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MARINE ENVIRONMENT PROTECTION COMMITTEE
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Agenda item 3

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RECYCLING OF SHIPS

Report of the Working Group on Guidelines for Ship Recycling

General

1 The Working Group on Guidelines for Ship Recycling met from 13 to 15 July 2009 under the chairmanship of Miss Katy Ware (United Kingdom).

2 The Group was attended by delegations from:

ARGENTINA
BANGLADESH
BELGIUM
BRAZIL
CANADA
CHINA
CYPRUS
DENMARK
FINLAND
FRANCE
GERMANY
GREECE
INDIA
INDONESIA
IRAN (ISLAMIC REPUBLIC OF)
ITALY
JAPAN
LIBERIA
MARSHALL ISLANDS
NETHERLANDS
NIGERIA
NORWAY
POLAND
PORTUGAL
REPUBLIC OF KOREA
RUSSIAN FEDERATION
SAUDI ARABIA
SINGAPORE
SOUTH AFRICA
SPAIN
SWEDEN
TURKEY
UNITED KINGDOM
UNITED STATES

by representatives of the following Associate Member State of IMO:

HONG KONG, CHINA

by representatives from the following United Nations Specialized Agencies:

UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP) (SECRETARIAT OF THE BASEL CONVENTION)
INTERNATIONAL LABOUR ORGANIZATION (ILO)
INTERNATIONAL ATOMIC ENERGY ASSOCIATION (IAEA)

by observers from the following intergovernmental organization:

EUROPEAN COMMISSION (EC)

and by observers from the following non-governmental organizations:

INTERNATIONAL CHAMBER OF SHIPPING (ICS)
INTERNATIONAL ASSOCIATION OF CLASSIFICATION SOCIETIES (IACS)
BIMCO
INTERNATIONAL ASSOCIATION OF INDEPENDENT TANKER OWNERS (INTERTANKO)
GREENPEACE INTERNATIONAL
WORLD NUCLEAR TRANSPORT INSTITUTE (WNTI)
ROYAL INSTITUTION OF NAVAL ARCHITECTS (RINA)

Terms of Reference

3 Using the report of the correspondence group on ship recycling guidelines (documents MEPC 59/3 and MEPC 59/3/1 by Japan) as basis, the Working Group on Guidelines for Ship Recycling is instructed to:

.1 further develop and, if possible, finalize the "guidelines for the development of the Inventory of Hazardous Materials", taking into account the comments and proposals in document MEPC 59/3/8 (IACS);

.2 further develop the "guidelines for safe and environmentally sound ship recycling", taking into account the comments and proposals in document MEPC 59/3/7 (United States);

.3 consider documents MEPC 59/3/2 (Republic of Korea) and MEPC 59/3/4 (Marshall Islands) and propose an appropriate course of action;

.4 propose an appropriate sequence for the development of the guidelines associated with the Hong Kong Convention, in line with resolutions 4 and 5 of the 2009 International Conference on the Safe and Environmentally Sound Recycling of Ships;

.5 develop draft terms of reference for an intersessional correspondence group on Guidelines for Ship Recycling; and

.6 provide a written report to plenary on Thursday, 16 July 2009.

Statement by the International Atomic Energy Agency (IAEA)

4 The representative of the IAEA stated that any guidance on the application of the Hong Kong Convention which could be related to radioactive materials known to be used in the naval industry (for example: ship ballast with depleted uranium; radioactive sources for metrology purposes; or radioactive residues which are the result of processes, like naturally occurring radioactive materials in the oil and gas production and transport) should be developed in accordance with the IAEA safety standards for the radiation protection of people and of the environment.

5 Moreover, the IAEA expressed its willingness to cooperate in revising or developing guidelines in order to ensure that the issue of radioactive materials is addressed by the IMO in a manner consistent with existing international standards, which are in place in IAEA Member States and under the control of their national competent authorities in charge of regulatory matters involving radioactive substances.

Guidelines for the development of the Inventory of Hazardous Materials

6 Japan introduced document MEPC 59/3 containing Part I of the report of the correspondence group on ship recycling guidelines on the "Guidelines for the development of the Inventory of Hazardous Materials" (the Inventory guidelines).

7 Some members of the group felt that, whereas good overall progress had been achieved in the development of the Inventory guidelines, the draft text produced by the correspondence group might be overly complex and this might inhibit implementation. Other members of the group however stressed that the draft text provided clarity, to what is a complex issue, and ensured the comparability of inventories produced worldwide. Furthermore, the user friendliness of the draft guidelines had been proven in actual trials.

8 The correspondence group report had highlighted a number of matters which either needed further consideration before consensus is reached, or which had not been subject to sufficient discussion (paragraphs 8.1 to 8.9 of document MEPC 59/3). The working group discussed extensively all these outstanding issues and reached the following conclusions:

.1 *Treatment of Table D in appendix 1*: It was agreed to restrict Table D to domestic and accommodation appliances which would be listed in Part III of the Inventory. It was also agreed that ship specific equipment integral to ship operations would not be included in Table D but would be listed in Part I of the Inventory.

.2 *"Intentionally Added" (section 2 and section 4.1.3)*: There was a recognition by members of the group that trace quantities of Hazardous Materials could be unintentionally introduced in products or could arise out of unnoticed cross-contamination. At the same time, the group wished to avoid creating a loophole in the guidelines through the introduction of this concept in the text of the guidelines. There was considerable discussion on this matter which led to the introduction of a footnote in Tables A and B, stating, in line with Stockholm Convention, that for materials in these Tables with no threshold value, quantities occurring as unintentional trace contaminants should not be listed in Material Declarations and in the Inventory.

.3 *"Intentionally Added" (another issue) (section 2)*: This issue was addressed satisfactorily with the approach discussed under item .2 above.

.4 *Materials not required to be listed in the Inventory (section 3.3)*: This issue addressed the need to exempt from mandatorily listing solid metals or metal alloys used in a ship's general construction that contains hazardous materials listed in Table B. The group following some discussion agreed upon suitable language. A proposal to exempt a list of other products, based on the RoHS (Restrictions on the use of Hazardous Substances in electronic equipment) Directive, was not accepted by the group.

.5 *Treatment of the cases where the necessary Material Declaration (MD) cannot be obtained for the development of Part I of the Inventory for new ships (section 4.1.1)*: The report of the correspondence group had proposed two alternatives for dealing with cases when a supplier to a shipyard has not provided the required Material Declarations. After a debate the group concluded that it was counterproductive for the guidelines to legitimize non compliance to the requirements of the Convention and therefore agreed to delete this provision from the text of the draft guidelines. The delegation of France however stressed that in practice it is inevitable that some suppliers will fail to deliver Material Declarations for their products and therefore a rational procedure is needed for dealing with this problem. The same delegation noted that as the draft guidelines did not address this issue, this will not help their early voluntary implementation.

.6 *Approval of Visual/Sampling Check Plan either by the Administration or by any person or organization authorized by it (section 4.2.4)*: The text of the draft guideline included a provision for the approval by the Administration/RO of the visual/sampling check plan. The majority of the group agreed that this provision went beyond the requirements of the Convention and it was therefore agreed to delete it.

.7 *Grouping of materials in Sampling Check (section 4.2.5)*: The text in the draft guidelines contained the idea that materials likely to be of the same kind can be grouped in order to reduce the analytical work involved in sampling them. The group agreed upon suitable language which maintained the intended practical benefits.

.8 *Treatment of PCHM (section 4.2.6, appendix 4.*6 and appendix 5.4)*: The correspondence group had posed the question whether flexibility should be given to Ship Recycling Facilities regarding PCHM (potentially containing Hazardous Materials) so that they can choose either to: 1) accept that the PCHM is a hazardous material and to dispose of it as such; or 2) sample the material in question and dispose of it according to the sampling result. After discussion, the group concluded that, as the Inventory guidelines address the development of the Inventory for ships, they do not need to specify how the Ship Recycling Facilities should deal with PCHM. The group however agreed that this issue should be addressed during the development of the Facility guidelines.

.9 *Treatment of small amount of Lubricating Oil, Anti-seize Compounds and Grease which is applied to or injected into machinery and equipment (section 4.5.3)*: The group agreed text addressing this practical issue of exempting small amounts of Lubricating Oil, grease, etc., from the Inventory guidelines. The agreed text did not specify any specific quantities but it was understood that these should be less than one kilogram or one litre. It was noted by some in the group that it might be useful to develop a list of equipment which come under the remit of section 4.5.3 of the draft guidelines.

9 IACS introduced its document MEPC 59/3/8 commenting on the report of the correspondence group and making a number of proposals on the text of the draft guidelines. The matters raised by IACS were resolved by the group during its consideration of the report of the correspondence group. There was one proposal however that the majority of the group could not agree to. IACS had proposed, in addition to the provision for structuring the three lists of the Visual/sampling check plan by equipment, system and area, to also make a provision for structuring it according to Hazardous Materials. After extensive discussion IACS agreed to withdraw its proposal and revert at a future time with a detailed proposal introducing a hazard-based approach for the development of the Visual/sampling check plan.

10 The group completed its consideration of the text of the draft guidelines paragraph by paragraph, introducing improvements to the text. The group agreed that there had been limited discussion so far and that there had been no assessment made on the actual threshold values used in Tables A and B and therefore that the subject of threshold values was likely to be discussed again at a future MEPC session. Regarding the "Examples of Table A and Table B materials of appendix 1 with CAS numbers" listed in Appendix 8 of the draft guidelines, the group agreed that the list in the appendix is not exhaustive but that it represents examples of chemicals with known CAS numbers and may require periodical updating, possibly by the Technical Group envisaged by regulation 7 of the Hong Kong Convention.

Guidelines for safe and environmentally sound ship recycling

11 Japan introduced document MEPC 59/3/1 containing Part II of the report of the correspondence group on ship recycling guidelines on the development of the "Guidelines for Safe and Environmentally Sound Ship Recycling" (the Facility guidelines). The group agreed with the correspondence group's conclusion to request the Committee to re-establish an intersessional correspondence group in order to continue the detailed work on the Facility guidelines with a view to their finalization at MEPC 60.

12 The group agreed that the structure for the guidelines proposed in annex 3 of document MEPC 59/3/1 should be used as the base structure for the further development of the guidelines. Furthermore, the group concurred to the intersessional correspondence group to be established should use the text contained in annex 1 of document MEPC 59/3/1 as the basis for the further development of the draft text of the Facility guidelines. It was also decided that the correspondence group to be established should give consideration to the technical information and guidance contained in annex 2 of document MEPC 59/3/1 that could be introduced as appendices in the Facility guidelines.

13 The United States introduced document MEPC 59/3/7 proposing the introduction of guidance in the Facility guidelines for safe-for-entry and safe-for-hot-work conditions. The group supported the proposal by the United States and it was agreed that the United States and other delegations would propose specific text to the correspondence group addressing the issue of safe-for-entry and safe-for-hot-work conditions, as well as further text to that contained in annex 1 of document MEPC 59/3/1. Some concerns were raised by two delegations about the danger of setting over-prescriptive requirements for Ship Recycling Facilities which, furthermore, may not be in line with domestic legislation in ship recycling States.

Consideration of two submissions on other guidelines

14 The Republic of Korea introduced document MEPC 59/3/2 containing a proposal for the Committee to develop guidelines for Competent Authorities to facilitate the delegation to Recognized Organizations for the authorization of Ship Recycling Facilities. The group was supportive of the proposal and agreed that a guidance document should be developed rather than another set of guidelines.

15 The Marshall Islands introduced document MEPC 59/3/4 requesting the Committee to develop guidelines concerning the recycling of flagless and non-Party ships by Parties to the Convention, whilst noting that the Committee of the Whole at the diplomatic Conference had agreed to the proposal of the Marshall Islands regarding the need for the development of such guidance. The group agreed to the need for the proposed development, and decided that it would be best to develop stand-alone guidance addressing this issue. Furthermore, the group agreed that a guidance document should be developed rather than another set of guidelines.

Proposed sequence for the development of the guidelines

16 The group, taking into account resolution 4 on the future work by the Organization pertaining to the Hong Kong Convention and resolution 5 on the early implementation of the technical standards of the Hong Kong Convention, adopted by the diplomatic Conference, proposed that the guidelines associated with the Convention are developed and adopted as soon as practicable and in the following order of priority:

.1 guidelines for the development of the Inventory of Hazardous Materials;

.2 guidelines for safe and environmentally sound ship recycling;

.3 guidelines for the development of the Ship Recycling Plan;

.4 guidelines for the authorization of Ship Recycling Facilities;

.5 guidelines for survey and certification;

.6 guidelines for inspection of ships; and

.7 any other guidelines or circulars as may be identified by MEPC.

17 The group agreed that the proposed order of priority may be reviewed as required in the future.

Draft terms of reference for the correspondence group

18 The group developed the following draft terms of reference for the intersessional correspondence group on Guidelines for Ship Recycling:

> "On the basis of the outcome of MEPC 59 and the report of the Working Group MEPC 59/WP.7, the Correspondence Group on Ship Recycling Guidelines is instructed to:

.1 further develop the draft text of the "guidelines for safe and environmentally sound ship recycling" based on the text contained in annex 1 to document MEPC 59/3/1, with the view to their finalization during MEPC 60;

.2 if time is available, commence the development of the draft text of the "guidelines for the development of the Ship Recycling Plan";

.3 if time is available, commence the development of the draft text of the "guidelines for the authorization of Ship Recycling Facilities"; and

.4 report the outcome of its deliberations to MEPC 60."

Action requested of the Committee

19 The Committee is invited to approve the report in general and, in particular, to:

.1 note the discussions of the group leading to the finalization of the draft guidelines for the development of the Inventory of Hazardous Materials (paragraphs 6 to 10);

.2 adopt the Guidelines for the development of the inventory of hazardous materials by the MEPC resolution set out in annex;

.3 note the progress made by the group on the development of the draft guidelines for safe and environmentally sound ship recycling (paragraphs 11 to 13);

.4 note the outcome of the consideration of the group regarding the development of guidance to facilitate the delegation by Competent Authorities to Recognized Organizations for the authorization of Ship Recycling Facilities (paragraph 14);

.5 note the outcome of the consideration of the group regarding the development of guidance for the recycling of flagless and non-Party ships by Parties to the Convention (paragraph 15);

.6 consider the proposed sequence for the development of the guidelines associated with the Convention (paragraphs 16 to 17); and

.7 agree to the re-establishment of the intersessional correspondence group on Guidelines for Ship Recycling with the draft terms of reference (paragraph 18).

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ANNEX

DRAFT RESOLUTION MEPC.xxx(59)
Adopted on xx July 2009

GUIDELINES FOR THE DEVELOPMENT OF THE INVENTORY OF HAZARDOUS MATERIALS

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

RECALLING Article 38(a) of the Convention on the International Maritime Organization concerning the functions of the Marine Environment Protection Committee conferred upon it by the international conventions for the prevention and control of marine pollution,

RECALLING ALSO that the International Conference on the Safe and Environmentally Sound Recycling of Ships held in May 2009 adopted the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (the Hong Kong Convention) together with six Conference resolutions,

NOTING that regulations 5.1 and 5.2 of the Annex to the Hong Kong Convention require that ships shall have on board an Inventory of Hazardous Materials which shall be prepared and verified taking into account guidelines, including any threshold values and exemptions contained in those guidelines, developed by the Organization,

NOTING ALSO that regulation 5.3 of the Annex to the Hong Kong Convention requires that Part I of the Inventory of Hazardous Materials shall be properly maintained and updated throughout the operational life of the ship, taking into account the guidelines developed by the Organization,

NOTING FURTHER that regulation 5.4 of the Annex to the Hong Kong Convention requires that the Inventory shall also incorporate Part II for operationally generated wastes and Part III for stores and shall be verified, taking into account the guidelines developed by the Organization,

RECOLLECTING that the International Conference on the Safe and Environmentally Sound Recycling of Ships, in its resolution 4, invited the Organization to develop Guidelines for global, uniform and effective implementation and enforcement of the relevant requirements of the Convention as a matter of urgency,

HAVING CONSIDERED, at its fifty-ninth session, the draft Guidelines for the development of the inventory of hazardous materials developed by the Working Group on Guidelines for Ship Recycling,

1. ADOPTS the Guidelines for the development of the inventory of hazardous materials as set out in the Annex to this resolution;

2. INVITES Governments to apply the Guidelines as soon as possible, or when the Convention becomes applicable to them; and

3. AGREES to keep the Guidelines under review.

* * *

ANNEX

DRAFT GUIDELINES FOR THE DEVELOPMENT OF THE INVENTORY OF HAZARDOUS MATERIALS

1 Introduction

1.1 Objectives of the guidelines

These guidelines provide recommendations for developing the Inventory of Hazardous Materials (hereinafter referred to as "the Inventory") to assist compliance with regulation 5 (Inventory of Hazardous Materials) of the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (hereinafter referred to as "the Convention").

1.2 Application of the guidelines

These guidelines have been developed to provide relevant stakeholders (e.g., shipbuilders, equipment suppliers, repairers, shipowners and ship management companies) with the essential requirements for practical and logical development of the Inventory.

1.3 Objectives of the Inventory

The objectives of the Inventory are to provide ship-specific information on the actual Hazardous Materials present on board, in order to protect health and safety and to prevent environmental pollution at Ship Recycling Facilities. This information will be used by the Ship Recycling Facilities in order to decide how to manage the types and amounts of materials identified in the Inventory of Hazardous Materials (regulation 9).

2 Definitions

The terms used in these guidelines have the same meaning as those defined in the Convention, with the following additional definitions which apply to these guidelines only.

"Homogeneous material" means a material of uniform composition throughout that cannot be mechanically disjointed into different materials, meaning that the materials cannot, in principle, be separated by mechanical actions such as unscrewing, cutting, crushing, grinding and abrasive processes.

"Product" means machinery, equipment, materials and applied coatings on board a ship.

"Supplier" means a company which provides products; which may be a manufacturer, trader or agency.

"Supply chain" means the series of entities involved in the supply and purchase of materials and goods, from raw materials to final product.

"Threshold level" is defined as the concentration value in homogeneous materials.

3 Requirements for the Inventory

3.1 Scope of the Inventory

The Inventory consists of:

Part I: Materials contained in ship structure or equipment;
Part II: Operationally generated wastes; and
Part III: Stores.

3.2 Materials to be listed in the Inventory

Appendix 1 of the guidelines, "Items to be listed in the Inventory of Hazardous Materials", provides information on the Hazardous Materials that may be found on board a ship. Materials set out in appendix 1 should be listed in the Inventory. Each item in appendix 1 of these guidelines is classified under "Table A", "Table B", "Table C" or "Table D" according to its properties:

.1 Table A comprises the materials listed in appendix 1 of the Convention;

.2 Table B comprises the materials listed in appendix 2 of the Convention;

.3 Table C (Potentially hazardous items) comprises items which are potentially hazardous to the environment and human health at Ship Recycling Facilities; and

.4 Table D (Regular Consumable Goods potentially containing Hazardous Materials) comprises goods which are not integral to a ship and are unlikely to be dismantled or treated at a Ship Recycling Facility.

Table A and Table B correspond to Part I of the Inventory. Table C corresponds to Parts II and III and Table D corresponds to Part III.

3.3 Materials not required to be listed in the Inventory

Materials listed in Table B that are inherent in solid metals or metal alloys, provided they are used in general construction, such as hull, superstructure, pipes, or housings for equipment and machinery are not required to be listed in the Inventory.

3.4 Standard format of the Inventory of Hazardous Materials

The Inventory should be developed on the basis of the standard format set out in appendix 2 of these guidelines: "Standard format of the Inventory of Hazardous Materials". Examples of how to complete the Inventory are provided for guidance purposes only.

4 Requirements for development of the Inventory

4.1 Development of Part I of the Inventory for new ships

4.1.1 Part I of the Inventory for new ships should be developed at the design and construction stage.

4.1.2 Checking of materials listed in Table A

During the development of the Inventory (Part I), the presence of materials listed in Table A of appendix 1 should be checked and confirmed; the quantity and location of Table A materials should be listed in Part I of the Inventory. If such materials are used in compliance with the Convention, they should be listed in Part I of the Inventory. Any spare parts containing materials listed in Table A are required to be listed in Part III of the Inventory.

4.1.3 Checking of materials listed in Table B

If materials listed in Table B of appendix 1 are present in products above the threshold levels provided in Table B, the quantity and location of the products and the contents of the materials present in them should be listed in Part I of the Inventory. Any spare parts containing materials listed in Table B are required to be listed in Part III of the Inventory.

4.1.4 Process for checking of materials

The checking of materials as provided in paragraphs 4.1.2 and 4.1.3 above should be based on the "Material Declaration" furnished by the suppliers in the shipbuilding supply chain (e.g., equipment suppliers, parts suppliers, material suppliers).

4.2 Development of Part I of the Inventory for existing ships

In order to achieve comparable results for existing ships with respect to Part I of the Inventory, the following procedure should be followed.

The procedure is based on the following steps:

.1 collection of necessary information;

.2 assessment of collected information;

.3 preparation of visual/sampling check plan;

.4 onboard visual check and sampling check; and

.5 preparation of Part I of the Inventory and related documentation.

The determination of Hazardous Materials present on board existing ships should, as far as practicable, be conducted as prescribed for new ships, including the procedures described in section 6 and 7 of these guidelines. Alternatively the procedures described in subsection 4.2 may be applied for existing ships, but these procedures should not be used for any new installation resulting from the conversion or repair of existing ships after the initial preparation of the Inventory.

The procedures described in subsection 4.2 should be carried out by the shipowner, who may draw upon expert assistance. Such an expert or expert party should not be the same as the person or organization authorized by the Administration to approve the Inventory.

Please refer to appendix 4: "Flow diagram for developing Part I of the Inventory for existing ships"; and appendix 5: "Typical example of development process for Part I of the Inventory for existing ships".

4.2.1 Collection of necessary information (Step 1)

The shipowner should identify, research, request, and procure all reasonably available documentation regarding the ship. Information that will be useful includes maintenance, conversion, and repair documents; certificates, manuals, ship's plans, drawings, and technical specifications; product information data sheets (such as Material Declarations); and hazardous material inventories or recycling information from sister ships. Potential sources of information could include previous shipowners, the ship builder, historical societies, classification society records, and ship recycling facilities with experience working with similar ships.

4.2.2 Assessment of collected information (Step 2)

The information collected in Step 1 above should be assessed. The assessment should cover all materials listed in Table A of appendix 1; materials listed in Table B should be listed as far as practicable. The results of the assessment should be reflected in the visual/sampling check plan.

4.2.3 Preparation of visual/sampling check plan (Step 3)

To specify the materials listed in appendix 1 of these guidelines a visual/sampling check plan should be prepared taking into account the collated information and any appropriate expertise. The visual/sampling check plan based on the following three lists:

- List of equipment, system and/or area for visual check (any equipment, system and/or area specified regarding the presence of the materials listed in appendix 1 by document analysis should be entered in the List of equipment, system and/or area for visual check);

- List of equipment, system and/or area for sampling check (any equipment, system and/or area which cannot be specified regarding the presence of the materials listed in appendix 1 by document or visual analysis should be entered in the List of equipment, system and/or area as requiring sampling check. A sampling check is the taking of samples to identify the presence or absence of Hazardous Material contained in the equipment, systems, and /or areas, by suitable and generally accepted methods such as laboratory analysis); and

- List of equipment, system and/or area classed as "potentially containing Hazardous Material" (any equipment, system and/or area which cannot be specified regarding the presence of the materials listed in appendix 1 by document analysis may be entered in the List of equipment, system and/or area classed as "potentially containing Hazardous Material" without the sampling check. The prerequisite for this classification is a comprehensible justification as to the impossibility of conducting sampling without compromising the safety of the ship and its operational efficiency).

Visual/sampling checkpoints should be all points where:

- the presence of materials to be considered for the Inventory Part I as listed in appendix 1 is likely;

- the documentation is not specific; or

- materials of uncertain composition were used.

4.2.4 Onboard visual/sampling check (Step 4)

The onboard visual/sampling check should be carried out in accordance with the visual/sampling check plan. When a sampling check is carried out, samples should be taken and the sample points should be clearly marked on the ship plan and the sample results referenced. Materials of the same kind may be sampled in a representative manner. Such materials are to be checked to ensure that they are of the same kind. The sampling check should be carried out drawing upon expert assistance.

Any uncertainty regarding the presence of Hazardous Materials should be clarified by a visual/sampling check. Checkpoints should be documented in the ship's plan and may be supported by photographs.

If the equipment, system and/or area of the ship are not accessible for a visual check or sampling check, they should be classified as "potentially containing Hazardous Material". The prerequisite for such classification should be the same prerequisite as in section 4.2.3. Any equipment, system and/or area classed as "potentially containing Hazardous Material" may be investigated or subjected to a sampling check at the request of the shipowner during a later survey (e.g., during repair, refit, or conversion).

4.2.5 Preparation of Part I of the Inventory and related documentation (Step 5)

If any equipment, system and/or area is classed as either "containing Hazardous Material" or "potentially containing Hazardous Material", their approximate quantity and location should be listed in Part I of the Inventory. These two categories should be indicated separately in the remarks column of the Inventory of Hazardous Materials.

4.2.6 Diagram of the location of Hazardous Materials on board a ship

Preparation of a diagram showing the location of the materials listed in Table A is recommended in order to help Ship Recycling Facilities gain a visual understanding of the Inventory.

4.3 Maintaining and updating Part I of the Inventory during operations

4.3.1 Part I of the Inventory should be appropriately maintained and updated, especially after any repair or conversion or sale of a ship.

4.3.2 Updating of Part I of the Inventory in the event of new installation

If any machinery or equipment is added to, removed or replaced or the hull coating is renewed, Part I of the Inventory should be updated according to the requirements for new ships as stipulated in subsections 4.1.2 to 4.1.4. Updating is not required if identical parts or coatings are installed or applied.

4.3.3 Continuity of Part I of the Inventory

Part I of the Inventory should belong to the ship and the continuity and conformity of the information it contains should be confirmed, especially if the flag, owner or operator of the ship changes.

4.4 Development of Part II of the Inventory (operationally generated waste)

4.4.1 Once the decision to recycle a ship has been taken, Part II of the Inventory should be developed before the final survey, taking into account that a ship destined to be recycled shall conduct operations in the period prior to entering the Ship Recycling Facility in a manner that minimizes the amount of cargo residues, fuel oil and wastes remaining on board (regulation 8.2).

4.4.2 Operationally generated wastes to be listed in the Inventory

If the wastes listed in Part II of the Inventory provided in "Table C (Potentially hazardous items)" of appendix 1 are intended for delivery with the ship to a Ship Recycling Facility, the quantity of the operationally generated wastes should be estimated and their approximate quantities and locations should be listed in Part II of the Inventory.

4.5 Development of Part III of the Inventory (stores)

4.5.1 Once the decision to recycle has been taken, Part III of the Inventory should be developed before the final survey, taking into account the fact that a ship destined to be recycled shall minimize the wastes remaining on board (regulation 8.2). Each item listed in Part III should correspond to the ship's operations during its last voyage.

4.5.2 Stores to be listed in the Inventory

If the stores to be listed in Part III of the Inventory provided in Table C of appendix 1 are to be delivered with the ship to a Ship Recycling Facility, the unit (e.g., capacity of cans and cylinders), quantity and location of the stores should be listed in Part III of the Inventory.

4.5.3 Liquids and gases sealed in ship's machinery and equipment to be listed in the Inventory

If any liquids and gases listed in Table C of appendix 1 are integral in machinery and equipment on board a ship, their approximate quantity and location should be listed in Part III of the Inventory. However, small amounts of lubricating oil, anti-seize compounds and grease which are applied to or injected into machinery and equipment to maintain normal performance do not fall within the scope of this provision. For subsequent completion of Part III of the Inventory during the recycling preparation processes, the quantity of liquids and gases listed in Table C of appendix 1 required for normal operation, including the related pipe system volumes, should be prepared and documented at the design and construction stage. This information belongs to the ship, and continuity of this information should be maintained if the flag, owner or operator of the ship changes.

4.5.4 Regular consumable goods to be listed in the Inventory

Regular consumable goods, as provided in Table D of appendix 1should not be listed in Part I or Part II but should be listed in Part III of the Inventory if they are to be delivered with the ship to a Ship Recycling Facility. A general description including the name of item (e.g., TV set), manufacturer, quantity and location should be entered in Part III of the Inventory. The check on materials provided for in paragraphs 4.1.2 and 4.1.3 of the guidelines does not apply to regular consumable goods.

4.6 Description of location of Hazardous Materials on board

The locations of Hazardous Materials on board should be described and identified using the name of location (e.g., second floor of Engine-room, Bridge DK, APT, No.1 Cargo Tank, Frame number) given in the plans (e.g., General Arrangement, Fire and Safety Plan, Machinery Arrangement or Tank Arrangement).

4.7 Description of approximate quantity of Hazardous Materials

In order to identify the approximate quantity of Hazardous Materials, the standard unit used for the of Hazardous Materials should be kg, unless other units (e.g., m^3 for materials of liquid or gases, m^2 for materials used in floors or walls) are considered more appropriate. An approximate quantity should be rounded up to at least two significant figures.

5 Requirements for ascertaining the conformity of the Inventory

5.1 Design and construction stage

The conformity of Part I of the Inventory at the design and construction stage should be ascertained by reference to the collected "Supplier's Declaration of Conformity" described in section 7 and the related "Material Declarations" collected from suppliers.

5.2 Operational stage

Shipowners should implement the following measures in order to ensure the conformity of Part I of the Inventory:

.1 designate a person as responsible for maintaining and updating the Inventory (the designated person may be employed ashore or on board);

.2 the designated person, in order to implement subsection 4.3.2, should establish and supervise a system to ensure the necessary updating of the Inventory in the event of new installation;

.3 to maintain the Inventory including dates of changes or new deleted entries and the signature of the designated person; and

.4 provide related documents as required for the survey or sale of the ship.

6 Material Declaration

6.1 General

Suppliers to the shipbuilding industry should identify and declare whether or not the materials listed in Table A or Table B are present above the threshold level specified in appendix 1 of these guidelines. However, this provision does not apply to chemicals which do not constitute a part of the finished product.

6.2 Information required in the declaration

At a minimum the following information is required in the Material Declaration:

.1 date of declaration;

.2 Material Declaration identification number;

.3 supplier's name;

.4 product name (common product name or name used by manufacturer);

.5 product number (for identification by manufacturer);

.6 declaration of whether or not the materials listed in Table A and Table B of appendix 1 of these guidelines are present in the product above the threshold level stipulated in appendix 1 of these guidelines; and

.7 mass of each constituent material listed in Table A and/or Table B of appendix 1 of these guidelines if present above threshold level.

An example of a Material Declaration is shown in appendix 6.

7 Supplier's Declaration of Conformity

7.1 Purpose and scope

The purpose of the Supplier's Declaration of Conformity is to provide assurance that the related Material Declaration conforms to section 6.2, and to identify the responsible entity.

The Supplier's Declaration of Conformity remains valid as long as the products are present on board.

The supplier compiling the Supplier's Declaration of Conformity should establish a company policy[1]. The company policy on the management of the chemical substances in products which the supplier manufactures or sells should cover:

.a Compliance with law:

The regulations and requirements governing the management of chemical substances in products should be clearly described in documents which should be kept and maintained; and

.b Obtaining of information on chemical substance content:

In procuring raw materials for components and products, suppliers should be selected following an evaluation, and the information on the chemical substances they supply should be obtained.

[1] A recognized quality management system may be utilized.

7.2 Contents and format

The Supplier's Declaration of Conformity should contain the following:

.1 unique identification number;

.2 name and contact address of the issuer;

.3 identification of the subject of the Declaration of Conformity (e.g., name, type, model number, and/or other relevant supplementary information);

.4 statement of conformity;

.5 date and place of issue; and

.6 signature (or equivalent sign of validation), name and function of the authorized person(s) acting on behalf of the issuer.

An example of the Supplier's Declaration of Conformity is shown in appendix 7.

8 List of appendices

Appendix 1: Items to be listed in the Inventory of Hazardous Materials

Appendix 2: Standard format of the Inventory of Hazardous Materials

Appendix 3: Example of the development process for Part I of the Inventory for new ships

Appendix 4: Flow diagram for developing Part I of the Inventory for existing ships

Appendix 5: Example of the development process for Part I of the Inventory for existing ships

Appendix 6: Form of Material Declaration

Appendix 7: Form of Supplier's Declaration of Conformity

Appendix 8: Examples of Table A and Table B materials of appendix 1 with CAS-numbers

* * *

APPENDIX 1

ITEMS TO BE LISTED IN THE INVENTORY OF HAZARDOUS MATERIALS

TABLE A* Materials listed in appendix 1 of the Annex to the Convention

No.	Materials		Inventory			Threshold level
			Part I	Part II	Part III	
A-1	Asbestos		x			no threshold level
A-2	Polychlorinated biphenyls (PCBs)		x			no threshold level
A-3	Ozone Depleting Substances	CFCs	x			no threshold level
		Halons	x			
		Other fully halogenated CFCs	x			
		Carbon tetrachloride	x			
		1,1,1-Trichloroethane (Methyl chloroform)	x			
		Hydrochlorofluorocarbons	x			
		Hydrobromofluorocarbons	x			
		Methyl bromide	x			
		Bromochloromethane	x			
A-4	Anti-fouling systems containing organotin compounds as a biocide		x			2500 mg total tin/kg

TABLE B* Materials listed in appendix 2 of the Annex to the Convention

No.	Materials	Inventory			Threshold level
		Part I	Part II	Part III	
B-1	Cadmium and cadmium compounds	x			100 mg/kg
B-2	Hexavalent chromium and hexavalent chromium compounds	x			1,000 mg/kg
B-3	Lead and lead compounds	x			1,000 mg/kg
B-4	Mercury and mercury compounds	x			1,000 mg/kg
B-5	Polybrominated biphenyl (PBBs)	x			1,000 mg/kg
B-6	Polybrominated diphenyl ethers (PBDEs)	x			1,000 mg/kg
B-7	Polychlorinated naphthalenes (more than 3 chlorine atoms)	x			no threshold level
B-8	Radioactive substances	x			no threshold level
B-9	Certain shortchain chlorinated paraffins (Alkanes, C10-C13, chloro)	x			1%

* For materials in this Table with no threshold level, quantities occurring as unintentional trace contaminants should not be listed in Material Declarations and in the Inventory.

TABLE C Potentially hazardous items

No.	Properties		Goods	Inventory		
				Part I	Part II	Part III
C-1	Liquid	Oiliness	Kerosene			x
C-2			White spirit			x
C-3			Lubricating oil			x
C-4			Hydraulic oil			x
C-5			Anti-seize compounds			x
C-6			Fuel additive			x
C-7			Engine coolant additives			x
C-8			Antifreeze fluids			x
C-9			Boiler and feed water treatment and test re-agents			x
C-10			De-ioniser regenerating chemicals			x
C-11			Evaporator dosing and descaling acids			x
C-12			Paint stabilizers/rust stabilizers			x
C-13			Solvents/thinners			x
C-14			Paints			x
C-15			Chemical refrigerants			x
C-16			Battery electrolyte			x
C-17			Alcohol, methylated spirits			x
C-18	Gas	Explosives/ inflammables	Acetylene			x
C-19			Propane			x
C-20			Butane			x
C-21			Oxygen			x
C-22		Green House Gases	CO2			x
C-23			Perfluorocarbons (PFCs)			x
C-24			Methane			x
C-25			Hydrofluorocarbon (HFCs)			x
C-27			Nitrous oxide(N2O)			x
C-28			Sulfur hexafluoride (SF6)			x
C-29	Liquid	Oiliness	Bunkers: fuel oil			x
C-30			Grease			x
C-31			Waste oil (sludge)		x	
C-32			Bilge		x	
C-33			Oily liquid cargo tank residues		x	
C-34			Ballast water		x	
C-35			Raw sewage		x	
C-36			Treated sewage		x	
C-37			Non-oily liquid cargo residues		x	
C-38	Gas	Explosibility/ inflammability	Fuel gas			x

TABLE C Potentially hazardous items

No.	Properties	Goods	Inventory		
			Part I	Part II	Part III
C-39	Solid	Dry cargo residues		x	
C-40		Medical waste/infectious waste		x	
C-41		Incinerator ash[2)]		x	
C-42		Garbage[2)]		x	
C-43		Fuel tank residues		x	
C-45		Oily solid cargo tank residues		x	
C-45		Oily/contaminated rags		x	
C-46		Batteries (incl. lead acid batteries)			x
C-47		Pesticides/insecticide sprays			x
C-48		Extinguishers			x
C-49		Chemical cleaner (incl. electrical equipment cleaner, carbon remover)			x
C-50		Detergent/bleacher (could be a liquid)			x
C-51		Miscellaneous medicines			x
C-52		Fire fighting clothing and equipment			x
C-53		Dry tank residues		x	
C-54		Cargo residues		x	
C-55		Spare parts which contain materials listed in Table A or Table B			x

2) Definition of garbage is identical to that in MARPOL Annex V. However, incinerator ash is classified separately because it may include hazardous substances or heavy metals.

TABLE D• Regular consumable goods potentially containing Hazardous Materials

No.	Properties	Example	Inventory		
			Part I	Part II	Part III
D-1	Domestic and accommodation appliances	Computers, refrigerators, printers, scanners, television sets, radio sets, video cameras, video recorders, telephones, consumer batteries, fluorescent lamps, filament bulbs, lamps			x

* * *

• This Table does not include ship specific equipment integral to ship operations, which has to be listed in Part I of the Inventory.

APPENDIX 2

STANDARD FORMAT OF THE INVENTORY OF HAZARDOUS MATERIALS

Part I HAZARDOUS MATERIALS CONTAINED IN THE SHIP'S STRUCTURE AND EQUIPMENT

I-1 Paints and coating systems containing materials listed in Table A and Table B of appendix 1of the guidelines

No.	Application of paint	Name of paint	Location	Materials (classification in appendix 1)	Approx. quantity		Remarks
1	Anti-drumming compound	Primer, xx Co., xx primer #300	Hull part	Lead	35.00	kg	
2	Anti-fouling	xx Co., xx coat #100	Underwater parts	TBT	120.00	kg	

I-2 Equipment and machinery containing materials listed in Table A and Table B of appendix 1 of the guidelines

No.	Name of equipment and machinery	Location	Materials (classification in appendix 1)	Parts where used	Approx. quantity		Remarks
1	Switch board	Engine control room	Cadmium	Housing coating	0.02	kg	
			Mercury	Heat gauge	<0.01	kg	less than 0.01kg
2	~~Diesel engine, xx Co., xx #150~~	~~Engine room~~	~~Cadmium~~	~~Bearing~~	~~0.02~~	~~kg~~	
3	Diesel engine, xx Co., xx #200	Engine room	Cadmium	Bearing	0.01	kg	Revised by XXX on Oct. XX, 2008
4	Diesel generator (x 3)	Engine room	Lead	Ingredient of copper compounds	0.01	kg	

I-3 Structure and hull containing materials listed in Table A and Table B of appendix 1 of the guidelines

No.	Name of structural element	Location	Materials (classification in appendix 1)	Parts where used	Approx. quantity		Remarks
1	Wall panel	Accommodation	Asbestos	Insulation	2500.00	kg	
2	Wall insulation	Engine control room	Lead	perforated plate	0.01	kg	cover for insulation material
			Asbestos	Insulation	25.00	kg	under perforated plates
3							

Part II OPERATIONALLY GENERATED WASTE

No.	Location[1)]	Name of Item (classification in appendix 1) and detail (if any) of the item	Approx. quantity		Remarks
1	Garbage locker	Garbage (food waste)	35.00	kg	
2	Bilge tank	Bilge water	15.00	m^3	
3	No.1 cargo hold	Dry cargo residues (iron ore)	110.00	kg	
4	No.2 cargo hold	Waste oil (sludge) (crude)	120.00	kg	
5	No.1 ballast tank	Ballast water	2500.00	m^3	
		Sediments	250.00	kg	

Part III STORES

III-1 Stores

No.	Location[1)]	Name of Item (classification in appendix 1)	Unit quantity		Figure		Approx. quantity		Remarks[2)]
1	No.1 fuel oil tank	Fuel oil (heavy fuel oil)	-		-		100.00	m^3	
2	CO_2 room	CO_2	100.00	kg	50	bottles	5000.00	kg	
3	Workshop	Propane	20.00	kg	10	pcs	200.00	kg	
4	Medicine locker	Miscellaneous medicines	-		-		-		Details are shown in the attached list.
5	Paint stores	Paint, xx Co., #600	20.00	kg	5	pcs	100.00	kg	Cadmium containing.

III-2 Liquids sealed in ship's machinery and equipment

No.	Type of liquids (classification in appendix 1)	Name of machinery or equipment	Location	Approx. quantity		Remarks
1	Hydraulic oil	Deck crane hydraulic oil system	Upper deck	15.00	m^3	
		Deck machinery hydraulic oil system	Upper deck and bosun store	200.00	m^3	
		Steering gear hydraulic oil system	Steering gear room	0.55	m^3	
2	Lubricating oil	Main engine system	Engine room	0.45	m^3	
3	Boiler water treatment	Boiler	Engine room	0.20	m^3	

III-3 Gases sealed in ship's machinery and equipment

No.	Type of gases (classification in appendix 1)	Name of machinery or equipment	Location	Approx. quantity		Remarks
1	HFC	AC system	AC room	100.00	kg	
2	HFC	Refrigerated provision chamber machine	AC room	50.00	kg	

III-4 Regular consumable goods potentially containing Hazardous Materials

No.	Location[1)]	Name of item	Quantity	Remarks
1	Accommodation	Refrigerators	1	
2	Accommodation	Personal computers	2	

1) The location of a Part II or Part III item should be entered in order based on its location, from a lower level to an upper level and from a fore part to an aft part. The location of Part I items is recommended to be described similarly, as far as practicable.
2) In column "Remarks" for Part III items, if Hazardous Materials are integrated in products, the approximate amount of the contents should be shown as far as possible.

* * *

APPENDIX 3

EXAMPLE OF THE DEVELOPMENT PROCESS FOR PART I OF THE INVENTORY FOR NEW SHIPS

1 Objective of the typical example

This example has been developed to give guidance and to facilitate understanding of the development process for Part I of the Inventory of Hazardous Materials for new ships.

2 Development flow for Part I of the Inventory

Part I of the Inventory should be developed using the following 3 steps. However, the order of these steps is flexible and can be changed depending on the schedule of shipbuilding:

.1 collection of Hazardous Materials information;
.2 utilization of Hazardous Materials information; and
.3 preparation of the Inventory (by filling out standard format).

3 Collection of Hazardous Materials information

3.1 Data collection process for Hazardous Materials

Materials Declaration (MD) and Supplier's Declaration of Conformity (SDoC) for products from suppliers (tier 1 suppliers) should be requested and collected by the shipbuilding yard. Tier 1 suppliers may request from their suppliers (tier 2 suppliers) the relevant information if they cannot develop the MD based on the information available. Thus the collection of data on Hazardous Materials may involve the entire shipbuilding supply chain (Figure 1).

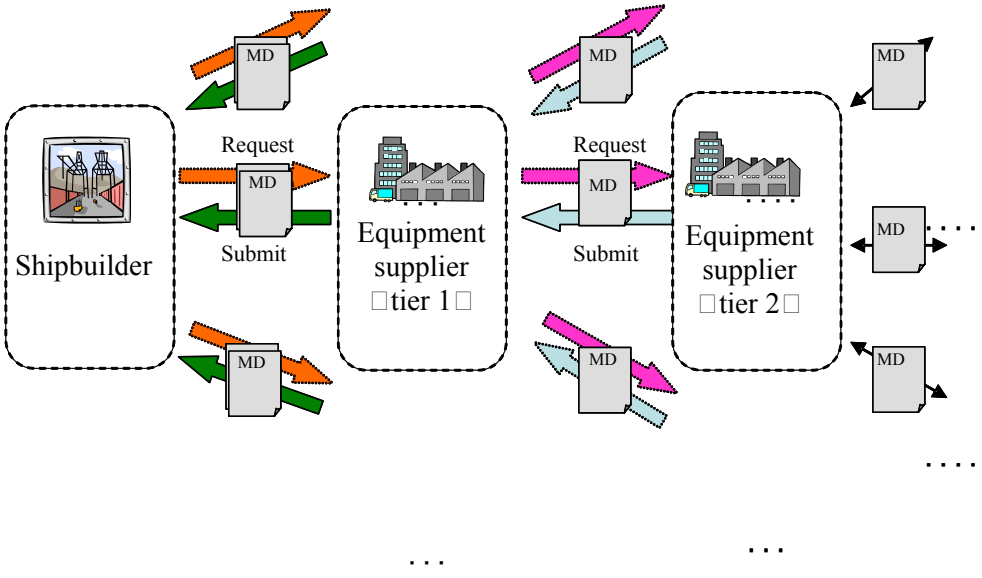


Figure 1 – Process of MD (and SDoC) collection showing involvement of supply chain

3.2 Declaration of Hazardous Materials

Suppliers should declare whether or not the Hazardous Materials listed in Table A and Table B in the MD are present in concentrations above the threshold levels specified for each "homogeneous material" in a product.

3.2.1 Materials listed in Table A

If one or more materials listed in Table A are found to be present in concentrations above the specified threshold level according to the MD, the products which contain these materials shall not be installed on a ship. However, if the materials are used in a product in accordance with an exemption specified by the Convention (e.g., new installations containing hydrochlorofluorocarbons (HCFCs) before 1 January 2020), the product should be listed in the Inventory.

3.2.2 Materials listed in Table B

If one or more materials listed in Table B are found to be present in concentrations above the specified threshold level according to the MD, the products should be listed in the Inventory.

3.3 Example of "Homogeneous Materials"

Figure 2 shows an example of four homogeneous materials which constitute a cable. In this case, sheath, intervention, insulator and conductor are all individual homogeneous materials.

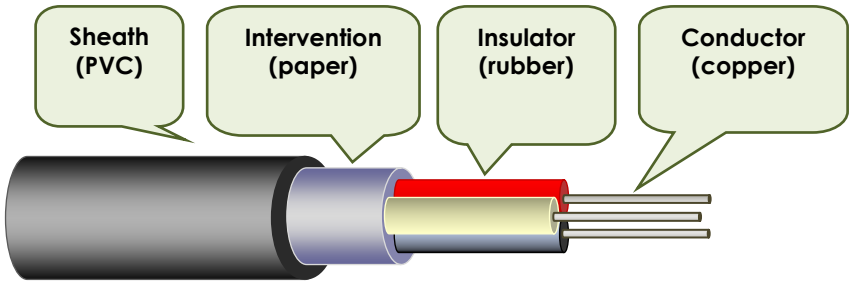


Figure 2 – Example of Homogeneous Materials (cable)

4 Utilization of Hazardous Materials information

Products which contain Hazardous Materials in concentrations above the specified threshold levels should be clearly identified in the MD. The approximate quantity of the Hazardous Materials should be calculated if the mass data for Hazardous Materials are declared in the MD using a unit which cannot be directly utilized in the Inventory.

5 Preparation of Inventory (by filling out standard format)

The information received for the Inventory, as contained in Table A and Table B of appendix 1of these guidelines, ought to be structured and utilized according to the following categorization for Part I of the Inventory:

1.1 Paints and coating systems;
1.2 Equipment and machinery; and
1.3 Structure and hull.

5.1 "Name of equipment and machinery" column

5.1.1 Equipment and machinery

The name of each equipment or machinery should be entered in this column. If more than one Hazardous Material is present in the equipment or machinery, the row relating to that equipment or machinery should be appropriately divided such that all of the Hazardous Materials contained in the piece of equipment or machinery are entered. If more than one item of equipment or machinery is situated in one location, both name and quantity of the equipment or machinery should be entered in the column. For identical common or mass-produced items, such as bolts, nuts and valves, there is no need to list each item individually. An example is shown in Table 1.

Table 1 – Example showing more than one item of equipment or machinery situated in one location

No.	Name of equipment and machinery	Location	Materials (classification in appendix 1)	Parts where used	Approx. quantity		Remarks
	Main engine	Engine room	Lead	Piston pin bush	0.75	kg	
			Mercury	Thermometer charge air temperature	0.01	kg	
	Diesel generator (x 3)	Engine room	Mercury	Thermometer	0.03		

5.1.2 Pipes and cables

The names of pipes and of systems, including electric cables, which are often situated in more than one compartment of a ship, should be described using the name of the system concerned. A reference to the compartments where these systems are located is not necessary as long as the system is clearly identified and properly named.

5.2 "Approximate quantity" column

The standard unit for approximate quantity of solid Hazardous Materials should be kg. If the Hazardous Materials are liquids or gases, the standard unit should be either m^3 or kg. An approximate quantity should be rounded up to at least two significant figures. If the Hazardous Material is less than 10 g, the description of the quantity should read "<0.01 kg".

Table 2 – Example of a switchboard

No.	Name of equipment and machinery	Location	Materials (classification in appendix 1)	Parts where used	Approx. quantity		Remarks
	Switchboard	Engine control room	Cadmium	Housing coating	0.02	kg	
			Mercury	Heat gauge	<0.01	kg	less than 0.01kg

5.3 "Location" column

5.3.1 Example of a location list

It is recommended to prepare a location list which covers all compartments of a ship based on the ship's plans (e.g., General Arrangement, Engine-room Arrangement, Accommodation and Tank Plan) and on other documentation on board, including certificates or spare parts' lists. The description of the location should be based on a location such as a deck or room to enable easy identification. The name of the location should correspond to the ship's plans so as to ensure consistency between the Inventory and the ship's plans. Examples of names of locations are shown in Table 3.

Table 3 – Examples of location names

(A) Primary classification	(B) Secondary classification	(C) Name of location
All over the ship		
Hull part	Fore part	Bosun store
		…
	Cargo part	No.1 Cargo Hold/Tank
		No.1 Garage deck
		…
	Tank part	Fore Peak Tank
		No.1 WBT
		No.1 FOT
		…
		Aft Peak Tank
	Aft part	Steering Gear Room
		Emergency Fire Pump Space
		…
	Superstructure	Accommodation
		Compass deck
		Nav. Bridge deck
		…
		Wheel House
		Engine Control Room
		Cargo Control Room
		…
	Deck house	Deck House
		…

(A) Primary classification	(B) Secondary classification	(C) Name of location
Machinery part	Engine-room	Engine-room
		Main Floor
		2nd Floor
		…
		Generator Space/Room
		Purifier Space/Room
		Shaft Space/Room
		Engine Casing
		Funnel
		Engine Control Room
		…
	Pump-room	Pump-room
		…
Exterior part	Superstructure	Superstructure
	Upper deck	Upper deck
	Hull shell	Hull shell
		bottom
		under waterline
		…

5.3.2 Description of location of pipes and electrical systems

Locations of pipes and systems, including electrical systems and cables situated in more than one compartment of a ship, should be described for each system concerned. If they are situated in a number of compartments, the most practical of the following two options should be used:

a) listing of all components in the column; or

b) description of the location of the system using an expression such as those shown under "primary classification" and "secondary classification" in Table 3.

A typical description of a pipe system is shown in Table 4.

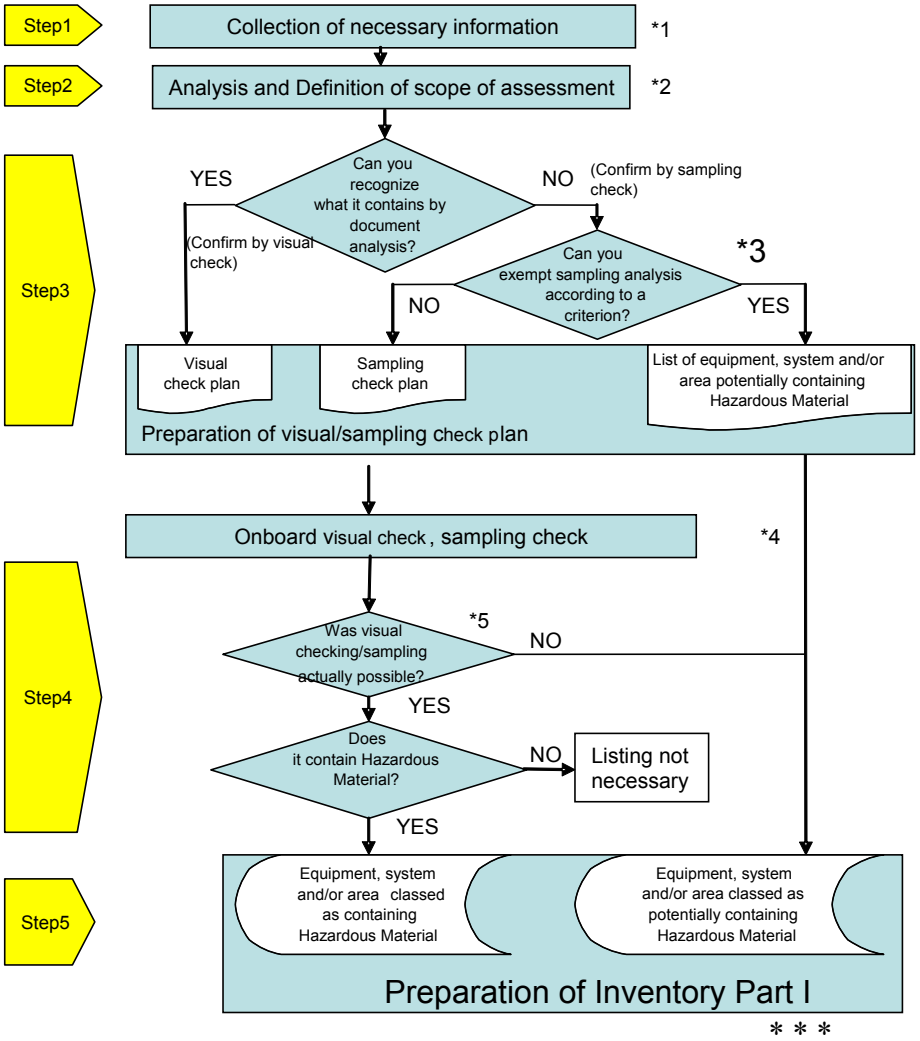
Table 4 – Example of description of a pipe system

No.	Name of equipment and machinery	Location	Materials (classification in appendix 1)	Parts where used	Approx. quantity	Remarks
	Ballast water system	Engine-room, Hold parts				

* * *

APPENDIX 4

FLOW DIAGRAM FOR DEVELOPING PART I OF THE INVENTORY FOR EXISTING SHIPS



*1 : Documents may include any certificates, manuals, ship's plans drawings, technical specifications and information from sister and/or similar ships.

*2 : The assessment should cover all materials listed in Table A of Appendix 1 of the Guideline; the materials listed in Table B should be listed as far as practicable.
It is impossible to assess all equipment and areas including those which are assumed not to contain Hazardous Materials described above.
Using analysis of available documents based on knowledge and experience, it must be made clear which equipment and/or area should be included in the scope of the assessment.

*3 : Equipment, system and/or areas which cannot be specified as containing materials listed in appendix 1 of these guidelines on the basis of documents can be listed in the List of equipment, system and/or area classed as "potentially containing Hazardous Material" without the sampling check. The prerequisite for this classification is a comprehensible justification of the conclusion, such as the impossibility to conduct samplings without compromising ship safety and operational efficiency.

*4 : Sampling Check. This means sampling and identification of Hazardous Material contained in the equipment, systems, and/or areas, by laboratory analysis. The sampling check should be applied where the presence of Prohibited and Restricted Hazardous Material is assumed but cannot be recognized by analysis of the available documentation.

*5 : When equipment, systems and/or areas of a ship are not accessible for visual check or sampling check, this equipment, system and/or area is classified as "potentially containing Hazardous Material".

* * *

APPENDIX 5

EXAMPLE OF THE DEVELOPMENT PROCESS FOR PART I OF THE INVENTORY FOR EXISTING SHIPS

1 Introduction

In order to develop Part I of the Inventory of Hazardous Materials for existing ships, documents of the individual ship as well as the knowledge and experience of specialist personnel (experts) is required. An example of the development process for Part I of the Inventory of Hazardous Materials for existing ships is useful to understand the basic steps as laid out in the guidelines and to ensure a unified application. However, attention should be paid to variations in different types of ships[1)].

Compilation of Part I of the Inventory of Hazardous Material for existing ships involves the following 6 steps which are described in paragraph 4.2 and appendix 4 of these guidelines.

Step 1: Collection of information;
Step 2: Assessment of collected information;
Step 3: Preparation of visual/sampling check plan;
Step 4: Onboard visual/sampling check; and
Step 5: Preparation of Part I of the Inventory and related documentation.

1) The example of a 28,000 gross tonnage bulk carrier constructed in 1985 is used in this appendix.

2 Step 1: Collection of necessary information

2.1 Sighting of available documents

A practical first step is to collect detailed documents for the ship. The shipowner should try to collate documents normally retained onboard the ship or by the shipping company as well as relevant documents that the shipyard, manufacturers, or classification society may have. The following documents should be used when available:

Ship's specification
General Arrangement
Machinery Arrangement
Spare Parts and Tools List
Piping Arrangement
Accommodation Plan
Fire Control Plan
Fire Protection Plan
Insulation Plan (Hull and Machinery)
International Anti-Fouling System Certificate
Related manuals and drawings
Information from other inventories and/or sister or similar ships, machinery, equipment, materials and coatings
Results of previous visual/sampling checks and other analysis

If the ship has undergone conversions or major repair work, it is necessary to identify as far as possible the modifications from the initial design and specification of the ship.

2.2 Indicative list

It is impossible to check all equipment, systems, and/or areas on board the ship to determine the presence or absence of Hazardous Materials. The total number of parts on board may exceed several thousand. In order to take a practical approach, an "Indicative list" should be prepared that identifies the equipment, system, and/or area on board that is presumed to contain Hazardous Materials. Field interviews with the shipyard and suppliers may be necessary to prepare such lists. A typical example of an "Indicative list" is shown below:

2.2.1 Materials to be checked and documented

Hazardous Materials, as identified in appendix 1 of these guidelines, should be listed in Part I of the Inventory for existing ships. Appendix 1 of the guidelines contains all the materials concerned. Table A shows those which are required to be listed and Table B shows those which should be listed as far as practical.

2.2.2 Materials listed in Table A

Table A lists the following four materials.

Asbestos
Polychlorinated biphenyls (PCBs)
Ozone depleting substances
Anti-fouling systems containing organotin compounds as a biocide

2.2.2.1 Asbestos

Field interviews were conducted with over 200 Japanese shipyards and suppliers regarding the use of asbestos in production. "Indicative lists" for asbestos developed on the basis of this research are shown below:

Structure and/or equipment	Component
Propeller shafting	Packing with low presser hydraulic piping flange
	Packing with casing
	Clutch
	Brake lining
	Synthetic stern tubes
Diesel engine	Packing with piping flange
	Lagging material for fuel pipe
	Lagging material for exhaust pipe
	Lagging material turbocharger
Turbine engine	Lagging material for casing
	Packing with flange of piping and valve for steam line, exhaust line and drain line
	Lagging material for piping and valve of steam line, exhaust line and drain line

Structure and/or equipment	Component
Boiler	Insulation in combustion chamber
	Packing for casing door
	Lagging material for exhaust pipe
	Gasket for manhole
	Gasket for hand hole
	Gas shield packing for soot blower and other hole
	Packing with flange of piping and valve for steam line, exhaust line, fuel line and drain line
	Lagging material for piping and valve of steam line, exhaust line, fuel line and drain line
Exhaust gas economizer	Packing for casing door
	Packing with manhole
	Packing with hand hole
	Gas shield packing for soot blower
	Packing with flange of piping and valve for steam line, exhaust line, fuel line and drain line
	Lagging material for piping and valve of steam line, exhaust line, fuel line and drain line
Incinerator	Packing for casing door
	Packing with manhole
	Packing with hand hole
	Lagging material for exhaust pipe
Auxiliary machinery (pump, compressor, oil purifier, crane)	Packing for casing door and valve
	Gland packing
	Brake lining
Heat exchanger	Packing with casing
	Gland packing for valve
	Lagging material and insulation
Valve	Gland packing with valve, sheet packing with piping flange
	Gasket with flange of high presser and/or high temperature
Pipe, duct	Lagging material and insulation
Tank (fuel tank, hot water, tank, condenser), other equipments (fuel strainer, lubricant oil strainer)	Lagging material and insulation
Electric equipment	Insulation material
Air-borne asbestos	Wall, ceiling
Ceiling, floor and wall in accommodation area	Ceiling, floor, wall
Fire door	Packing, construction and insulation of the fire door
Inert gas system	Packing for casing, etc
Air conditioning system	Sheet packing, lagging material for piping and flexible joint

Structure and/or equipment	Component
Miscellaneous	Ropes Thermal insulating materials Fire shields/fire proofing Space/duct insulation Electrical cable materials Brake linings Floor tiles/deck underlay Steam/water/vent flange gaskets Adhesives/mastics/fillers Sound damping Moulded plastic products Sealing putty Shaft/valve packing Electrical bulkhead penetration packing Circuit breaker arc chutes Pipe hanger inserts Weld shop protectors/burn covers Fire fighting blankets/clothing/equipment Concrete ballast

2.2.2.2 Polychlorinated biphenyl (PCBs)

Worldwide restriction of PCBs began on 17 May 2004 as a result of the implementation of the Stockholm Convention, which aims to eliminate or restrict the production and use of persistent organic pollutants. In Japan, domestic control began in 1973, with the prohibition of all activities relating to the production, use and import of PCBs. Japanese suppliers can provide accurate information concerning their products. The "Indicative list" of PCBs has been developed as shown below:

Equipment	Component of equipment
Transformer	Insulating oil
Condenser	Insulating oil
Fuel heater	Heating medium
Electric cable	Covering, insulating tape
Lubricating oil	
Heat oil	Thermometers, sensors, indicators
Rubber/felt gaskets	
Rubber hose	
Plastic foam insulation	
Thermal insulating materials	
Voltage regulators	
Switches/reclosers/bushings	
Electromagnets	
Adhesives/tapes	
Surface contamination of machinery	
Oil-based paint	
Caulking	
Rubber isolation mounts	

Equipment	Component of equipment
Pipe hangers	
Light ballasts (component within fluorescent light fixtures)	
Plasticizers	
Felt under septum plates on top of hull bottom	

2.2.2.3 Ozone depleting substances

The "Indicative list" for Ozone depleting substances is shown below. Ozone depleting substances have been controlled according to the Montreal Protocol and MARPOL Convention. Although almost all substances have been banned since 1996, HCFC can still be used until 2020.

Materials	Component of equipment	Period for use of ODS in Japan
CFCs (R11, R12)	Refrigerant for refrigerators	Until 1996
CFCs	Urethane formed material	Until 1996
	Blowing agent for insulation of LNG carriers	Until 1996
Halons	Extinguishing agent	Until 1994
Other fully halogenated CFCs	The possibility of usage in ships is low	Until 1996
Carbon tetrachloride	The possibility of usage in ships is low	Until 1996
1,1,1-Trichloroethane (Methyl chloroform)	The possibility of usage in ships is low	Until 1996
HCFC (R22, R141b)	Refrigerant for refrigerating machine	It is possible to use it until 2020.
HBFC	The possibility of usage in ships is low	Until 1996
Methyl bromide	The possibility of usage in ships is low	Until 2005

2.2.2.4 Organotin compounds

Organotin compounds include Tributyl tins (TBT), Triphenyl tins (TPT) and Tributyl tin oxide (TBTO). Organotin compounds have been used as anti-fouling paint on ships' bottoms and the International Convention on the Control of Harmful Anti-Fouling Systems on Ships (AFS Convention) stipulates that all ships shall not apply or re-apply organotin compounds after 1 January 2003, and that, after 1 January 2008, all ships shall either not bear such compounds on their hulls or shall bear a coating that forms a barrier preventing such compounds from leaching into the sea. The above mentioned dates may have been extended by permission of the Administration bearing in mind that the AFS Convention entered into force on 17 September 2008.

2.2.3 Materials listed in Table B

For existing ships it is not obligatory for materials listed in Table B to be listed in Part I of the Inventory. However, if they can be identified in a practical way, they should be listed in the Inventory, because the information will be used to support ship recycling processes. The Indicative list of materials listed in Table B is shown below:

Materials	Component of equipment
Cadmium and cadmium compounds	Nickel-cadmium battery, plating film, bearing
Hexavalent chromium compounds	Plating film
Mercury and mercury compounds	Fluorescent light, mercury lamp, mercury cell, liquid-level switch, gyro compass, thermometer, measuring tool, manganese cell, pressure sensors, light fittings, electrical switches, fire detectors
Lead and lead compounds	Lead-acid storage battery, corrosion-resistant primer, solder (almost all electric appliances contain solder), paints, preservative coatings, cable insulation, lead ballast, generators
Polybrominated biphenyls (PBBs)	Non-flammable plastics
Polybrominated diphenyl ethers (PBDE)	Non-flammable plastics
Polychlorinated naphthalenes	Paint, lubricating oil
Radioactive substances	Fluorescent paint, ionic type smoke detector, level gauge
Certain shortchain chlorinated paraffins	Non-flammable plastics

3 Step 2: Assessment of collected information

Preparation of a checklist is an efficient method for developing the Inventory for existing ships in order to clarify the results of each step. Based on collected information including the "Indicative list" mentioned in Step 1, all equipment, systems, and/or areas onboard assumed to contain Hazardous Materials listed in Tables A and B should be included in the checklist. Each listed equipment, system, and/or area on board should be analysed and assessed for its Hazardous Materials content.

The existence and volume of Hazardous Materials may be judged and calculated from the Spare parts and tools list and the Maker's drawings. The existence of asbestos contained in floors, ceilings and walls may be identified from Fire Protection Plans, while the existence of TBT in coatings can be identified from the International Anti-Fouling System Certificate, Coating scheme and the History of Paint.

Example of weight calculation

No.	Hazardous Materials	Location/Equipment/ Component	Reference	Calculation
1.1-2	TBT	Flat bottom/paint	History of coatings	
1.2-1	Asbestos	Main engine/ Exh. pipe packing	Spare parts and tools list	250g X 14 sheet = 3.50 kg
1.2-3	HCFC	Ref. provision plant	Maker's drawings	20kg X 1 cylinder = 20 kg
1.2-4	Lead	Batteries	Maker's drawings	6 kg X 16 unit = 96 kg
1.3-1	Asbestos	Engine-room ceiling	Accommodation plan	

When a component or coating is determined to contain Hazardous Materials, a "Y" should be entered in the column for "Result of document analysis" in the checklist, to denote "Contained". Likewise, when an item is determined not to contain Hazardous Materials, the entry "N" should be made in the column to denote "Not contained". When a determination cannot be made as to the Hazardous Materials content, the column should be completed with the entry "Unknown".

Checklist (Step 2)

ANALYSIS AND DEFINITION OF SCOPE OF ASSESSMENT FOR "SAMPLE SHIP"

No.	Tbl A/B	Hazardous Materials *1	Location	Name of equipment	Component	Quantity			Manufacturer/brand name	Result of DOC *2	Procedure of check *3	Result of check *4	Reference/DWG No.
						Unit (kg)	No.	Total (kg)					
Inventory Part I-1													
1	A	TBT	Top side	Painting & coating	A/F paints			NIL	Paints Co./marine P1000	N			On Aug. 200X, sealer coat applied to all over submerged area before tin free coating.
2	A	TBT	Flat bottom				3000m^2		Unknown AF	Unknown			
Inventory Part I-2													
1	A	Asbestos	Lower deck	Main engine	Exh.pipe packing	0.25	14		Diesel Co.	Y			M-100
2	A	Asbestos	3rd deck	Aux.boiler	Lagging		12		Unknown lagging	Unknown			M-300
3	A	Asbestos	Engine room.	Piping/flange	Packing					PCHM			
4	A	HCFC	2nd deck	Ref. provision plant	Refrigerant (R22)	20.00	1		Reito Co.	Y			Maker's dwg
5	B	Lead	Nav. Br.deck	Batteries		6	16		Denchi Co.	Y			E-300
Inventory Part I-3													
1	A	Asbestos	Upper deck	Back deck ceilings	Engine room ceiling		20m^2		Unknown ceiling	Unknown			O-25

Notes
*1 Hazardous Materials: Material classification
*2 Result of documents analysis: Y=Contained, N=Not contained, Unknown, PCHM=potentially containing Hazardous Material.
*3 Procedure of check: V=Visual check, S=Sampling check
*4 Result of check: Y=Contained, N=Not contained, PCHM

4 Step 3: Preparation of visual/sampling plan

Each item classified as "Contained" or "Not contained" in Step 2 should be subjected to a visual check on board, and the entry "V" should be made in the "Check procedure" column to denote "Visual check".

For each item categorized as "unknown", a decision should be made as to whether to apply a sampling check. However, any item categorized as "unknown" may be classed as "potentially containing Hazardous Material" provided comprehensive justification is given, or if it can be assumed that there will be little or no effect on disassembly as a unit and later ship recycling and disposal operations. For example, in the following checklist, in order to carry out a sampling check for "Packing with aux. boiler" the shipowner needs to disassemble the auxiliary boiler in a repair yard. The costs of this check are significantly higher than the later disposal costs at a Ship Recycling Facility. In this case, therefore, the classification as "potentially containing Hazardous Material" is justifiable.

Checklist (Step 3)

ANALYSIS AND DEFINITION OF SCOPE OF ASSESSMENT FOR "SAMPLE SHIP"

No.	Tbl A/B	Hazardous Materials *1	Location	Name of Equipment	Component	Quantity			Manufacturer/Brand name	Result of DOC *2	Procedure of check *3	Result of check *4	Reference/DWG No.
						Unit (kg)	No.	Total (kg)					
Inventory Part I-1													
1	A	TBT	Top side	Painting & coating	A/F paints			NIL	Paints Co./marine P1000	N	V		On Aug. 200X, sealer coat applied to all over submerged area before tin free coating.
2	A	TBT	Flat bottom				3000m^2		Unknown AF	Unknown	S		
Inventory Part I-2													
1	A	Asbestos	Lower deck	Main engine	Exh.pipe packing	0.25	14		Diesel Co.	Y	V		M-100
2	A	Asbestos	3rd deck	Aux.boiler	Lagging		12		Unknown lagging	Unknown	S		M-300
3	A	Asbestos	Engine room	Piping/flange	Packing					PCHM	V		
4	A	HCFC	2nd deck	Ref. provision plant	Refrigerant (R22)	20.00	1		Reito Co.	Y	V		Maker's dwg
5	B	Lead	Nav. Br.deck	Batteries		6	16		Denchi Co.	Y	V		E-300
Inventory Part I-3													
1	A	Asbestos	Upper deck	Back deck ceilings	Engine room ceiling		20m^2		Unknown ceiling	Unknown	S		O-25

Notes
*1 Hazardous Materials: Material classification
*2 Result of documents analysis: Y=Contained, N=Not contained, Unknown, PCHM=potentially containing Hazardous Material
*3 Procedure of check: V=Visual check, S=Sampling check
*4 Result of check: Y=Contained, N=Not contained, PCHM

Before any visual/sampling check on board is conducted, a "visual/sampling check plan" should be prepared. An example of such a plan is shown below.

To prevent any incidents during the visual/sampling check, a schedule should be established to eliminate interference with other ongoing work on board. To prevent potential exposure to Hazardous Materials during the visual/sampling check, safety precautions should be in place on board. For example, sampling of potential asbestos containing materials could release fibres into the atmosphere. Therefore, appropriate personnel safety and containment procedures should be implemented prior to sampling.

Items listed in the visual/sampling check should be arranged in sequence so that the onboard check is conducted in a structured manner (e.g., from a lower level to an upper level and from a fore part to an aft part).

Example of visual/sampling check plan

Name of ship	XXXXXXXXXX
IMO Number	XXXXXXXXXX
Gross Tonnage	28,000 GT
L x B x D	xxx.xx × xx.xx × xx.xx m
Date of delivery	dd.mm.1987
Shipowner	XXXXXXXXXX
Contact point (TEL,FAX, E-mail, address)	XXXXXXXXXX TEL: XXXX-XXXX FAX: XXXX-XXXX E-mail: abcdefg@hijk.co.net
Check schedule	Visual check： dd, mm, 200X Sampling check： dd, mm, 200X
Site of check	XX shipyard, No. Dock
In charge of check	XXXX XXXX
Check engineer	XXXX XXXX, YYYY YYYY, ZZZZ ZZZZ
Sampling engineer	Person with specialized knowledge of sampling
Sampling method and anti-scattering measure for asbestos	Wet the sampling location prior to cutting and allow it to harden after cutting to prevent scatter. Notes: Workers performing sampling activities shall wear protective equipment.
Sampling of fragments of paints	Paints suspected to contain TBT should be collected and analyzed from load line, directly under bilge keel and flat bottom near amidships.
Laboratory	QQQQ QQQQ
Chemical analysis method	Method by ISO/DIS 22262-1 Bulk materials--Part 1: Sampling and qualitative determination of asbestos in commercial bulk materials and ISO/CD 22262-2 Bulk materials--Part 2: Quantitative determination of asbestos by gravimetric and microscopic methods. ICP Luminous analysis (TBT)
Location of visual/sampling check	Refer to lists for visual/sampling check

Listing for equipment, system and/or area for visual check
See attached "Analysis and definition of scope of investigation for sample ship"

List of equipment, system and/or area for sampling check				
Location	Equipment, machinery and/or zone	Name of parts	Materials	Result of doc. checking
Upper Deck	Back deck ceilings	Engine room ceiling	Asbestos	Unknown
Engine room	Exhaust gas pipe	Insulation	Asbestos	Unknown
Engine room	Pipe/flange	Gasket	Asbestos	Unknown
Refer to attached "Analysis and definition of scope of investigation for sample ship" and "Location plan of Hazardous Materials for sample ship"				

List of equipment, system and/or area classed as PCHM				
Location	Equipment, machinery and/or zone	Name of part	Material	Result of doc. checking
Floor	Propeller cap	Gasket	Asbestos	PCHM
Engine room	Air operated shut-off valve	Gland packing	Asbestos	PCHM
Refer to attached "Analysis and definition of scope of investigation for sample ship" and "Location plan of Hazardous Materials for sample ship"				

This plan is established in accordance with the guidelines for the development of the Inventory of Hazardous Materials

Prepared by： XXXX XXXX

T E L ： YYYY-YYYY

E-Mail： XXXX@ZZZZ.co.net

□Document check□date/place□
dd, mm, 200X at XX Lines Co.Ltd

□Preparation date of plan□dd. mm, 200X

5 Step 4: Onboard visual/sampling check

The visual/sampling check should be conducted according to the plan. Check points should be marked in the ship's plan or recorded with photographs.

A person taking samples should be protected by the appropriate safety equipment relevant to the suspected type of hazardous materials encountered. Appropriate safety precautions should also be in place for passengers, crewmembers and other persons on board, to minimize the potential exposure to hazardous materials. Safety precautions could include the posting of signs or other verbal or written notification for personnel to avoid such areas during sampling. The personnel taking samples should ensure compliance with relevant national regulations.

The results of visual/sampling checks should be recorded in the checklist. Any equipment, systems and/or areas of the ship that cannot be accessed for checks should be classified as "potentially containing Hazardous Material". In this case, the entry in the "Result of check" column should be "PCHM".

6 Step 5: Preparation of Part I of the Inventory and related documentation

6.1 Development of Part I of the Inventory

The results of the check and the estimated quantity of Hazardous Materials should be recorded on the checklist. Part I of the Inventory should be developed with reference to the checklist.

6.2 Development of location diagram of Hazardous Materials

With respect to Part I of the Inventory, the development of a location diagram of Hazardous Materials is recommended in order to help the Ship Recycling Facility gain a visual understanding of the Inventory.

Checklist (Step 4 and Step 5)

ANALYSIS AND DEFINITION OF SCOPE OF ASSESSMENT FOR "SAMPLE SHIP"

No.	Tbl A/B	Hazardous Materials *1	Location	Name of equipment	Component	Quantity			Manufacturer/brand name	Result of DOC *2	Procedure of check *3	Result of check *4	Reference/DWG No.
						Unit (kg)	No.	Total (kg)					
Inventory Part I-1													
1	A	TBT	Top side	Painting & coating	A/F paints			NIL	Paints Co./marine P1000	N	V	N	On Aug. 200X, sealer coat applied to all over submerged area before tin free coating.
2	A	TBT	Flat bottom			0.02	3000m^2	60.00	Unknown AF	Unknown	S	Y	
Inventory Part I-2													
1	A	Asbestos	Lower deck	Main engine	Exh.pipe packing	0.25	14	3.50	Diesel Co.	Y	V	Y	M-100
2	A	Asbestos	3rd deck	Aux.boiler	Lagging		12		Unknown lagging	Unknown	S	N	M-300
3	A	Asbestos	Engine room	Piping/flange	Packing					PCHM	V	PCHM	
4	A	HCFC	2nd deck	Ref. provision plant	Refrigerant (R22)	20.00	1	20.00	Reito Co.	Y	V	Y	Maker's dwg
5	B	Lead	Nav. Br.deck	Batteries		6	16	96.00	Denchi Co.	Y	V	Y	E-300
Inventory Part I-3													
1	A	Asbestos	Upper deck	Back deck ceilings	Engine room ceiling	0.19	20m^2	3.80	Unknown ceiling	Unknown	S	Y	O-25

Notes

*1 Hazardous Materials: Material classification
*2 Result of documents analysis: Y=Contained, N=Not contained, Unknown, PCHM=potentially containing Hazardous Material
*3 Procedure of check: V=Visual check, S=Sampling check
*4 Result of check: Y=Contained, N=Not contained, PCHM

Example of the Inventory for existing ships

Inventory of Hazardous Materials
for "Sample Ship"

Particular of the "Sample Ship"

Distinctive number or letters	: □□□□□□□
Port of registry	: Port of World
Type of vessel	: Bulk carrier
Gross Tonnage	: 28,000 GT
IMO number	: □□□□□□□
Name of shipbuilder	: ○ ○ Shipbuilding Co. Ltd
Name of shipowner	: □ □ Maritime SA
Date of delivery	: MM/DD/1988

This inventory was developed in accordance with the guidelines for the development of the Inventory of Hazardous Materials.

Attachment:
1: Inventory of Hazardous Materials
2: Assessment of collected information
3: Location diagram of Hazardous Materials

* Prepared by ○○○○□Name & address□(mm/dd/20XX)

Inventory of Hazardous Materials : "Sample Ship"

Part I HAZARDOUS MATERIALS CONTAINED IN THE SHIP'S STRUCTURE AND EQUIPMENT

I-1 Paints and coating systems containing materials listed in Table A and Table B of appendix 1of the guidelines

No.	Application of paint	Name of paint	Location *1	Materials (classification in appendix 1)	Approx. quantity		Remarks
1	AF paint	Unknown paints	Flat bottom	TBT	60.00	kg	Confirmed by sampling
2							
3							

I-2 Equipment and machinery containing materials listed in Table A and Table B of appendix 1 of the guidelines

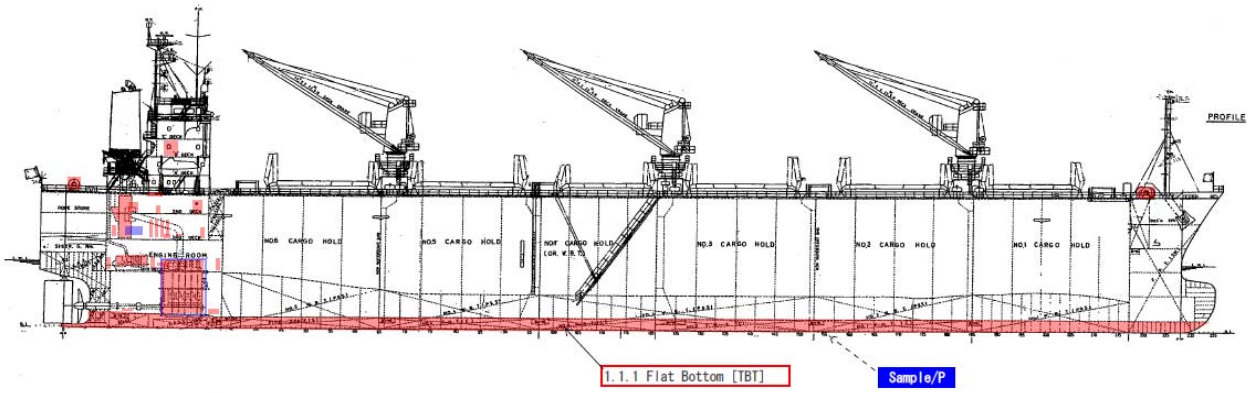
No.	Name of equipment and machinery	Location *1	Materials (classification in appendix 1)	Parts where used	Approx. quantity		Remarks
1	Main engine	Lower floor	Asbestos	Exh. pipe packing	3.50	kg	
2	Aux. boiler	3rd deck	Asbestos	Unknown packing	10.00	kg	PCHM(potentially containing Hazardous Material)
3	Piping/flange	Engine room	Asbestos	Packing	50.00	kg	PCHM
4	Ref. provision plant	2nd deck	HCFC	Refrigerant (R22)	20.00	kg	
5	Batteries	Navig. Bridge deck	Lead		96.00	kg	

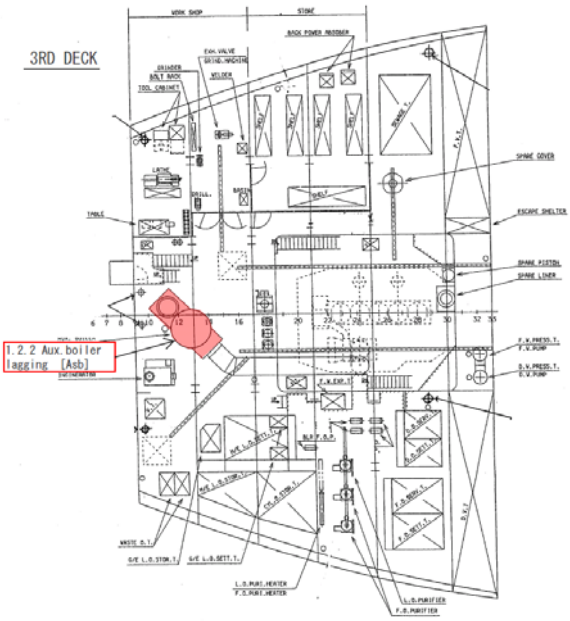
I-3 Structure and hull containing materials listed in Table A and Table B of appendix 1 of the guidelines

No.	Name of structural element	Location *1	Materials (classification in appendix 1)	Parts where used	Approx. quantity		Remarks
1	Back deck ceiling	Upper deck	Asbestos	Engine room ceiling (A class)	3.80	kg	Confirmed by sampling
2							
3							

*1 Each item should be entered in order based on its location, from a lower level to an upper level and from a fore part to an aft part.

Example of location diagram of Hazardous Materials





* * *

APPENDIX 6

FORM OF MATERIAL DECLARATION

<Date of declaration>

Date	

<MD ID number>

MD- ID-No.	

<Other information>

Remark 1	
Remark 2	
Remark 3	

<Supplier (respondent) information>

Company name	
Division name	
Address	
Contact person	
Telephone number	
Fax number	
E-mail address	
SDoC ID no.:	

<Product information>

Product name	Product number	Delivered unit			Product information
		Amount	Unit		

<Materials information>

		Unit
This materials information shows the amount of hazardous materials contained in	1	

(unit: piece, kg, m, m^2, m^3, etc) of the product.

Table	Material name		Threshold level	Present above threshold level	If yes, material mass		If yes, information on where it is used
				Yes / No	Mass	Unit	
Table A (materials listed in appendix 1 of the Convention)	Asbestos	Asbestos	no threshold level				
	Polychlorinated biphenyls (PCBs)	Polychlorinated biphenyls (PCBs)	no threshold level				
	Ozone depleting substance	Chlorofluorocaobons (CFCs)	no threshold level				
		Halons					
		Other fully halogenated CFCs					
		Carbon tetrachloride					
		1,1,1-Trichloroethane					
		Hydrochlorofluorocaobons					
		Hydrobromofluorocaobons					
		Methyl bromide					
		Bromochloromethane					
	Anti-fouling systems containing organotin compounds as a biocide		2,500 mg total tin/kg				

Table	Material name	Threshold level	Present above threshold level	If yes, material mass		If yes, information on where it is used
			Yes / No	Mass	Unit	
Table B (materials listed in appendix 2 of the Convention)	Cadmium and cadmium compounds	100 mg/kg				
	Hexavalent chromium and hexavalent chromium compounds	1,000 mg/kg				
	Lead and lead compounds	1,000 mg/kg				
	Mercury and mercury compounds	1,000 mg/kg				
	Polybrominated biphenyl (PBBs)	1,000 mg/kg				
	Polybrominated dephenyl ethers (PBDEs)	1,000 mg/kg				
	Polychloronaphthalenes (Cl >= 3)	no threshold level				
	Radioactive substances	no threshold level				
	Certain shortchain chlorinated paraffins	1%				

* * *

APPENDIX 7

FORM OF SUPPLIER'S DECLARATION OF CONFORMITY

Supplier's Declaration of Conformity for Material Declaration management

1) Identification number: _____

2) Issuer's name: _____

Issuer's address: _____

3) Object(s) of the declaration: _____

_____

_____

4) The object(s) of the declaration described above is in conformity with the following documents：

	Document no.:	Title:	Edition/date of issue
5)	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

6) Additional information： _____

_____

Signed for and on behalf of:

_____

_____

(Place and date of issue)

7) _____ _____

(Name, function) (Signature)

* * *

APPENDIX 8

EXAMPLES OF TABLE A AND TABLE B MATERIALS OF APPENDIX 1 WITH CAS NUMBERS

*This list is developed with reference to Joint Industry Guide No.101.

*This list is not exhaustive; it represents examples of chemicals with known CAS numbers and may require periodical updating.

Table	Material Category	Substances	CAS Numbers
Table A (materials listed in appendix 1 of the Convention)	Asbestos	Asbestos	1332-21-4
		Actinolite	77536-66-4
		Amosite (Grunerite)	12172-73-5
		Anthophyllite	77536-67-5
		Chrysotile	12001-29-5
		Crocidolite	12001-28-4
		Tremolite	77536-68-6
	Polychlorinated biphenyls (PCBs)	Polychlorinated biphenyls	1336-36-3
		Aroclor	12767-79-2
		Chlorodiphenyl (Aroclor 1260)	11096-82-5
		Kanechlor 500	27323-18-8
		Aroclor 1254	11097-69-1
	Ozone depleting substances/isomers (they may contain isomers that are not listed here)	Trichlorofluoromethane (CFC11)	75-69-4
		Dichlorodifluoromethane (CFC12)	75-71-8
		Chlorotrifluoromethane (CFC 13)	75-72-9
		Pentachlorofluoroethane (CFC 111)	354-56-3
		Tetrachlorodifluoroethane (CFC 112)	76-12-0
		Trichlorotrifluoroethane (CFC 113)	354-58-5
		1,1,2 Trichloro-1,2,2 trifluoroethane	76-13-1
		Dichlorotetrafluoroethane (CFC 114)	76-14-2
		Monochloropentafluoroethane (CFC 115)	76-15-3
		Heptachlorofluoropropane (CFC 211)	422-78-6
			135401-87-5
		Hexachlorodifluoropropane (CFC 212)	3182-26-1
		Pentachlorotrifluoropropane (CFC 213)	2354-06-5
			134237-31-3
		Tetrachlorotetrafluoropropane (CFC 214) 1,1,1,3-Tetrachlorotetrafluoropropane	29255-31-0 2268-46-4
		Trichloropentafluoropropane (CFC 215) 1,1,1-Trichloropentafluoropropane 1,2,3-Trichloropentafluoropropane	1599-41-3 4259-43-2 76-17-5
		Dichlorohexafluoropropane (CFC 216)	661-97-2
		Monochloroheptafluoropropane (CFC 217)	422-86-6
		Bromochlorodifluoromethane (Halon 1211)	353-59-3
		Bromotrifluoromethane (Halon 1301)	75-63-8
		Dibromotetrafluoroethane (Halon 2402)	124-73-2
		Carbon tetrachloride (Tetrachloromethane)	56-23-5
		1,1,1, - Trichloroethane (methyl chloroform) and its isomers except 1,1,2-trichloroethane	71-55-6
		Bromomethane (Methyl bromide)	74-83-9
		Bromodifluoromethane and isomers (HBFC's)	1511-62-2
		Dichlorofluoromethane (HCFC 21)	75-43-4
		Chlorodifluoromethane (HCFC 22)	75-45-6
		Chlorofluoromethane (HCFC 31)	593-70-4
		Tetrachlorofluoroethane (HCFC 121) 1,1,1,2-tetrachloro-2-fluoroethane (HCFC 121a) 1,1,2,2-tetracloro-1-fluoroethane	134237-32-4 354-11-0 354-14-3

*This list is developed with reference to Joint Industry Guide No.101.

*This list is not exhaustive; it represents examples of chemicals with known CAS numbers and may require periodical updating.

Table	Material Category	Substances	CAS Numbers
		Trichlorodifluoroethane (HCFC 122) 1,2,2-trichloro-1,1-difluoroethane	41834-16-6 354-21-2
		Dichlorotrifluoroethane(HCFC 123) Dichloro-1,1,2-trifluoroethane 2,2-dichloro-1,1,1-trifluroethane 1,2-dichloro-1,1,2-trifluroethane (HCFC-123a) 1,1-dichloro-1,2,2-trifluroethane (HCFC-123b) 2,2-dichloro-1,1,2-trifluroethane (HCFC-123b)	34077-87-7 90454-18-5 306-83-2 354-23-4 812-04-4 812-04-4
		Chlorotetrafluoroethane (HCFC 124) 2-chloro-1,1,1,2-tetrafluoroethane 1-chloro-1,1,2,2-tetrafluoroethane (HCFC 124a)	63938-10-3 2837-89-0 354-25-6
		Trichlorofluoroethane (HCFC 131) 1-Fluoro-1,2,2-trichloroethane 1,1,1-trichloro-2-fluoroethane (HCFC131b)	27154-33-2; (134237-34-6) 359-28-4 811-95-0
		Dichlorodifluoroethane (HCFC 132) 1,2-dichloro-1,1-difluoroethane (HCFC 132b) 1,1-dichloro-1,2-difluoroethane (HFCF 132c) 1,1-dichloro-2,2-difluoroethane 1,2-dichloro-1,2-difluoroethane	25915-78-0 1649-08-7 1842-05-3 471-43-2 431-06-1
		Chlorotrifluoroethane (HCFC 133) 1-chloro-1,2,2-trifluoroethane 2-chloro-1,1,1-trifluoroethane (HCFC-133a)	1330-45-6 1330-45-6 75-88-7
		Dichlorofluoroethane(HCFC 141) 1,1-dichloro-1-fluoroethane (HCFC-141b) 1,2-dichloro-1-fluoroethane	1717-00-6; (25167-88-8) 1717-00-6 430-57-9
		Chlorodifluoroethane (HCFC 142) 1-chloro-1,1-difluoroethane (HCFC142b) 1-chloro-1,2-difluoroethane (HCFC142a)	25497-29-4 75-68-3 25497-29-4
		Hexachlorofluoropropane (HCFC 221)	134237-35-7
		Pentachlorodifluoropropane (HCFC 222)	134237-36-8
		Tetrachlorotrifluropropane (HCFC 223)	134237-37-9
		Trichlorotetrafluoropropane (HCFC 224)	134237-38-0
		Dichloropentafluoropropane, (Ethyne, fluoro-) (HCFC 225) 2,2-Dichloro-1,1,1,3,3-pentafluoropropane(HCFC 225aa) 2,3-Dichloro-1,1,1,2,3-pentafluoropropane (HCFC 225ba) 1,2-Dichloro-1,1,2,3,3-pentafluoropropane (HCFC 225bb) 3,3-Dichloro-1,1,1,2,2-pentafluoropropane (HCFC 225ca) 1,3-Dichloro-1,1,2,2,3-pentafluoropropane (HCFC 225cb) 1,1-Dichloro-1,2,2,3,3-pentafluoropropane(HCFC 225cc) 1,2-Dichloro-1,1,3,3,3-pentafluoropropane (HCFC 225da) 1,3-Dichloro-1,1,2,3,3-pentafluoropropane (HCFC 225ea) 1,1-Dichloro-1,2,3,3,3-pentafluoropropane(HCFC 225eb)	127564-92-5; (2713-09-9) 128903-21-9 422-48-0 422-44-6 422-56-0 507-55-1 13474-88-9 431-86-7 136013-79-1 111512-56-2
		Chlorohexafluoropropane (HCFC 226)	134308-72-8
		Pentachlorofluoropropane (HCFC 231)	134190-48-0
		Tetrachlorodifluoropropane (HCFC 232)	134237-39-1
		Trichlorotrifluoropropane (HCFC 233) 1,1,1-Trichloro-3,3,3-trifluoropropane	134237-40-4 7125-83-9
		Dichlorotetrafluoropropane (HCFC 234)	127564-83-4
		Chloropentafluoropropane (HCFC 235) 1-Chloro-1,1,3,3,3-pentafluoropropane	134237-41-5 460-92-4
		Tetrachlorofluoropropane (HCFC 241)	134190-49-1
		Trichlorodifluoropropane (HCFC 242)	134237-42-6

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Table	Material Category	Substances	CAS Numbers
		Dichlorotrifluoropropane (HCFC 243) 1,1-dichloro-1,2,2-trifluoropropane 2,3-dichloro-1,1,1-trifluoropropane 3,3-Dichloro-1,1,1-trifluoropropane	134237-43-7 7125-99-7 338-75-0 460-69-5
		Chlorotetrafluoropropane (HCFC 244) 3-chloro-1,1,2,2-tetrafluoropropane	134190-50-4 679-85-6
		Trichlorofluoropropane (HCFC 251) 1,1,3-trichloro-1-fluoropropane	134190-51-5 818-99-5
		Dichlorodifluoropropane (HCFC 252)	134190-52-6
		Chlorotrifluoropropane (HCFC 253) 3-chloro-1,1,1-trifluoropropane (HCFC 253fb)	134237-44-8 460-35-5
		Dichlorofluoropropane (HCFC 261) 1,1-dichloro-1-fluoropropane	134237-45-9 7799-56-6
		Chlorodifluoropropane (HCFC 262) 2-chloro-1,3-difluoropropane	134190-53-7 102738-79-4
		Chlorofluoropropane (HCFC 271) 2-chloro-2-fluoropropane	134190-54-8 420-44-0
	Organotin compounds (tributyl tin, triphenyl tin, tributyl tin oxide)	Bis(tri-n-butyltin) oxide	56-35-9
		Triphenyltin N,N'-dimethyldithiocarbamate	1803-12-9
		Triphenyltin fluoride	379-52-2
		Triphenyltin acetate	900-95-8
		Triphenyltin chloride	639-58-7
		Triphenyltin hydroxide	76-87-9
		Triphenyltin fatty acid salts (C=9-11)	47672-31-1
		Triphenyltin chloroacetate	7094-94-2
		Tributyltin methacrylate	2155-70-6
		Bis(tributyltin) fumarate	6454-35-9
		Tributyltin fluoride	1983-10-4
		Bis(tributyltin) 2,3-dibromosuccinate	31732-71-5
		Tributyltin acetate	56-36-0
		Tributyltin laurate	3090-36-6
		Bis(tributyltin) phthalate	4782-29-0
		Copolymer of alkyl acrylate, methyl methacrylate and tributyltin methacrylate(alkyl; C=8)	-
		Tributyltin sulfamate	6517-25-5
		Bis(tributyltin) maleate	14275-57-1
		Tributyltin chloride	1461-22-9
		Mixture of tributyltin cyclopentanecarboxylate and its analogs (Tributyltin naphthenate)	-
		Mixture of tributyltin 1,2,3,4,4a, 4b, 5,6,10,10adecahydro-7-isopropyl-1, 4a-dimethyl-1-phenanthlenecarboxylate and its analogs (Tributyltin rosin salt)	-
		Other tributyl tins & triphenyl tins	-
Table B (Materials listed in appendix 2 of the Convention)	Cadmium/cadmium compounds	Cadmium	7440-43-9
		Cadmium oxide	1306-19-0
		Cadmium sulfide	1306-23-6
		Cadmium chloride	10108-64-2
		Cadmium sulfate	10124-36-4
		Other cadmium compounds	-
	Chromium VI compounds	Chromium (VI) oxide	1333-82-0
		Barium chromate	10294-40-3
		Calcium chromate	13765-19-0

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Table	Material Category	Substances	CAS Numbers
		Chromium trioxide	1333-82-0
		Lead (II) chromate	7758-97-6
		Sodium chromate	7775-11-3
		Sodium dichromate	10588-01-9
		Strontium chromate	7789-06-2
		Potassium dichromate	7778-50-9
		Potassium chromate	7789-00-6
		Zinc chromate	13530-65-9
		Other hexavalent chromium compounds	-
	Lead/lead compounds	Lead	7439-92-1
		Lead (II) sulfate	7446-14-2
		Lead (II) carbonate	598-63-0
		Lead hydrocarbonate	1319-46-6
		Lead acetate	301-04-2
		Lead (II) acetate, trihydrate	6080-56-4
		Lead phosphate	7446-27-7
		Lead selenide	12069-00-0
		Lead (IV) oxide	1309-60-0
		Lead (II,IV) oxide	1314-41-6
		Lead (II) sulfide	1314-87-0
		Lead (II) oxide	1317-36-8
		Lead (II) carbonate basic	1319-46-6
		Lead hydroxidcarbonate	1344-36-1
		Lead (II) phosphate	7446-27-7
		Lead (II) chromate	7758-97-6
		Lead (II) titanate	12060-00-3
		Lead sulfate, sulphuric acid, lead salt	15739-80-7
		Lead sulphate, tribasic	12202-17-4
		Lead stearate	1072-35-1
		Other lead compounds	-
	Mercury /mercury compounds	Mercury	7439-97-6
		Mercuric chloride	33631-63-9
		Mercury (II) chloride	7487-94-7
		Mercuric sulfate	7783-35-9
		Mercuric nitrate	10045-94-0
		Mercuric (II) oxide	21908-53-2
		Mercuric sulfide	1344-48-5
		Other mercury compounds	-
	Polybrominated biphenyls (PBBs) and polybrominated diphenyl ethers (PBDEs)	Bromobiphenyl and its ethers	2052-07-5 (2-Bromobiphenyl)
			2113-57-7 (3-Bromobiphenyl
			92-66-0 (4-Bromobiphenyl)
			101-55-3 (ether)
		Decabromobiphenyl and its ethers	13654-09-6
			1163-19-5 (ether)
		Dibromobiphenyl and its ethers	92-86-4
			2050-47-7 (ether)
		Heptabromobiphenylether	68928-80-3
		Hexabromobiphenyl and its ethers	59080-40-9
			36355-01-8 (hexabromo-1,1'-biphenyl)
			67774-32-7 (Firemaster FF-1)
			36483-60-0 (ether)
		Nonabromobiphenylether	63936-56-1
		Octabromobiphenyl and its ethers	61288-13-9
			32536-52-0 (ether)

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Table	Material Category	Substances	CAS Numbers
		Pentabromobidphenyl ether (note: commercially available PeBDPO is a complex reaction mixture containing a variety of brominated diphenyloxides.	32534-81-9 (CAS number used for commercial grades of PeBDPO)
		Polybrominated biphenyls	59536-65-1
		Tetrabromobiphenyl and its ethers	40088-45-7
			40088-47-9 (ether)
		Tribromobiphenyl ether	49690-94-0
	Polychlorinated naphthalenes	Polychlorinated naphthalenes	70776-03-3
		Other polychlorinated naphthalenes	-
	Radioactive substances	Uranium	-
		Plutonium	-
		Radon	-
		Americium	-
		Thorium	-
		Cesium	7440-46-2
		Strontium	7440-24-6
		Other radioactive substances	-
	Certain shortchain chlorinated paraffins (with carbon length of 10-13 atoms)	Chlorinated paraffins (C10-13)	85535-84-8
		Other short chain chlorinated paraffins	-