples, Groundwater: 4 samples, Sediment: 3 samples		Kumamoto Prefectural Government, Kumamoto Prefectural Institute of Public Health and Environmental Science	“Minamata bay Water Environment Survey” Annual Report Vol.43 (2013), Kumamoto Prefectural Institute of Public Health and Environmental Science URL: < https://www.pref.kumamoto.jp/ki_ji_5707.html >
Atmospheric Hg		12 sites (in 2005), and 3 sites in Minamata bay reclaimed land (waste landfill) (in 2002)		Kumamoto Prefectural Government, Kumamoto Prefectural Institute of Public Health and Environmental ScienceKyushu Electric Power Company	Reference: Brochure ”For your sound understanding on trace amount of mercury in the environment”, Kumamoto Prefecture URL: < http://www.kumamoto-eco.jp/fout/contents.php?id=111 > in Japanese
Monitoring Well Water and Surface Stream Water around waste landfills THg		Surrounding areas of waste landfills of JNC Corp. located in Minamata city (8 Monitoring sites), and The Nippon Synthetic Chemical Industry Co.Ltd. Located in Uto city (8 Monitoring sites)	Since 1973	Kumamoto Prefectural Government	Environmental monitoring around waste landfills that built before implementation of Wastes Disposal and Public Cleansing Act Reference: Brochure ”For your sound understanding on trace amount of mercury in the environment”, Kumamoto Prefecture URL: < http://www.kumamoto-eco.jp/fout/contents.php?id=111 > in Japanese
Captured fish THg and MeHg		Minamata Bay Rockfish and Wrasse Approx. 10 samples each		Kumamoto Prefectural Government,	Environmental Survey based on Minamata Bay Environmental Measure Basic Policy Reference: Brochure ”For your sound understanding on trace amount of mercury in the environment”, Kumamoto Prefecture URL: < http://www.kumamoto-eco.jp/fout/contents.php?id=111 > in Japanese
Fishery Product THg and MeHg		Kagoshima Bay Total 39 samples (6 fish species) (in FY2013)	Delegated task by Prefectural Government	Kagoshima Prefectural Institute for Environmental Research and Public Health	Annual Report of Kagoshima Prefectural Institute for Environmental Research and Public Health (2014 Dec.) URL: < https://www.pref.kagoshima.jp/ad08/kurashi-kankyo/kankyo/kankyohoken/shoho/documents/44515_20150317115915-1.pdf >, in Japanese
Human Hair THg		Residents in coastal area of the Shiranui sea (Member of Fisheries Cooperative Association) 15 persons (in FY2013)	Since 1977, Annual	Environment and Forestry Division, Kagoshima Prefectural Government	Mercury analysis contained in human hair Environmental White Paper (2014), Kagoshima Prefecture URL: < http://www.pref.kagoshima.jp/ad01/kurashi-kankyo/kankyo/sougou/hakusho/h26/documents/44898_20150406182403-1.pdf >, in Japanese