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Agenda item 3

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RECYCLING OF SHIPS

Report of the correspondence group on ship recycling guidelines (Part I)

Submitted by Japan

SUMMARY	
Executive summary:	This report summarizes the work of the correspondence group on ship recycling guidelines established by MEPC 58
Strategic direction:	7.1
High-level action:	7.1.2
Planned output:	7.1.2.2
Action to be taken:	Paragraph 13
Related documents:	MEPC 58/23, MEPC 58/3/2, MEPC 58/3/7, MEPC 58/3/10; MEPC 56/21, MEPC 56/3/4 and MEPC 56/3/5

Introduction

1 In view of the importance of the adoption of the Guidelines for the Inventory of Hazardous Materials and the Guidelines for the Safe and Environmentally Sound Recycling as soon as possible after the adoption of the Convention, the fifty-eighth session of the Marine Environment Protection Committee (MEPC 58) noted that the fourth Intersessional Meeting of the Working Group on Ship Recycling (ISRWG 4) had also considered the following three submissions relating to these guidelines: MEPC 58/3/2 (Japan and Germany), MEPC 58/3/7 (Denmark) and MEPC 58/INF.18 (Japan). Acknowledging that it did not have sufficient time for a thorough review of the guidelines, ISRWG 4 had agreed to postpone the further development of these two guidelines with a view to their finalization, if possible, at MEPC 59.

2 During MEPC 58, the Committee decided to establish a correspondence group, under the coordination of Japan, for the further development of the Guidelines for the Safe and Environmentally Sound Ship Recycling and the Guidelines for the Inventory of Hazardous Materials, with the following Terms of Reference:

"On the basis of the outcomes of the fourth Intersessional Meeting of the Working Group on Ship Recycling and of MEPC 58, the Correspondence Group on Ship Recycling Guidelines is instructed to:

.1 further develop the text of the Guidelines for Safe and Environmentally Sound Ship Recycling and of Guidelines for the Inventory of Hazardous Materials, taking into account the proposals in documents: MEPC 58/3/2 (Japan and Germany), MEPC 58/3/7 (Denmark), MEPC 58/3/10 (Germany) and MEPC 58/INF.18 (Japan), as well as the proposals contained in relevant documents submitted to earlier sessions of the Committee;

.2 if possible, finalize the Guidelines for Safe and Environmentally Sound Ship Recycling and the Guidelines for the Inventory of Hazardous Materials; and

.3 report the outcome of its deliberations to MEPC 59."

Process of the correspondence group on ship recycling guidelines

3 In order to finalize the two guidelines if possible at MEPC 59, the group agreed to work with a time schedule taking its deliberation from November 2008 to March 2009 (refer to annex 1). Participation in the group was open to all delegations (governments and organizations) that could provide the necessary expertise on a timely basis, or had a particular interest in the issue.

4 The Correspondence Group had 41 members consisting of the following:

.1 **Member States**: Bangladesh, Belgium, Brazil, Canada, China, Cyprus, Denmark, Finland, France, Germany, India, Iran, Italy, Japan, Liberia, Malta, Marshall Islands, Mexico, the Netherlands, Norway, Panama, Portugal, the Republic of Korea, the Russian Federation, Spain, Sweden, Turkey, the United Kingdom, Ukraine and the United States;

.2 **Associate Members**: Hong Kong, China;

.3 **United Nations Specialized Agencies**: ILO, UNEP (Secretariat of the Basel Convention);

.4 **Intergovernmental Organizations**: The European Commission (EC); and

.5 **IMO Observer Organizations**: ICS, ISO, BIMCO, IACS, FOEI, CESA and GREENPEACE INTERNATIONAL.

5 With regard to the method of work and activity in the correspondence group, the group conducted its work by two categories which are "Guidelines for development of the Inventory of Hazardous Materials" (hereinafter "Inventory Guidelines") and "Guidelines for Safe and Environmentally Sound Ship Recycling" (hereinafter "Facility Guidelines"). These summaries of discussions are as follows.

Summary of discussion for the development of the Inventory Guidelines

6 At round 1, the base document for discussion was MEPC 58/3/2 submitted by Japan and Germany. This document contained the latest version of the Inventory Guidelines, which incorporated the outcome of the trial of developing the actual inventories for existing ships and new ships conducted by Japan. Many comments on the draft Guidelines were submitted. Therefore, at round 2-1st step, the comments on the main part of the guidelines by group members were considered, and coordinator comments and the revised main part of the guidelines were replied to group members. At round 2-2nd step, the comments on appendices in the previous round and on all parts of the guidelines in this round were considered.

7 The Group was able to refine many points of the Inventory Guidelines, and the draft Inventory Guidelines are attached as annex 2 to this document for further consideration at MEPC 59.

Remaining issues for consideration

8 The following points are highlighted for further consideration by the Committee because of reasons such as: a problem in substance was identified but no clear solution was proposed; or a proposal or proposals were made to solve the problem, but the group could not obtain consensus or get an enough number of comments from other participants to get to an agreement:

.1 *Treatment of Table D in appendix 1*: It was proposed that, in view of numerous items that could be listed in Table D, this Table should be streamlined to cover only electronic and lighting equipment. While this proposal was generally supported, there has been some concern expressed in this course of action, and there was a suggestion to keep the category of non ship-specific furniture, interior and similar equipment. The whole Table D in the draft text in appendix 1 and the related texts are put in square brackets, reflecting the above.

.2 *"Intentionally Added" (section 2 and section 4.1.3)*: In the definition part, it is defined as "deliberate use in the formulation of a product or subpart where its continued presence is desired in the final product or subpart to provide a specific characteristic, appearance , or quality". Section 4.1.3 of the Guidelines states that "if the materials listed in Table B of appendix 1 of the Guidelines are intentionally added above the threshold levels provided in Table B in products, their quality, location and the contents of the materials into them should be listed in the Inventory. This notion originally comes from JIG (Joint Industry Guide): global guidance document for material declaration for electronic industry. There have been suggestions to delete this notion from the guidelines; this means, Table B materials should be listed if they are above the threshold values no matter whether the addition of such material in product was intentional or not.

.3 *"Intentionally Added" (another issue) (section 2):* There was a suggestion by a participant that, drawing upon the precedent of the Stockholm Convention, the following sentence should be added after the definition of "Intentionally Added": "Except as otherwise specified in the Convention, quantities of a chemical occurring as unintentional trace contaminants in products shall not be considered in the Guidelines". As this suggestion came at the final round and did not have the chance to be commented, the sentence is added in the text in square brackets for further consideration.

.4 *Materials excluded to be listed in the Inventory (section 3.3):* This is a clause for the exemption from mandatory listing if a Hazardous Material is present with the common level of concentration in solid metals or metal alloys (e.g., steel, aluminium, and other metal alloys) when used for general construction like hull, superstructure and pipes. This is because such listing will not give any added value to recycling facilities as the steel is used everywhere in a ship and the steel will be used as steel. There was a proposal for a simpler expression to reflect the same substance, and two alternatives are put in the square brackets.

.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 original proposal (MEPC 58/3/2) was simply to state that "lack of the MD should be listed in the Inventory". Such explanation would be necessary as one may have to assume the situation where the MD cannot be obtained for certain parts/equipment during the newbuilding process. Another view was to list all the products for which MD cannot be obtained as PCHM (Potentially Containing Hazardous Materials). This might end up with too many PCHM at the design and construction stage. Two alternative wordings are put in square brackets in the draft text. A group member further suggested as a solution to allow the ship recycling facility to either: 1) sample, thereby proving/disproving the content of the material; or 2) simply assume/presume that the material is hazardous and dispose of it in appropriate manner.

.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 process of developing the Inventory for existing ships is inevitably different from the process for new ships where the necessary material information can be obtained through the suppliers via MD; the process for existing ships should count on the document check and visual/sampling check which is not as straightforward as the information collection via MD. The original text included the approval by the Administration/RO of the Visual/Sampling Check Plan prior to conducting an actual Visual/Sampling Check as such mechanism could reduce the uncertainties for the shipowner that the outcome of the development of the Inventory including the Visual/Sampling Check could be challenged only at the time when all the process is completed and the ship is about to depart. However, there has been a strong argument that such prior approval would not be necessary: according to the current draft, the process of developing the Inventory including the Visual/Sampling Plan is to be carried out by an expert/expert party authorized by the Administration/RO, and the Parties to the Convention should have the ability to rely on their duly chosen experts to undertake the designated tasks in a reasonable, practicable and technically compliant manner, without the need for a mandatory and bureaucratic review of each and every plan. Full argument for such view is provided in annex 2.

.7 *Grouping of materials in Sampling Check (section 4.2.5):* Originally the idea was included that materials likely to be of the same kind can be grouped in order to reduce the analytical work involved in sampling check. There was some scepticism expressed for this concept. A member suggested at the 2nd round, 2nd step as a way forward that all grouped materials are to be visually checked for assurance of appropriateness of this grouping. The idea is put in square brackets in the text, for further discussion.

.8 *Treatment of PCHM (section 4.2.6, appendix4.*6 and appendix 5.4):* While the basic position was to treat PCHM as Hazardous Materials, i.e. to be disposed of in accordance with the requirements of the Convention, it was argued that some flexibility should be given to the Ship Recycling Facility 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.

.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 proposal was to make small amounts of Lubricating Oil, etc., be out of the scope of the Inventory Guidelines unless they are concentrated over a certain amount (1 kg) in a particular place. Various questions have been raised on such treatment such as how the mass determination is to be made, reasoning of selecting 1 kg as criteria, and the reference to the concentration and its difference from the concept of the mass. This part is put in square brackets in the draft text.

9 The comments which are pertinent to the above points of the discussion are reproduced in annex 3 to this document together with some explanation by the coordinator as reference.

10 There were some general comments made at the final round (2nd round, 2nd step), which the group could not fit them into the fine tuning of the text of the guidelines. These are listed in the category as “general” in annex 3. While no particular suggestions on modifying the draft text of the guidelines have been presented in this document, the Committee may wish to address these points.

11 Besides those points explained in paragraph 8, there are several parts of the text which are put in square brackets. These are the wording where the Group is in general agreement as far as the substance is concerned, but suggestions have been made for editorial improvements but the Group could not get enough responses to make decisions.

Summary of discussion for development of Facility Guidelines

12 This part is to be written in Part II of the group’s report (MEPC 59/3/1).

Action requested of the Committee

13 The Committee is invited to consider this report and to take action as appropriate.

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ANNEX 1

TIME SCHEDULE OF THE CORRESPONDENCE GROUP

	Inventory GL	Facility GL	
Round 1	14th Nov., 2008	14th Nov., 2008	1st Calling for Comments
	16th Dec., 2008	16th Dec., 2008	Deadline for response to 1st Calling
Round 2 [PRE][1st step]	19th Jan.,2009	16th Jan., 2009	PRE-2nd Calling for Comments
	30th Jan., 2009	30th Jan., 2009	Deadline for response to PRE-2nd Calling
Round 2 [2nd step]	13th Feb., 2009	16th Feb., 2009	2nd Calling for Comments
	27th Feb., 2009]	2nd March, 2009	Deadline for response to 2nd Calling
Preparation of the draft CG report for MEPC59	24th Mar., 2009	24th Mar., 2009	Final Calling for comments on the draft CG report
	1st Apr., 2009	1st Apr., 2009	Deadline for response to the draft CG report
Submission	10th Apr., 2009	10th Apr., 2009	CG report to be submitted to IMO

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ANNEX 2

DRAFT TEXT OF THE GUIDELINES FOR THE DEVELOPMENT OF THE INVENTORY OF HAZARDOUS MATERIALS

1 Introduction

1.1 Objectives of the Guidelines

These Guidelines provide recommendations for the development of the Inventory of Hazardous Materials (hereinafter referred to as "the Inventory") to assist compliance with regulation 5 (Inventory of Hazardous Materials) of the International Convention for the Safe and Environmentally Sound Recycling of Ships.

1.2 Application of the Guidelines

These Guidelines have been developed to give essential requirements to concerned stakeholders (e.g., shipbuilders, equipment suppliers, repairers, shipowners and ship management companies) for practical and reasonable development of the Inventory.

1.3 Objectives of the Inventory

Objectives of the Inventory are providing ship-specific information on the actual Hazardous Materials on board the ship in order to protect safety and health of workers and prevent environmental pollution at the Ship Recycling Facilities. This information will be used by the Ship Recycling Facilities to decide how the type and amount of materials identified in the Inventory of Hazardous Materials will be managed (regulation 9).

2 Definitions

The terms used in these Guidelines have the same meaning as those defined in the Convention, except for the following definitions.

The following definitions apply to the Guidelines.

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

["Intentionally added" means the deliberate use in the formulation of a product or subpart where its continued presence is desired in the final product or subpart to provide a specific characteristic, appearance, or quality. [Except as otherwise specified in the Convention, quantities of a chemical occurring as unintentional trace contaminants in products shall not be considered in the Guidelines.]

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

"Threshold level" is defined as a maximum concentration value by weight in homogeneous materials.

"Supply chain" means the progression of businesses involved in the supply and purchase of materials and goods from raw materials to final product.

"Supplier" means the company which provides products, including manufacturers, traders and agencies.

3 Requirements for the Inventory

3.1 Scope of the Inventory

The Inventory consists of:

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

3.2 Materials to be listed in the Inventory

The items set out in appendix 1 of the Guidelines "Items to be Listed in the Inventory of Hazardous Materials", which is to serve as a guidance document providing information on the hazardous materials that could be found on board, should be listed in the Inventory. Each item of appendix 1 of the Guidelines is classified into "Table A", "Table B", "Table C" and "Table D" based on its properties;

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

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

.3 Table C (Potentially Hazardous Items) is comprised of the items which are potentially hazardous to the environment and human health of workers at Ship Recycling Facilities; and

.4 [Table D (Regular Consumable Goods) is comprised of the goods which are not specific to a ship and are unlikely to be dismantled or treated at a Ship Recycling Facility.]

Table A and Table B are used for Part I of the Inventory. Table C is for Part II and III. Table D is for Part III.

3.3 Materials excluded to be listed in the Inventory

(Alternative 1)
Materials listed in Table B, if present in common level of concentrations, are not mandatorily to be listed in the Inventory of Hazardous Materials Part I for solid metals or metal alloys (e.g., steel, aluminium, and other metal alloys, etc.) when used for general constructions like hull, superstructure, pipes, or housings for equipment and machinery.

(Alternative 2: United States' proposal)
Materials listed in Table B that are inherent in the structural steel or other structural components are not mandatory to be listed in the Inventory.

3.4 Standard Format of the Inventory of Hazardous Materials

The Inventory should be developed based on the standard format set out in appendix 2 of the Guidelines "Standard Format of the Inventory of Hazardous Materials". The format includes examples of how to fill it in, which would serve indicative purpose 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 design and construction stage. [However, if necessary "Material Declaration (MD)" provided in section 6 of the Guidelines cannot be obtained, [lack of the MD should be listed in the Inventory] [products which does not accompany necessary MD should be listed as "Potentially Containing Hazardous Material"] and the Inventory may be accepted either by the Administration or by any person or organization authorized by it. In this case, the Inventory should be revised and updated by the necessary MD or other information provided by supplier/builder until next renewal survey.]

4.1.2 Check on the materials listed in Table A

During development of Part I of the Inventory, the materials listed in Table A of appendix 1 of the Guidelines should be checked and confirmed that in accordance with the Convention they are not contained in products. If they are used in compliance with the Convention, they should be listed in Part I of the Inventory based on the same requirements as provided in paragraph 4.1.3 of the Guidelines.

(Alternative proposed by the United States)
[During the development of the Inventory (Part I), the presence of materials listed in Table A of appendix 1 of the Guidelines should be checked and confirmed; the presence, quantity and location of any Table A materials should be listed in Part I of the Inventory.]

4.1.3 Check on the materials listed in Table B

If the materials listed in Table B of appendix 1 of the Guidelines are [intentionally added] above the threshold levels provided in Table B in products, their quantity, location and the contents of the materials into them should be listed in the Inventory, during development of Part I of the Inventory, unless they have to be listed in Tables C and D.

4.1.4 Process to check on the materials

The check on the materials provided in paragraphs 4.1.2 and 4.1.3 of the Guidelines should be based on "Material Declaration" provided in section 6 of the Guidelines by upstream suppliers in 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 regarding Part I of the Inventory and in order to set up minimum requirements, the following procedures should be followed to the satisfaction either of the Administration or of any person or organization authorized by it.

Referring to the attached flow diagram (appendix 4 of the Guidelines) and typical example for development process of Part I of the Inventory for existing ships (appendix 5 of the Guidelines), the procedure is based on the following steps:

.1 Collection of necessary information;

.2 Analysis and Definition of scope of investigations;

.3 Preparation of Visual/Sampling Check Plan;

.4 Approval of Visual/Sampling Check Plan by the Administration or by any person or organization authorized by it;

.5 Onboard Visual Check and Sampling Check; and

.6 Preparation of Part I of the Inventory and related Documentation.

Retroactive determination of the usage of Hazardous Materials present on board existing ships according to the Guidelines should be conducted as set out for new ships, including procedures described in section 6 and 7 of the Guidelines, as far as practicable. Alternatively the procedures described in subsection 4.2 should be applied for existing ships, but these procedures should not be used for any new installation due to conversion or repair of existing ships after initial preparation of the Inventory.

The procedures described in subsection 4.2, except "4.2.4 Approval of Visual/Sampling Check Plan either by the Administration or by any person or organization authorized by it", should be carried out by any expert or expert party recognized either by the Administration or by any person or organization authorized by it. Such an expert or expert party should not be the same as the person or organization authorized by the Administration to approve the Visual/Sampling Check Plan.

4.2.1 Collection of necessary information (Step 1)

Documentation should be prepared for materials used on board containing, or assumed to contain, materials listed in appendix 1 of these Guidelines. This includes, but is not limited to collection of available certificates, manuals, ship's plans, drawings, technical specifications, information from other Inventories and/or sister or similar ships, machinery, equipment, materials and coatings, and results of previous visual/sampling check and other analysis.

4.2.2 Analysis and Definition of scope of investigations (Step 2)

On the basis of collected information, as described under 4.2.1, the scope of necessary investigations should be analysed and decided. Typical example of development process of the Inventory of Hazardous Materials can be found in appendix 5. Investigation should cover all materials listed in Table A of appendix 1 of the Guidelines; the materials listed in Table B are exempted from being listed obligatorily.

4.2.3 Preparation of Visual/Sampling Check Plan (Step 3)

To specify the materials listed in appendix 1 of the Guidelines a visual/sampling check plan should be prepared taking into account the collected information and conclusions of the expert or expert party. The Visual/Sampling Check Plan is composed of the following three lists.

- List of equipment, system and/or area for Visual Check;
- List of equipment, system and/or area for Sampling Check; and
- List of equipment, system and/or area classed as "Potentially Containing Hazardous Material".

Any equipment, system and/or area specified regarding presence of the materials listed in appendix 1 of the Guidelines by document analysis should be listed in the List of equipment, system and/or area for Visual Check.

Any equipment, system and/or area which can not be specified regarding presence of the materials listed in appendix 1 of the Guidelines by document analysis should be listed in the List of equipment, system and/or area for Sampling Check. Sampling Check means to take samples and 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.

However, the equipment, system and/or area which can not be specified regarding presence of the materials listed in appendix 1 of the Guidelines by document analysis can be listed in the List of equipment, system and/or area classed as "Potentially Containing Hazardous Material" without the sampling check. 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.

Visual/Sampling Check points should be all points where:

- presence of materials to be considered for the Inventory Part I as listed in appendix 1 is likely;
- documentation is not specific; or
- materials of uncertain composition were used.

4.2.4 Approval of Visual/Sampling Check Plan either by the Administration or by any person or organization authorized by it (Step 4)

The plan should be approved either by the Administration or by any person or organization authorized by it officially prior to conducting of any onboard visual/sampling check that is considered necessary. The prepared Visual/Sampling Check Plan and results of documentation analysis should be made available either for the Administration or by any person or organization authorized by it. After their approval the related work can be conducted. If a modification to the Plan was requested by the Administration or by any person or organization authorized by it, the Plan should be modified according to the request. The Administration or any person or organization authorized by it should approve the Plan without unreasonable delay.

4.2.5 Onboard Visual/Sampling Check (Step 5)

Onboard Visual/Sampling Check should be carried out in accordance with approved Visual/Sampling Check Plan. When Sampling Check is carried out, samples should be taken and the sample points should be clearly marked on the ship plan and sample results referenced. [In order to reduce analysis work, materials likely to be of the same kind can be grouped. All grouped materials are to be visually checked for assurance of appropriateness of this grouping.] Sampling check can be carried out by the expert or the expert party.

Any uncertainty regarding the presence of Hazardous Materials should be clarified by Visual/Sampling Check. Check points are to be documented in the ship plan or photographs taken.

When equipment, system and/or area of the ship are not accessible for visual check or sampling check, this equipment, system and/or area is classified "Potentially Containing Hazardous Material". The prerequisite of this classification should be the same prerequisite in section 4.2.3. Equipment, system and/or area classed as "Potentially Containing Hazardous Material" can be investigated or sampling check can be conducted at request of the shipowner during a later survey (e.g., at repair, retrofit, conversion).

4.2.6 Preparation of Part I of the Inventory and related Documentation (Step 6)

If 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 distinct by marking in the remarks column of the Inventory of Hazardous Materials. Any equipment, system and/or area classified as Potentially Containing Hazardous Materials will have to be handled and disposed as Hazardous Materials in recycling process.

Any equipment, system and/or area classed as "containing hazardous material" or "Potentially Containing Hazardous Material" should be disposed or treated according to the requirements of the Convention. All corresponding findings and considerations arising from the above procedures shall be described and evaluated for providing information for further recycling work.

A party to this Convention should endeavour, as far as possible, to collect, assemble and make available the information concerning prohibited and/or restricted Hazardous Materials contained in machinery, equipment, materials and applied coatings on board existing ships. During the development of Part I of the Inventory, this information should be considered.

4.2.7 Illustration of the location of Hazardous Materials on board a ship

Preparation of the Location map of the materials listed in Table A is recommended in order to help recycling companies to understand the Inventory visually.

4.3 Maintenance and update of Part I of the Inventory during operation

4.3.1 Part I of the Inventory should be appropriately maintained and updated, especially checking at trade, repair and conversion of a ship.

4.3.2 Update of Part I of the Inventory in case of new installation

If machinery or equipment is replaced by new components, added and/or removed or coating of hull is renewed in case of new installation, Part I of the Inventory should be updated based on the same requirements for new ships as provided in paragraphs 4.1.2 to 4.1.4. No updating is required when identical parts or coatings are installed or applied.

4.3.3 Succession of the Part I of the Inventory

Part I of the Inventory should belong to a ship and succession of the information and conformity of it should be confirmed, especially when the flag, owner or operator of the ship changes.

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

4.4.1 Part II of the Inventory, when recycling of a ship is decided, should be developed before final survey taking into account the fact that a Ship destined to be recycled shall conduct operation in the period prior to entering the Ship Recycling Facility in order to minimize the amount of cargo residues, remaining fuel oil and wastes remaining on board (regulation 8.2).

4.4.2 The wastes to be listed in the Inventory

When the wastes listed in Part II of the Inventory provided in "Table C (Potentially hazardous Items)" of appendix 1 of the Guidelines are supposed to be delivered with the ship to a Ship Recycling Facility, the amount of the wastes should be estimated and their approximate quantity and location should be listed in Part II of the Inventory.

4.5 Development of Part III of the Inventory (Stores)

4.5.1 Part III of the Inventory, when recycling of a ship is decided, should be developed before 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 a real need for the ship activity during its last voyage.

4.5.2 The stores to be listed in the Inventory

When the stores to be listed in Part III of the Inventory provided in Table C (Potentially Hazardous Items) of appendix 1 of the Guidelines are supposed 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. If the materials listed in Table A and Table B are contained in the items listed in Table C, name and approximate contents of the materials should be remarked as far as possible.

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

If the liquids and gases listed in "Table C (Potentially Hazardous Items)" of appendix 1 of the Guidelines are contained 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 is applied to or injected into machinery and equipment to keep normal performance is out of scope of the provision[, unless they are

[present][concentrated] above 1kg in a place]. For later completion of the Inventory Part III during recycling preparation processes, the required quantity of them for normal operation including the related pipe system volumes should be prepared and documented at design and construction stage. This information belongs to a ship and succession of the information should be ensured when the flag, owner or operator of the ship changes.

4.5.4 The regular consumable goods to be listed in the Inventory

Regular consumable goods, as provided in Table D (Regular Consumable Goods) of appendix 1 of the Guidelines, should be listed in Part III of the Inventory when they are supposed to be delivered with the ship to a Ship Recycling Facility. The general description including name of item (e.g., TV-Set), manufacturer, quantity and location should be listed in Part III of the Inventory. In case of the regular consumable goods, the check on the materials provided in paragraphs 4.1.2 and 4.1.3 of the Guidelines should not be applied.

4.6 Description of the location of Hazardous Materials on board

Location of Hazardous Materials on board should be described and identified using the name of the location (e.g., second floor of Engine-room, Bridge DK, APT, No.1 Cargo Tank, Frame number) as named in the plan such as General Arrangement, Fire and Safety Plan, Machinery Arrangement, Joiner Plan and Tank Arrangement.

4.7 Description of the approximate quantity of Hazardous Materials

In order to identify the approximate quantity of Hazardous Materials at a glance, unit of the approximate quantity of Hazardous Materials should be unified into "kg", unless other units (e.g., "m^3" for materials of liquid or gases, "m^2" for materials used in floors or walls) are more appropriate to show the quantity. The figures of the approximate quantity should be described with two decimal places and can be rounded to two significant figures, as shown in the following examples.

Estimated quantity of Hazardous Material	Information in the Inventory
172 kg	172.00 kg
4.78 kg	4.78 kg
0.124 kg	0.12 kg
0.013 kg	0.01 kg
less than 0.010 kg	<0.01 kg

In the examples, "<0.01 kg" shows intentional presence or analysed presence of Hazardous Materials below 0.010 kg and it can be clearly distinguished from "not intentionally added".

5 Requirements to confirm the conformity of the Inventory

5.1 Design and construction stage

Conformity of Part I of the Inventory in design and construction stage should be confirmed by the collected "Supplier's declaration of conformity" described in section 7 and related "Material Declarations" collected from suppliers to shipbuilding industry.

5.2 Operation stage

Shipowners or ship management companies should implement the following measures in order to assure the conformity of Part I of the Inventory:

.1 to nominate a designated person who is responsible for maintenance and update of the Inventory (the designated person can be employed shoreside or on board);

.2 the designated person, to implement paragraph 4.3.2, should set up and supervise a system assuring necessary updating of the Inventory in case of new installation;

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

.4 to disclose related documents if it is required in survey or trading of a ship.

6 Material Declaration

6.1 General

Suppliers to shipbuilding industry should identify and declare whether or not the materials listed in Table A or Table B are intentionally added above the threshold level provided in appendix 1 of the Guidelines. However, it does not apply to the chemicals which do not constitute a part to the finished product.

6.2 Information required in the declaration

The following information is at least required in the Material Declaration.

.1 Date of declaration;

.2 Suppliers name;

.3 Product name (common product name or the name used by the manufacturer);

.4 Product number (for identification by the manufacturer);

.5 Declaration whether or not the materials listed in Table A and Table B of appendix 1 of the Guidelines are present in the product above the threshold level provided in appendix 1 of the Guidelines; and

.6 Mass of each contained material listed in Table A and/or Table B of appendix 1 of the Guideline if intentionally added above threshold level.

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

7 Supplier's Declaration of Conformity

7.1 Purpose

The purpose of Supplier's Declaration of Conformity is to give assurance of conformity of the identified object (delivered/produced products and related Material Declarations) to specified requirements (provided in section 7.2 of the Guidelines) to which the declaration refers, and to make clear who is responsible for that conformity and declaration.

7.2 Requirements

The following requirements should be satisfied in supplier's declaration of conformity:[1]

.1 Establishment of the company policy:
The company policy on the management of chemical substances in products which the supplier manufactures or sells should be established and maintained, including:

.a Compliance with law:
Regulations and requirements for the management of chemical substances in products should be clearly described in the documents, and they should be managed and kept in all related sections.

.b Acquisition of information on chemical substance content:
In procurement activities of the raw materials, the components and the products which consist of the products manufactured or sold, appropriate suppliers should be selected with the valuation basis for selection of suppliers, and the chemical substances information should be obtained.

.2 Specification of the management system covering:

.a Clarification of the management and responsibility:
The products, processes and the chemical substances to be managed and the organizational systems should be clearly defined in the companies' management criteria including related roles and responsibilities.

.b Documentation and its management:
The management system of the chemical substances in products should be systematically documented and maintained.

.c Notification of the revised information on the chemical substance contents:
When the chemical substance contents are revised, the information should be distributed to related departments and external parties (e.g., clients, customers) concerned immediately.

.d Internal audit of implementation:
The audit for checking the implementation regarding the execution of the management of chemical substances in products should be conducted at least once a year and the audit record should be kept.

[1] ISO90001 and ISO14001 certification can substitute with the requirements.

.e Review by management:
The situation regarding the execution of the management of chemical substances in products should be confirmed by corporate management and improvement should be executed based on the results.

7.3 Validity

The Supplier's Declaration of Conformity should be valid as long as the products are existent on board.

7.4 Contents and Format

The declaration of conformity should contain the following:

.1 unique identification of the declaration of conformity;

.2 the name and contact address of the issuer of the declaration of conformity;

.3 the identification of the object of the declaration of conformity (e.g., name, type, date of production or model number of a product, description of a process, management system, person or body, and/or other relevant supplementary information);

.4 the statement of conformity;

.5 a complete and clear list of standards or other specified requirements, as well as the selected options, if any;

.6 the date and place of issue of the declaration of conformity;

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

.8 any limitation on the validity of the declaration of conformity.

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

8 List of References

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

Appendix 2: Standard Format of the Inventory of Hazardous Materials

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

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

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

Appendix 6: Example form of Material Declaration

Appendix 7: Example form of Supplier's Declaration of Conformity

[Appendix 8: Details of Table A and Table B of appendix1 with CAS-numbers]

* * *

APPENDIX 1

ITEMS TO BE LISTED IN THE INVENTORY OF HAZARDOUS MATERIALS

TABLE A Materials Listed in appendix 1 of the Convention

No.	Materials		Inventory			Threshold level [to be developed]
			Part 1	Part 2	Part 3	
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	Organotin compounds	Tributyl Tins	x			2500 mg/kg
		Triphenyl Tins	x			
		Tributyl Tin Oxide (TBTO)	x			

TABLE B Materials Listed in appendix 2 of the Convention

No.	Materials	Inventory			Threshold level [to be developed]
		Part 1	Part 2	Part 3	
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%

TABLE C Potentially Hazardous Items

No.	Properties		Goods	Inventory		
				Part 1	Part 2	Part 3
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 Stabilisers/Rust Stabilisers			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 1	Part 2	Part 3
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		Extinguishant			x
C-49		Chemical Cleaner (inc. Electrical Equipment Cleaner, Carbon Remover)			x
C-50		Detergent/Bleacher (could be a liquid)			x
C-51		Miscellaneous Medicines			x
C-52		Fire fighting closing, 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 with that of MARPOL Annex V. However, Incinerator Ash is classified separately because it may include hazardous substances or heavy metals.

[TABLE D Regular Consumable Goods

No.	Properties	Example	Inventory		
			Part 1	Part 2	Part 3
D-1	Electrical and Electronic Equipment	Electronic Equipment -Computers, refrigerator, printers, scanners, television sets, radio sets, video cameras, video recorders, telephones, consumer batteries.			x
D-2	Lighting equipment	Fluorescent lamps, Filament bulbs, lamps			x
D-3	Non ship-specific furniture, Interior and similar equipment	Chairs, Sofas, Tables, Beds, Curtains, Carpets, Garbage bins, Bed-linen, Pillows, Towels, Mattresses, Storage racks, Decoration, Bathroom installations, Toys, not structurally relevant or integrated artwork			x

]

* * *

APPENDIX 2

STANDARD FORMAT OF THE INVENTORY OF HAZARDOUS MATERIALS

Part 1 HAZARDOUS MATERIALS CONTAINED IN THE SHIP'S STRUCTURE AND EQUIPMENT

1.1 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)	Appx. Quantity		Remarks
1	Anti-drumming compound	Primer, x xCo., xxprimer #300	Hull part	Lead	35.00	kg	
2	Anti-fouling	xx Co., xx coat #100	Underwater parts	TBT	120.00	kg	

1.2 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 of Use	Appx. 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	

1.3 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 of Use	Appx. Quantity		Remarks
1	Wall Panel	Accommodation	Asbestos	Insulation	2500.00	kg	
2	Wall Insulation	Engine Control Room	Lead	perforated plate	0.01	kg	cover of insulation material
			Asbestos	fire protection	25.00	kg	under lead containing plates
3							

Part 2 OPERATIONALLY GENERATED WASTE

No.	Location[1)]	Name of Item (Classification in appendix 1) and Detail (if any) of the Item	Appx. 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 3 STORES

3.1 Stores

No.	Location[1)]	Name of Item (Classification in appendix 1)	Unit Quantity		Figure		Appx. 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.

3.2 Liquids sealed in ship's machinery and equipment

No.	Type of Liquids (Classification in appendix 1)	Name of machinery or equipment	Location	Appx. 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	

3.3 Gases sealed in ship's machinery and equipment

No.	Type of Gases (Classification in appendix 1)	Name of machinery or equipment	Location	Appx. Quantity		Remarks
1	HFC	AC System	AC Room	100.00	kg	
2	HFC	Refrigerated provision chamber machine	AC Room	50.00	kg	

3.4 [Regular consumable goods]

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

1) About Location of Part II and Part III, each items should be entered in order based its location from a lower level to an upper level and from a fore part to an aft part for respective subparts. The Location of Part I is recommended to be described similarly as much as practicably possible.
2) About Remarks of Part III, if Hazardous Materials are integrated in products, the appx. amount of the contents should be shown as much as possible.

* * *

APPENDIX 3

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

1 Objective of the Typical Example

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

2 Flow of the development of Part I of the Inventory

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

.1 Collection of Hazardous Materials information (Step 1);
.2 Utilization of Hazardous Materials information (Step 2); and
.3 Preparation of the Inventory (by filling out of standard format) (Step 3).

3 Collection of Hazardous Materials information (Step 1)

3.1 Process of data collection of Hazardous Materials

Materials Declaration (MD) and Supplier's Declaration of Conformity (SDoC) should be requested and collected for products from suppliers (Tier 1 suppliers) by the shipbuilding yard. Tier 1 suppliers can require from their suppliers (Tier 2 suppliers) necessary information if they cannot develop the MD based on the information available. Thus the collection of Hazardous Materials will be executed throughout a shipbuilding supply chain (Figure 1).

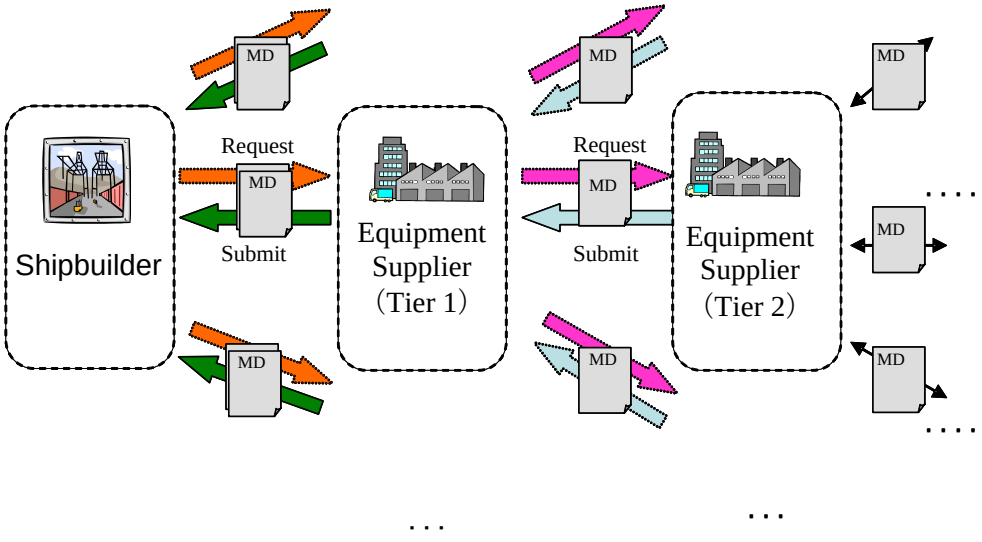


Figure 1 – Process of MD (and SDoC) collection including involvement of supply chain

3.2 Declaration of Hazardous Materials

Suppliers should declare mass of Hazardous Materials listed in Table A and Table B in the MD if these materials are contained above the given threshold levels in each "homogeneous materials" of a product.

(1) Materials listed in Table A

If one or more materials listed in Table A are found to be present above the given 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 as an exemption by the Convention in a product (e.g., new installations containing hydrochlorofluorocarbons (HCFCs) until 1 January 2020), the product should be listed in the Inventory.

(2) Materials listed in Table B

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

3.3 Definition of "Homogeneous Materials"

"Homogeneous Materials" are defined as "a material that cannot be mechanically disjointed into different materials" in this Guidelines. Figure 2 shows an example of four homogeneous materials which compose a cable. In this case, sheath, intervention, insulator and conductor are all homogeneous materials respectively.

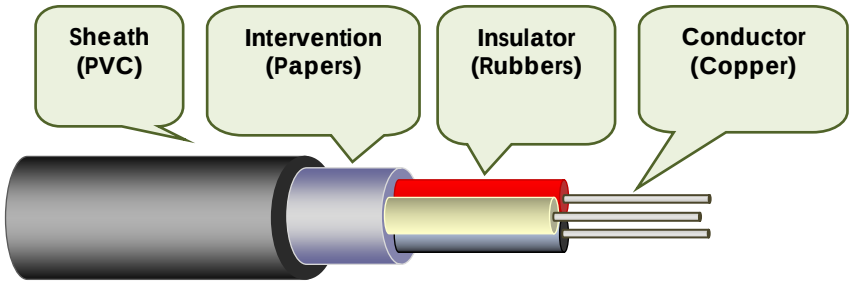


Figure 2 – An example of Homogeneous Materials (Cables)

3.4 Description of parts of use

If the Hazardous Materials to be declared are contained in a product, information of "parts of use" should be described as well as the mass of contained hazardous materials in MD.

4 Utilization of Hazardous Materials information (Step 2)

The products which contain Hazardous Materials above the given threshold levels should be clearly identified by MD. Approximate quantity of the Hazardous Materials should be calculated if the mass data of Hazardous Materials are declared by the Unit in MD which cannot be directly utilized for the Inventory.

5 Preparation of Inventory (by filling out of standard format) (Step 3)

The received information relevant for the Inventory as contained in Table A and Table B of appendix 1of the Guidelines has to be structured and utilized according to the coverage of the following Part I of the Inventory separation:

1.1 Paints and Coating Systems;
1.2 Equipment and Machinery; and
1.3 Structure and Hull.

5.1 Column "Name of Equipment and Machinery"

(1) Equipment and Machinery

Name of each equipment or machinery should be entered in this column. If more than one Hazardous Material is contained in one equipment or machine, the row of the equipment or machine should be divided and all the Hazardous Materials contained in it should be entered in the row. If more than one equipment or machine is situated in one location, both name and quantity of the equipment or machine should be entered in the column. However, mass-produced products such as bolts, nuts, and valves should be exempted. An example is shown in Table 1.

Table 1 – Example showing that more than one equipment or machine is situated in one location

No.	Name of Equipment and Machinery	Location	Materials (Classification in appendix 1)	Parts of Use	Appx. 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	Lead	Ingredient of Copper compounds	0.01	kg	

(2) Pipes and cables

The name of pipes and 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 relation to the compartments these systems are located in is not necessary when the system is clearly identified and properly named.

5.2 Column "Approximate Quantity"

Unit of the approximate quantity of solid Hazardous Materials should be unified into "kg". If the Hazardous Materials are liquids or gases, the unit should be unified into either "m^3" or "kg". The figures of the approximate quantity should be described with two decimal places and be rounded to two significant figures. If the Hazardous Materials is less than "10 g", description of the quantity will be "<0.01 kg".

Table 2 – An example of a switchboard

No.	Name of Equipment and Machinery	Location	Materials (Classification in appendix 1)	Parts of Use	Appx. Quantity		Remarks
	Switchboard	Engine Control Room	Cadmium	Housing coating	0.02	kg	
			Mercury	Heat gauge	<0.01	kg	less than 0.01kg

5.3 Column "Location"

(1) An example of a location list

It is recommended to prepare a location list which covers all compartments of a ship based on ship's plans (e.g., General Arrangement Plan, Engine-room Arrangement Plan, Accommodation Plan and Tank Arrangement Plan) and the other. Description of the location should be based on the unit such as decks and rooms which locations can be identified easily. Name of the location should be the same as used in the ship's plans prepared for the future shipowner so as to keep clear correspondence between the Inventory and the ship's plans. Examples of the name of the locations are shown in Table 3.

Table 3 – Examples of the location names

(A) Primary Classification	(B) Secondary Classification	(C) Name of Location
All over the ship		
Hull Part	Fore Part	Bos'n 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
		…

(2) Description of location of pipes and electrical systems

Location of pipes and systems including electric 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 there are two options, whichever seems more practicable:

a) listing of all components in the column,

b) the location of the system should be described using such expression as shown in "primary classification" and "secondary classification" of Table 3.

An example of description of a pipe system is shown in Table 4.

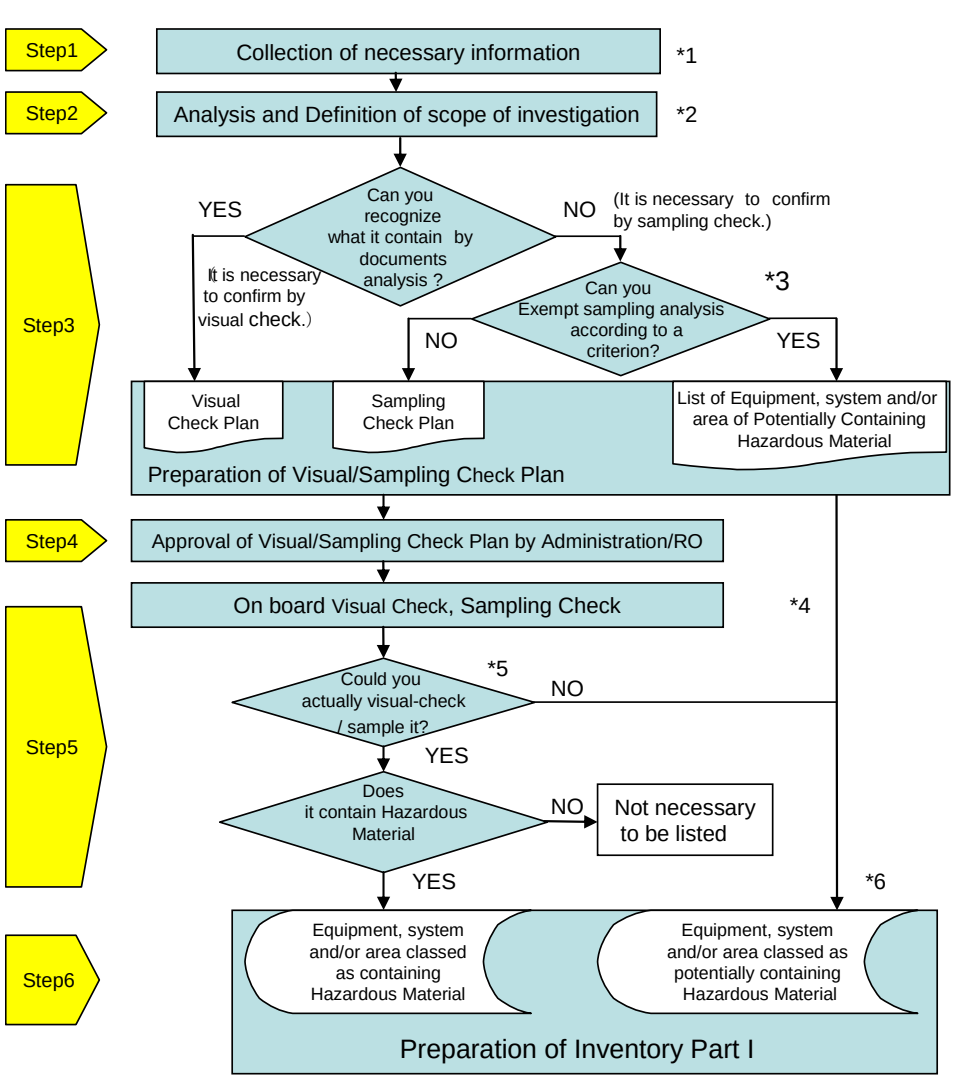
Table 4 – An example of description of a pipe system

No.	Name of Equipment and Machinery	Location	Materials (Classification in appendix 1)	Parts of Use	Appx. Quantity	Remarks
	Water Ballast Pipe	Engine-room, Hold parts				

* * *

APPENDIX 4

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



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

*2 :Investigation should cover all materials listed in Table A of Appendix 1 of the Guideline; the materials listed in Table B are exempted from being listed obligatorily.
It is impossible to investigate all equipment and area including those which are assumed not to contain Hazardous Materials described above.
Through analysis of available documents based on knowledge and experience, it is necessary to make clear which equipments and/or area should be put into scope of investigation.
[e.g. Asbestos is only included in a non-combustible material of A,B and C class division, coating, lagging, brake shoe lining, gasket and packing except special case.]

*3 : Equipment, system and/or area which can not be specified regarding presence of the materials listed in Appendix 1 of the Guideline by documents can be listed in the List of equipment, system and/or area classed as "Potentially Containing Hazardous Material" without the sampling check. 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. Sampling Check means to take samples and identification of Hazardous Material contained in the equipment, systems, and /or areas, by laboratory analysis. Sampling check should be applied where presence of Prohibited and Restricted Hazardous Material is assumed but cannot be recognized with analysis of available documentation.

*5 : When equipment, system and/or area of the ship can not be accessible for visual check or sampling check, this equipment, system and/or area is classified to "Potentially Containing Hazardous Material".

*6 : Any equipment, system and/or area classed as "Potentially Containing Hazardous Material" will have to be handled and disposed as Hazardous Materials in recycling process.

APPENDIX 5

TYPICAL EXAMPLE FOR DEVELOPMENT PROCESS OF 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, not only documents of the individual ship but also knowledge and experience of specialist personnel (experts) is necessary. 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 ensure a unified application globally. However, attention should be paid to variations for different types of ship[1)].

Compilation of Part I of the Inventory of Hazardous Material for existing ships is divided into the following 6 main steps which are described in paragraph 4.2 and appendix 4 of the Guidelines.

Step1: Collection of information;
Step2: Analysis and Definition of scope of investigations;
Step3: Preparation of Visual/Sampling Check Plan;
Step4: Approval of Visual/Sampling Check Plan by the Administration or by any person or organization authorized by it;
Step5: Onboard Visual/ Sampling Check; and
Step6: Preparation of Part I of the Inventory and related Documentation.

1) 28,000 Gross Tonnage Bulk Carrier constructed in 1985 is used as an example in this appendix.

2 Step 1: Collection of necessary information

2.1 Sighting of available documents

First of all, it is useful to collect detailed documents of the ship in question. The shipowner should try to confirm documents retained themselves as well as to obtain documents that shipyard, manufacturers or classification society have. 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 check and other analysis

When the ship has undergone conversions or major repair work, it is necessary to identify, as far as possible, those changes from initial design and specification to the current state of ship.

2.2 Indicative List

It is impossible to check all equipment, systems, and/or areas on board whether they contain Hazardous Materials or not. The number of all parts on board may be in excess of several thousands. In order to take a practical approach, an "Indicative List" should be prepared that shows which equipment, system, and/or area on board is assumed to contain Hazardous Materials. Field interview towards shipyards and suppliers is necessary to prepare such "Indicative Lists". Typical example of such "Indicative Lists" is shown as follows.

2.2.1 Materials to be checked and documented

Different Hazardous Materials are to be listed in Part I of the Inventory for existing ships. appendix 1 of the Guidelines contains all materials of concern. Table A shows those which are mandatory to be listed and Table B shows those which should be listed as far as practicable.

2.2.2 Materials listed in Table A

Table A lists the following 4 materials.

Asbestos
Polychlorinated Biphenyl (PCBs)
Ozone Depleting Substances
Organotin compounds

2.2.2.1 Asbestos

Field interview was done to over 200 Japanese Shipyards and Suppliers regarding use of asbestos in production. "Indicative Lists" for asbestos developed by the above research is shown below.

Structure and/or equipment	Component
Propeller shafting	Packing with low presser hydraulic piping flange
	Packing with casing
	Clutch
	Brake lining
	Synthetic sterntubes
Diesel Engine	Packing with piping flange
	Lagging material for fuel pipe
	Lagging material for exhaust pipe
	Lagging material turbo charger
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
	Packing with manhole
	Packing with 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 and etc.
Air conditioning system	Sheet packing, lagging material for piping and flexible joint
Miscellaneous	Ropes

The United States provided the following information	
	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 Hangar Inserts Weld Shop Protectors/Burn Covers Fire Fighting Blankets/Clothing/Equipment Ballast

Note: At a later stage, the table will be integrated with information from others.

2.2.2.2 Polychlorinated Biphenyl (PCBs)

Worldwide restriction of PCBs has begun by the Stockholm Convention which has come into effect on 17 May 2004. In Japan, domestic control has started since 1973, which prohibits all activities for 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	Period for use of PCBs
Transformer	Insulating oil	Until 1973
Condenser	Insulating oil	Until 1973
Fuel heater	Heating medium	Until 1973
Electric cable	Covering, insulating tape	Until 1973
Lubricating oil		Until 1973
Heat oil	Thermometers, sensors, indicators	Until 1973

The United States provided the following information		
Rubber/Felt gaskets		
Rubber Hose		
Plastic foam insulation		
Thermal insulating materials		
Voltage Regulators		
Switches/Reclosers/Bushings		
Electromagnets		
Adhesives/Tapes		

The United States provided the following information		
Surface contamination of machinery		
Oil-based paint		
Caulking		
Rubber isolation mounts		
Pipe hangars		
Light ballasts		
Plasticizers		
Felt under spectrum plates on top of hull bottom		

Note: At a later stage, the table will be integrated with information from others.

2.2.2.3 Ozone Depleting Substances

The "Indicative List" for Ozone Depleting Substances is shown as follows. Ozone Depleting Substances have been controlled according to the Montreal Protocol and MARPOL Convention. Although almost all substances are not to be used 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 ship is low.	Until 1996
Carbon tetrachloride	The possibility of usage in ship is low.	Until 1996
1,1,1-Trichloroethane (Methyl chloroform)	The possibility of usage in ship is low.	Until 1996
HCFC (R22, R141b)	Refrigerant for refrigerate machine	It is possible to use it until 2020.
HBFC	The possibility of usage in ship is low.	Until 1996
Methyl bromide	The possibility of usage in ship 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 bottom of ship. Also Organotin compounds have been used as anti-fouling media for fishing net. "International Convention on the Control of Harmful Anti-Fouling Systems on Ships (AFS Convention)" requires that all ships shall not apply or re-apply organotin compounds after 1 January 2003, and also that all ships either shall not bear such compounds on their hulls, or shall bear a coating that forms a barrier to such compounds leaching to sea after 1 January 2008. In addition, the AFS Convention enters/ed into force on 17 September 2008.

2.2.3 Material listed in Table B

The materials listed in Table B are exempted from being listed in Part I of the Inventory for existing ships obligatorily. However, if they can be identified in a practicable way, they should be listed in the Inventory, as much information as possible will be supportive for the future 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 (All electric appliances almost contain solder), Paints, preservative coatings, cable insulation, lead ballast, generators
Polybrominated Biphenyl (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: Analysis and Definition of scope of investigations

Preparation of a checklist is efficient method for development of the Inventory for existing ship in order to clarify the results of each step. Based on collected information including the "Indicative List" mentioned in Step 1, all equipment, system, and/or area onboard assumed to contain Hazardous Materials listed in Tables A and B should be listed up in the checklist. So, each equipment, system, and/or area onboard listed should be analysed and judged as to whether they contain Hazardous Materials or not.

Existence and volume of Hazardous Materials can be judged and calculated from Spare parts and Tools list and Maker's drawings. Existence of asbestos contained in floors, ceilings and walls can be identified by Fire Protection Plan, and existence of TBT in coatings might be identifiable by Coating Scheme and 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 judged to contain Hazardous Materials, the column for “Result of Document Analysis” in the checklist should be filled with “Y” which means “Contained”. In a similar manner, when an item is judged not to contain Hazardous Materials, the column should be filled with “N” which means “Not contained”. When it cannot be judged whether it contains Hazardous Materials or not, its column should be filled as “Unknown”.

Checklist (Step 2)

ANALYSIS AND DEFINITION OF SCOPE OF INVESTIGATIONS 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 Part1-1.1]													
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 Part1-1.2]													
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			Mkr's dwg
5	B	Lead	Nav. Br.deck	Batteries		6	16		○○Denchi Co.	Y			E-300
[Inventory Part1-1.3]													
1	A	Asbestos	Upp.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” Hazardous Materials in Step 2 should be required a Visual Check on board, and its column for “Check procedure” should be filled with “V” which means “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” can be classed as “Potentially Containing Hazardous Material” in case comprehensive justification is given or when little or no effect on disassembly as a unit and later ship recycling and disposal operations can be assumed. For example, in order to carry out a sampling check for “Packing with Aux. boiler” in the following checklist the shipowner needs to disassemble the Aux. boiler in a repair yard. The costs for this check are significantly higher than later disposal costs at a Ship Recycling Facility. This case should be allowed to justify the classification as “Potentially Containing Hazardous Material”.

Any equipment, system and/or area classed as Potentially Containing Hazardous Materials will have to be handled and disposed as Hazardous Materials in recycling process.

Checklist (Step 3)

ANALYSIS AND DEFINITION OF SCOPE OF INVESTIGATIONS 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 Part1-1.1]													
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 Part1-1.2]													
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		Mkr’s dwg
5	B	Lead	Nav. Br.deck	Batteries		6	16		○○Denchi Co.	Y	V		E-300
[Inventory Part1-1.3]													
1	A	Asbestos	Upp.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, “Visual/Sampling Check Plan” should be prepared. An example of “Visual/Sampling Check Plan” is shown below.

To avoid any incidents during check work, a schedule should be established to eliminate interference between such check work and other works on board or the particular area on board. Especially sampling work of asbestos might cause the release of asbestos fibres to the atmosphere. Therefore, protective measures and anti-scattering measures for asbestos should be applied before any sampling takes place.

Items listed in Visual/Sampling Check should be arranged in sequential order for conducting the onboard check 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
Ship owner	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	Make part of sampling wet before cut-off and harden after cut-off so as not to scatter. Notes ; Sampling workers wearing protective clothes should take sample(S).
Sampling of fragments of paints	Sampling of paints suspected to contain TBT should be collected and analysed with paint fragments from Load Line, directly under Bilge keel and Flat bottom near by midship.
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 mateials and ISO/CD 22262-2 Bulk materials--Part 2: Quantitative determination of asbestos by gravimetric and and microscopical methods. ICP Iuminous analysis (TBT)
Location of Visual/Sampling check	Refer to lists for Visual/Sampling check

List of equipment, system and/or area for Visual Check
See attached "ANALYSIS AND DEFINITTION 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 DEFINITTION OF SCOPE 0F INVESTIGATION for Sample ship" and " Location Map of Hazardous Materials for Sample ship"				

List of equipment, system and/or area classed as PCHM				
Location	Equipment, Machinery and/or zone	Name of parts	Materials	Result of Doc. Checking
Floor	Propeller cap	Gasket	Asbestos	PCHM
Engine room	Air operated shut-off valve	Grand packing	Asbestos	PCHM
Refer to attached " ANALYSIS AND DEFINITION OF SCOPE 0F INVESTIGATION for Sample ship" and " Location Map of Hazardous Materials for Sample ship"				

This plan is made in accordance with the Draft 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: Approval of Visual/Sampling Check Plan by the Administration or by any person or organization authorized by it

The "Visual/Sampling Check Plan" developed under Step 3 should be submitted to the Administration or to any person or organization authorized by it before starting Visual/Sampling Check. If a modification to the Plan was requested by the Administration or to any person or organization authorized by it, the Plan should be modified according to the request. The Administration or any person or organization authorized by it should approve the Plan without unreasonable delay.

6 Step 5: Onboard Visual/Sampling Check

Visual/Sampling Check should be conducted according to the Plan approved. Check points should be marked in the ship's plan or recorded with photographs.

A person conducting sample taking work should be protected by appropriate equipment (e.g., dust proof glasses, mask, clothes and gloves). Passengers, crewmembers and other persons onboard should be protected from exposure to Hazardous Materials caused by sampling check work. The person should conduct sample taking work in compliance with national regulations.

[*Alternative wording*: 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 for the minimization of 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 person taking samples should ensure compliance with relevant national regulations.]

After Visual/Sampling Check, these results should be recorded in the checklist. Equipment, system and/or area of the ship that cannot be accessed for Check should be classified as "Potentially Containing Hazardous Material". In this case, "Result of Check" column should be filled with "PCHM".

7 Step 6: Preparation of Part I of the Inventory and related Documentation

7.1 Development of Part I of the Inventory

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

7.2 Development of Location map of Hazardous Materials

Referring Part I of the Inventory, development of the Location map of Hazardous Materials is recommended in order to help recycling company to understand Inventory visually.

Checklist (Step 5 and Step 6)

ANALYSIS AND DEFINITION OF SCOPE OF INVESTIGATIONS for "Sample ship"

No.	Tbl A/B	Hazardous Materials *1	Location	Name of Equipment	Component	Quantity Unit (kg)	Quantity No.	Quantity Total (kg)	Manufacturer/Brand name	Result of DOC *2	Procedure of Check *3	Result of Check *4	Reference/DWG No.
[Inventory Part1-1.1]													
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 Part1-1.2]													
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	Mkr's dwg
5	B	Lead	Nav. Br.deck	Batteries		6	16	96.00	○○Denchi Co.	Y	V	Y	E-300
[Inventory Part1-1.3]													
1	A	Asbestos	Upp.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	: ab. 00,000 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: Analysis and Definition of Scope of Investigations
3: Location Maps of Hazardous Materials

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

Inventory of Hazardous Materials : "Sample Ship"

Part 1 HAZARDOUS MATERIALS CONTAINED IN THE SHIP'S STRUCTURE AND EQUIPMENT

1.1 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)	Appx. Quantity		Remarks
1	AF Paint	Unknown Paints	Flat Bottom	TBT	60.00	kg	Confirmed by sampling
2							
3							

1.2 Equipment and Machinery containing materials listed in Table A and Table B of appendix 1 of the Guidelines

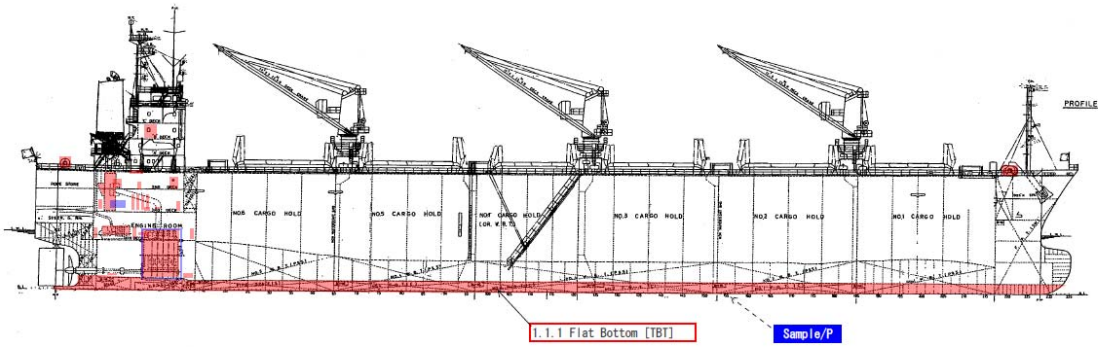
No.	Name of Equipment and Machinery	Location *1	Materials (Classification in appendix 1)	Parts of Use	Appx. Quantity		Remarks
1	Main engine	Lower floor	Asbestos	Exh. Pipe packing	3.50	kg	
2	Aux. boiler	3rd deck	Asbestos	Unknown packing	10.00	kg	PCHM(Potentially Containing Hazardous Material)
3	Piping/Flange	Engine room	Asbestos	Packing	50.00	kg	PCHM
4	Ref. provision plant	2nd deck	HCFC	Refrigerant (R22)	20.00	kg	
5	Batteries	Nav. Brid. Deck	Lead		96.00	kg	

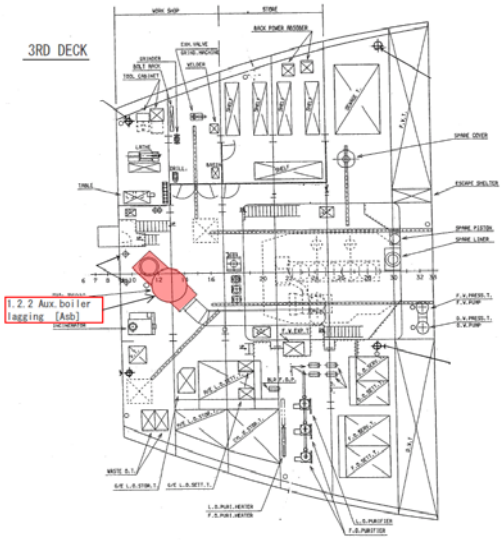
1.3 Structure and Hull containing materials listed in Table A and Table B of appendix 1 of the Guidelines

No.	Name of Structural Element	Location *1	Materials (Classification in appendix 1)	Parts of Use	Appx. Quantity		Remarks
1	Back deck ceiling	Upp.Deck	Asbestos	Engine room ceiling (A class)	3.80	kg	Confirmed by sampling
2							
3							

*1 About Location , each items should be entered in order based its location from a lower level to a upper level and from a fore part to an aft part for respective subparts.

Example of Location map of Hazardous Materials





* * *

APPENDIX 6

EXAMPLE FORM OF MATERIAL DECLARATION

<Date of Declaration>

Date	

<MD ID Number>

MD- ID-No.	

<Other Information (e.g. shipbuilder, hull NO.)>

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	Mass per product		Supplied Quantity	Product Information
		Mass	Unit		

<Material Information>

This material information shows the amount of hazardous materials contained in 1 Piece (unit: piece,m, m3, litre etc.) of the product.

Table	Material Name		Threshold Level	Intentionally added 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					
	Organotin compounds	Tributyl Tins	2,500 mg/kg				
		Triphenyl Tins					
		Tributyl Tin Oxide (TBTO)					

Table	Material Name	Threshold Level	Intentionally added 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

EXAMPLE FORM OF SUPPLIER'S DECLARATION OF CONFORMITY

Supplier's declaration of conformity for Material Declaration Management

1) No. _____

2) Issuer's name: _____

Issuer's address: _____

3) Object of the declaration: _____

_____

_____

4) The object of the declaration described above is in conformity with the requirement of 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]

[DETAILS OF TABLE A AND TABLE B OF APPENDIX 1 WITH CAS NUMBERS]

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

*This list is not comprehensive; it represents examples of chemicals with known CAS numbers.

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
		Trichlorodifluoroethane (HCFC 122) 1,2,2-trichloro-1,1-difluoroethane	41834-16-6 354-21-2

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

*This list is not comprehensive; it represents examples of chemicals with known CAS numbers.

Table	Material Category	Substances	CAS Numbers
		Dichlorotrifluoroethane(HCFC 123)	34077-87-7
		Dichloro-1,1,2-trifluoroethane	90454-18-5
		2,2-dichloro-1,1,1-trifluroethane	306-83-2
		1,2-dichloro-1,1,2-trifluroethane (HCFC-123a)	354-23-4
		1,1-dichloro-1,2,2-trifluroethane (HCFC-123b)	812-04-4
		2,2-dichloro-1,1,2-trifluroethane (HCFC-123b)	812-04-4
		Chlorotetrafluoroethane (HCFC 124)	63938-10-3
		2-chloro-1,1,1,2-tetrafluoroethane	2837-89-0
		1-chloro-1,1,2,2-tetrafluoroethane (HCFC 124a)	354-25-6
		Trichlorofluoroethane (HCFC 131)	27154-33-2; (134237-34-6)
		1-Fluoro-1,2,2-trichloroethane	359-28-4
		1,1,1-trichloro-2-fluoroethane (HCFC131b)	811-95-0
		Dichlorodifluoroethane (HCFC 132)	25915-78-0
		1,2-dichloro-1,1-difluoroethane (HCFC 132b)	1649-08-7
		1,1-dichloro-1,2-difluoroethane (HFCF 132c)	1842-05-3
		1,1-dichloro-2,2-difluoroethane	471-43-2
		1,2-dichloro-1,2-difluoroethane	431-06-1
		Chlorotrifluoroethane (HCFC 133)	1330-45-6
		1-chloro-1,2,2-trifluoroethane	1330-45-6
		2-chloro-1,1,1-trifluoroethane (HCFC-133a)	75-88-7
		Dichlorofluoroethane(HCFC 141)	1717-00-6; (25167-88-8)
		1,1-dichloro-1-fluoroethane (HCFC-141b)	1717-00-6
		1,2-dichloro-1-fluoroethane	430-57-9
		Chlorodifluoroethane (HCFC 142)	25497-29-4
		1-chloro-1,1-difluoroethane (HCFC142b)	75-68-3
		1-chloro-1,2-difluoroethane (HCFC142a)	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)	127564-92-5; (2713-09-9)
		2,2-Dichloro-1,1,1,3,3-pentafluoropropane(HCFC 225aa)	128903-21-9
		2,3-Dichloro-1,1,1,2,3-pentafluoropropane (HCFC 225ba)	422-48-0
		1,2-Dichloro-1,1,2,3,3-pentafluoropropane (HCFC 225bb)	422-44-6
		3,3-Dichloro-1,1,1,2,2-pentafluoropropane (HCFC 225ca)	422-56-0
		1,3-Dichloro-1,1,2,2,3-pentafluoropropane (HCFC 225cb)	507-55-1
		1,1-Dichloro-1,2,2,3,3-pentafluoropropane(HCFC 225cc)	13474-88-9
		1,2-Dichloro-1,1,3,3,3-pentafluoropropane (HCFC 225da)	431-86-7
		1,3-Dichloro-1,1,2,3,3-pentafluoropropane (HCFC 225ea)	136013-79-1
		1,1-Dichloro-1,2,3,3,3-pentafluoropropane(HCFC 225eb)	111512-56-2
		Chlorohexafluoropropane (HCFC 226)	134308-72-8
		Pentachlorofluoropropane (HCFC 231)	134190-48-0
		Tetrachlorodifluoropropane (HCFC 232)	134237-39-1
		Trichlorotrifluoropropane (HCFC 233)	134237-40-4
		1,1,1-Trichloro-3,3,3-trifluoropropane	7125-83-9
		Dichlorotetrafluoropropane (HCFC 234)	127564-83-4
		Chloropentafluoropropane (HCFC 235)	134237-41-5
		1-Chloro-1,1,3,3,3-pentafluoropropane	460-92-4
		Tetrachlorofluoropropane (HCFC 241)	134190-49-1
		Trichlorodifluoropropane (HCFC 242)	134237-42-6
		Dichlorotrifluoropropane (HCFC 243)	134237-43-7
		1,1-dichloro-1,2,2-trifluoropropane	7125-99-7
		2,3-dichloro-1,1,1-trifluoropropane	338-75-0
		3,3-Dichloro-1,1,1-trifluoropropane	460-69-5

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Table	Material Category	Substances	CAS Numbers
		Chlorotetrafluoropropane (HCFC 244)	134190-50-4
		3-chloro-1,1,2,2-tetrafluoropropane	679-85-6
		Trichlorofluoropropane (HCFC 251)	134190-51-5
		1,1,3-trichloro-1-fluoropropane	818-99-5
		Dichlorodifluoropropane (HCFC 252)	134190-52-6
		Chlorotrifluoropropane (HCFC 253)	134237-44-8
		3-chloro-1,1,1-trifluoropropane (HCFC 253fb)	460-35-5
		Dichlorofluoropropane (HCFC 261)	134237-45-9
		1,1-dichloro-1-fluoropropane	7799-56-6
		Chlorodifluoropropane (HCFC 262)	134190-53-7
		2-chloro-1,3-difluoropropane	102738-79-4
		Chlorofluoropropane (HCFC 271)	134190-54-8
		2-chloro-2-fluoropropane	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
		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

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

*This list is not comprehensive; it represents examples of chemicals with known CAS numbers.

Table	Material Category	Substances	CAS Numbers
		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)
		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)

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

*This list is not comprehensive; it represents examples of chemicals with known CAS numbers.

Table	Material Category	Substances	CAS Numbers
		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	-

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ANNEX 3

COMMENTS RELATED TO "ISSUES FOR FURTHER CONSIDERATION" (PARAGRAPH 8 OF THE DOCUMENT)

1 Treatment of Table D in appendix 1:

(Comment by France)
The fact that table D has been drastically reduced leads us to question the relevance of keeping this table and the distinction expressed in paragraph 3.2.4. (goods which are not specific to a ship and are unlikely to be dismantled or treated at a Ship Recycling Facility).

(Comment by Germany)
Comment: group D7 seems to be important, but its deletion, amongst others in Table D which are mostly acceptable, had been proposed. D7 might need some rewording, but generally non-structurally relevant, or functional but fixed installations can be found onboard many passenger ships. This may include sculptures, artwork, normal shelves and storage racks, bathroom equipment, and instruments (e.g., pianos). Thus it seems to be inappropriate to include them in the general scope of IHM Part 1 and their documentation should remain within IHM Part III.

Proposal 1: Insertion of "Electrical and" before "Electronical" in group D1, and adding of "refrigerator" to the list of examples.

Proposal 2: Maintaining the general idea and insertion of a group D-3 "Non ship-specific furniture, Interior and similar equipment" with the following text: "Storage racks, fixed installed decorations, bathroom installations, and non structurally relevant or integrated artwork".

(Comment by France)
We would suggest that section 3.4 of appendix 2 is named: "other stores".

Discussion at previous rounds

(Comment by the United States at round 1)
Consumable Goods. Removal of most consumable goods as part of the ship recycling process does not pose a threat to safety or the environment. Table D on page 14 should be significantly scaled back to the few key items that might require special handling at a ship recycling facility. Calling for excessive details on consumer goods merely serves to distract attention from the core hazardous compounds that should be the focus of the inventory. For example, reading Table D literally, and following the example in Table 3.4 on page 18, the "Hazardous Materials Inventory" would include the listing, quantity, location, and manufacturer of each pillow, chair, towel, lamp, sewing machine, etc. Such consumer goods are of no real environmental or safety interest. Contrast this with the fact that the inclusion of Table B materials in the Part I inventory is voluntary – so items containing mercury, cadmium, and hexavalent chromium can go unidentified in the Inventory. The perception that this disparate approach presents is one of significant imbalance.

Table D on page 14 should be limited to two categories:

- D-1 – Electronic Equipment – Computers, printers, scanners, television sets, radio sets, video cameras, video recorders, telephones, consumer batteries.

- D-2 – Lighting Equipment – Fluorescent lamps, electrical ballasts.
  We do not believe it is necessary to identify every piece of electrical equipment such as appliances, irons, drills, etc.

Further, the guidance should suggest that a general description of the consumable goods onboard is sufficient for the recycling facility to be prepared to appropriately manage them. It should be sufficient for the listing of these items to broadly identify where they are located (e.g., "TV sets are located on Decks 1, 6 and 7" or "TV sets and associated electronic equipment are located throughout the ship"). We do not understand the need to identify the manufacturer of consumer goods, as they all have the same characteristics and this information is not useful for a ship recycling facility; this column should be dropped from Table 3.4 on page 18.

(Comment by Coodinator at round 2-1st)
Intention of setting Table D is to exempt major work to check Hazardous Materials in the goods which are not specific to a ship by the process described in section 6 and 7 throughout their supply chain.

Although I think that a provision is necessary for such goods if they are brought into a Ship Recycling Facility even though they are not specific to a ship, I agree to the United States that some simplification should be made.

We believe that this Guideline should be modified based on the following points.

(1) Amend items in Table D reflecting the comments by the United States, which is that Table D should be limited to two categories ("D-1-Electronic Equipment" and "D-2-Lighting Equipment").
(2) Delete the column "Manufacturer" in the form of the Inventory (3.4 of appendix 2)
(3) Show an appropriate example to describe the location in the Remarks column of the Inventory (3.4 of appendix 2)

Japan would like to modify the text in accordance with the above direction, after getting more comments widely from the other members.

(Comment by France at round 2-2nd)
The co-ordinator proposals should be considered.
We must take care on interpretation of table D: some specific naval electronic devices (navigation equipment, loch, radars, master clock, big emergency network batteries, etc.) could be assimilated to these electronic "household appliances" and not be considered in Inventory Part I. It is necessary to differentiate between specific naval electronic devices and household appliances.

(Comment by Japan at round 2-2nd)
Interpretation on Table D is provided in Section 3.2.4. If such interpretation is not sufficient, please elaborate the reasons. Also note that Table D has been amended based on the United States' comments.

2 "Intentionally Added" (section 2 and section 4.1.3):

(Comment by France)
France suggests to delete this notion and replace by the notion of "concentration regarding the Statutory (or Regulated) level" all along the text. Numbers of hazardous substances are tolerated by Rules and Regulations, as start as they are below the statutory threshold level. So, to build the Inventory, we propose:

- if below the Statutory threshold level, then: just fill it in the inventory; and

- if above the Statutory threshold level, then the material should be prohibited on board and the supplier must find a substitute.

3 "Intentionally Added" (another issue) (Section 2):

(Comment by EC)
Definition proposed in the draft guidelines: "Intentionally added" means the deliberate use in the formulation of a product or subpart where its continued presence is desired in the final product or subpart to provide a specific characteristic, appearance, or quality.
Approach of Stockholm Convention (see footnote 1 of Annex B: http://chm.pops.int/Portals/0/Repository/convention_text/UNEP-POPS-COP-CONVTEXT-FULL.English.PDF). Except as otherwise specified in this Convention, quantities of a chemical occurring as unintentional trace contaminants in products and articles shall not be considered to be listed in this annex.
Imagine that you have 2 processes (process 1 and 2) for producing a given product.
Let's imagine that you know that, when using process 1, you will have one of the hazardous listed in the appendices of the IMO Convention materials as a trace contaminant in your final product. And image that you also know that, by using process 2 you will not have the hazardous materials as a trace contaminant.
With the definition proposed in the draft guidelines, the 2 processes are treated equally: i.e. the hazardous materials present as a trace contaminant will be excluded from the Inventory of Hazardous Materials (IHM).
But with the "Stockholm" approach, your hazardous materials present as a trace element will only benefit from the exemption to be listed in the IHM if you use process 2.

4 Materials excluded to be listed in the Inventory (section 3.3):

(Comment by France)
Materials listed in Table B, if present in <u>concentration below the regulated threshold level</u> ~~common level of concentrations~~, are not mandatorily to be listed in the Inventory of Hazardous Materials Part I for solid metals or metal alloys (e.g., steel, aluminium, and other metal alloys, etc.) when used for general constructions like hull, superstructure, pipes, or housings for equipment and machinery.

(Comment by EC)
We would like to thank Japan for the information already given and are looking forward for any additional information.
Having read the very comprehensive explanations given by Japan in response to the United States' comments on point 4.2.4, pages 8 to 10, of the compilation of comments) we are now less concerned about exaggerated use of part 3.3 since the Administration or any organization

recognized by it will have to approve the visual/sampling plan later on. We would prefer the second proposal.

Discussion at previous rounds

(Comment by France at round 1)
Materials listed in Table B, if present in common concentrations, are not mandatorily to be listed in the Inventory of Hazardous Materials Part I for solid metals or metal alloys (e.g., steel, aluminium, and other metal alloys, etc.) when used for general constructions like hull, superstructure, pipes, or housings for equipment and machinery.

Comment: This paragraph needs more information. What is the meaning of a "common concentration"? What are the equipments concerned?

(Comment by Sweden at round 1)
Should be more specific or explanatory regarding what "common concentrations" mean. Because there is a risk for undue interpretation of "common".

(Comment by the United States at round 1)
The paragraph as worded is confusing and is open to misinterpretation. It is believed that the intent of this paragraph is to exclude those items in the structural steel that may be present. Suggest amending wording to: "Materials listed in Table B that are inherent in the structural steel or other structural components are not mandatory to be listed in the IHM."

(Comment by EC at round 1)
Should be deleted, By reason of:

- no definition is given of the terms "common concentrations"; and

- such an exemption is not foreseen in the text of the draft convention (regulation 5.1.1)

(Comment by IACS at round 1)
IACS suggest that the examples should include large components such as bearings, shafts, valves, etc.

(Comment by Coordinator at round 2-1st)
All the materials and equipment composing a ship should be listed in the inventory in principle.
However, just steel plates and pipes composing hull structure do not contain Hazardous Materials apparently. Intention of this section is to exempt unnecessary work to collect MD for such materials.
I consider that the United States' proposal has valid points. So, I put down with two alternatives, one is the original text with a minor clarification and the other is the United States' proposal in section 3.3. Please comment on these two alternatives.

(Comment by France at round 2-1st)
"Materials listed in Table B that are inherent in the structural steel, or other structural components are not mandatory to be listed in the Inventory, as well as steel pipes. Paintings not applied within the shipyard can also be out of inventory scope."

(Comment by EC at round 2-1st)
We can not support any of the two proposals at this stage. We see some value in the United States' proposal but feel that the terms "structural components" is too broad.
Are there any accessible data on sampling of structural components after the recycling projects that would justify the introduction of such an exemption not foreseen in the Convention (see our previous comments)?

(Comment by Coodinator at round 2-2nd)
As far as we (Japan) investigated the steel material information which steel mills supplied to shipbuilders, Hazardous Materials were not contained. CG members are invited to provide any experiences and results of investigation.
Pending further information, I kept two alternatives in the draft text.

5 Treatment of the cases where the necessary Material Declaration cannot be obtained for the development of Part I of the Inventory for new ships (section 4.1.1):

(Comment by France)
France would rather support option of PCHM listed.

(Comments by the United States)
With regard to France's comment on section 4.1.1, the United States concurs with the alternative methodology offered by the coordinator. It is the United States' experience that, where a MD is unavailable, ship recycling facilities can properly classify the potentially hazardous nature of certain equipment. The preferred solution would be to allow the facility to either 1) sample, thereby proving/disproving the content of the material or 2) simply assume/presume that the material is hazardous and dispose of it in the appropriate manner. This proposal would allow cost-efficiency at the ship recycling yards while still providing the same high standard of protection provided by other proposals. It is the United States' opinion that the guidelines should be worded to capture this flexibility, allowing the facility to weigh the cost factors associated and proceed with a protective course of action: either 1) sample and dispose accordingly, or 2) presume hazardous and dispose accordingly.

Discussion on Previous rounds

(Comment by France at round 1)
However, if necessary "Material Declaration (MD)" provided in section 6 of the Guidelines cannot be obtained, lack of the MD should be listed in the Inventory . <u>When the orginal supplier didn't answer, it should be labelled as "Potentially containing hazardous materterial".</u>
The Inventory may be accepted either by the Administration or by any person or organization authorized by it. In this case, the Inventory should be revised and updated by the necessary MD or other information provided by supplier/builder until next survey.

Comment: It can help to identify the suppliers (blacklist)

(Comment by France at round 2-1st)
FR maintains its first comment and would like to have the opportunity of "PCHM labelling" This is the way to avoid critical situation at ship delivery, if several of the suppliers do not answer to the shipyards, despite many reminders (letters of reminders could be attached to the inventory if necessary).

(Comment by Coordinator at round 2-2nd)
One option for the case where the MD could not be obtained for a particular piece of equipment is, as France advocated, that equipment and areas of which MDs could not be obtained would be classified as "P.C.H.M."; they should be handled and disposed as Hazardous Materials in Ship Recycling Facility.

An alternative is to classify those equipment and areas as "lack of MD" in the Inventory. In this case, it would be a judgment of Ship Recycling Facility to determine how to treat them; based on general knowledge and their experiences, a Facility may consider that such equipment does not contain HM, although an MD was not available. A Facility, without sufficient evidence, may regard such equipment as PCHM, and treat it in the same way as HM.

Both options have pros and cons. The first option has a disadvantage that a considerable number of equipment could be regarded as PCHM, although general knowledge tells they are not, by a procedural reasons of lacking the MD.

In view of the above, I kept two options in the text. Further comments are invited, noting the above analysis.

6 Approval of Visual/Sampling Check Plan either by the Administrator or by any person or organization authorized by it (section 4.2.4):

(Comment by the United States)
With regard to the United States and coordinator's comments for section 4.2.4, we look forward to the views of other correspondence group members and appreciate the views expressed by the coordinator. The United States persists in its belief that Parties to the Convention should have the ability to rely on their duly-chosen experts to undertake the designated tasks in a reasonable, practicable, and technically compliant manner, without need for a mandatory, bureaucratic review of each and every plan. As discussed in an earlier paragraph, there is great difficulty at present concerning the determination of an acceptable standard for number and type of samples to be taken during the survey. Guidance that will assist stakeholders in determining the acceptability of the sampling scheme or the justifications for not sampling is not currently in existence. The approval of the plan by the Administration may or may not be done by an individual with a level of expertise commensurate with that of the expert who will undertake the survey. If those two individuals represent divergent views on what is an acceptable sampling plan, it does not appear to effectively reduce the risk of the shipowner; it could actually cause considerable delays and greater problems for the shipowner and stakeholders. Of similar note, the United States' comment for appendix 1 on threshold values and the coordinator comments reiterate the possible need for sampling guidelines as identified by France. The coordinator has pointed out that the shipowner and expert may wonder how many samples should be taken; and, while the United States agrees with this comment, we do not feel it represents an argument for prior-approval of sampling plans. Without clear guidance, it is likely that the Administration (or whatever expert is designated to approve the sampling plan) would encounter the same problem as the ship owner and expert surveyor regarding the number of samples for a determination of adequacy; this likelihood strengthens the argument that prior sampling plan approval does not reduce risk or add value. The United States believes that other options are available and specific tools can be provided to answer some of the uncertainties in identifying hazardous materials on a ship. We strongly believe that a plan approval, for every ship, is an inefficient approach to the objective of an accurate inventory of hazardous materials.

Discussion on Previous rounds

(Comment by the United States at round 2-1st)
The U.S. does not concur with the insertion of the final sentence in section 4.2.4. The United States reiterates its arguments questioning the necessity of mandatory approval for individual Visual/Sampling Plans. We believe that the Convention provides a clear obligation for the ship owner to prepare an accurate IHM. Potential errors could occur at any one of the steps that are identified in section 4.2, not just the preparation of the Visual/Sampling Plan. Further, even if the Visual/Sampling Plan is approved, that doesn't ensure that it will be properly implemented. In light of the dubious value, significant delays, and costs added by obligating all states (and the organizations recognized on their behalf) to approve all individual sampling plans, we believe that the Correspondence Group could consider the various other options (including those already in place under the Convention) to ensure the conformity of the IHM.

(Comment by Japan at round 2-2nd)
This issue (the necessity of prior approval for Visual/Sampling Check Plans) will be further considered after getting more comments from CG members.

In commenting on this, please note the following rationale for the prior approval of the Plans, together with the questions made by the United States.

In developing the Visual/Sampling Check Plans (which is the requirement in the Convention, regulation 5), there will be many judgments to be made. For example, the prerequisite for exempting the Sampling is a comprehensive justification such as the impossibility to conduct samplings without compromising ship safety and operational efficiency, and the non-existence of the effects on the recycling operation as particular parts and equipment will be disassembled as a unit.

Whether an expert of carrying out the Inventory development will minimize the sampling and classify everything as PCHM, the economic principle may prevail, because labelling everything as PCHM could be costly to ship owners, as discussed in other places.

However, there are still possibilities that the Check Plans are not developed appropriately, e.g., the extent of Sampling Check is unreasonably limited. The surveyors might point out this defect in the Check Plans, only after all the inventory development work has been already done and the ship is about to depart, if there was no prior approval of the Check Plans.
The prior approval of Check Plans may have such merits to reduce such shipowners' risk. This is a similar argument to seek the approval of Ship Recycling Plan by the competent authority of Recycling State at an earlier phase: Recycling States would always have the authority to stop and deny the recycling of a particular ship at the last moment, still it would be safer for a ship owner to involve the Recycling State at an earlier timing. By the same token, even with the prior approval of Check Plans, surveyors may still reject the outcome of the Inventory development work, but at least, the prior approval reduces the risk that the defects are already inherent in the planning stage.

While the above analysis was pro prior-approval, suggestions on "various other options", as the United States said, would be welcomed.

7 Grouping of Hazardous Materials in Visual/Sampling Check (section 4.2.5):

(Comment by Germany)
Comment: The proposed deletion of "In order to reduce analysis work, materials likely to be of the same kind can be grouped" in regulation 4.2.5 could led to extensive amounts of samples and related analysis work without better assurance of accurate results. This grouping method is widely applied in other industries and for identification of hazardous materials in e.g. buildings. It is of course necessary to carefully define groups. For avoidance of a too extensive or inaccurate groupings, which could led to inaccurate IHMs for existing ships, a visual inspection of all grouped areas should be required.

Proposal: Reversion of deletion of "In order to reduce analysis work, materials likely to be of the same kind can be grouped." and insertion of the sentence "All grouped materials are to be visually checked for assurance of appropriateness of this grouping" directly behind the formerly deleted text.

Discussion on Previous rounds

(Comment by the United States at round 1)
Suggest extreme caution in advocating grouping and composite sampling, particularly with those hazardous materials having threshold values. It is not uncommon for composited samples that are commingled to dilute the sample whereby the laboratory results would be lower than for an individual sample (and ultimately less than the threshold value). In the United States, this activity is strictly prohibited for things like PCBs. There may be other countries having similar domestic legislation prohibiting such activities.

(Comment by the United States at round 2-1st)
The redrafting of section 4.2.5 is cause for concern with regard to grouping/mixing samples of potentially similar materials. Our concerns are several. First of all, mixing of environmental samples is widely regarded as an unacceptable practice if the purpose is to determine concentrations or toxicity. Second, our experience in sampling ships that are being recycled has demonstrated that it is very difficult to conclude visually that one material is "likely" to be similar to another. We have seen electrical cables that are adjacent to each other and some can contain high levels of PCBs while others are PCB-free. Our comments in round 1 point out that the grouping of samples will likely result in the dilution of actual results. Another consequence could be that if samples from several pieces of equipment are mixed, it is possible that the result could show that a threshold value for the Inventory has been exceeded so all pieces of sampled equipment will need to be identified as hazardous, while in fact it may be that only one item is actually hazardous and the others are not. The United States strongly suggests that combining samples not be condoned or else the robustness of the guidelines will be questioned.

(Comment by Coordinator at round 2-2nd)
The text is amended based on these comments (Deletion of the sentence "In order to reduce analysis work, materials likely to be of the same kind can be grouped.".

8 Treatment of PCHM (section 4.2.6):

(Comment by the United States)
With regard to the proposal by the EC to include a new sentence at the end of section 4.2.6, the United States supports the EC in principle but we feel the proposed sentence has the unintended effect of limiting the ship recycling facility. Therefore, the United States suggests that the wording and intent of the sentence be broadened to allow the ship recycling facility the flexibility to choose one of two options: option 1) accept that the PCHM is a hazardous material and dispose of it as such, or option 2) sample the material in question and dispose of it according to the sampling result. The structure of the guideline does not appear to provide the ship recycling facility with the option of conducting its own third-party sampling and analysis. United States ship recyclers will typically conduct their own analyses to determine presence/absence of hazardous materials, regardless of what information they are provided by the ship owner. The SRF carefully evaluates the type of PCHM, the cost involved in sampling, and the estimated disposal costs and then chooses an appropriate course of action (generally based on the least costly course of action).

Discussion on previous rounds

(Comment by the United States at round 1)
This paragraph implies that any items determined to be "potentially" hazardous material shall be disposed of as such. Wouldn't it be better to advise that at the time of removal (repair, retrofit, dismantling) of that potential material that one of two things happen: either the material is determined via sampling and laboratory analysis to NOT contain hazardous materials, or the potential material is treated as a hazardous material and therefore disposed of as such.

(Comment by EC at round 2-1st)
Proposal: Add a new sentence at the end of the paragraph. "Any equipment, system and/or area classed as Potentially Containing Hazardous Materials will have to be handled and disposed as Hazardous Materials in recycling process."
Explanation: we see value in explicitly adding this sentence (proposed by the coordinator) in the guidelines to solve the difficulties we and the United States expressed during the last round of comments.

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):

(Comment by Germany)
Comment: The word "concentrated" is not correct, as an amount does not represent a concentration.

Proposal: Replacing "concentrated" in line 5 with "present".

(Comment by the United States)
While the United States recognizes the value in collecting information on these types of items (lubricating oils, anti-seize compounds and grease) we support the retention in brackets of the 1 KG requirement for the time being. We are concerned about 1) how this mass determination is to be made (e.g., the mass of the overall part, the mass of the fluid alone), 2) the reasoning for selecting 1 kg as the bright line, and 3) the reference to concentration and its difference from the concept of mass; we encourage further discussion on this issue.

Discussion on previous rounds

(Comment by the United States at round 1)
How is "unless they are concentrated above 1 kg in a place" to be interpreted? Does than mean greater than 1 kg on one piece of equipment? Does "in a place" mean a single compartment? If "related pipe system volumes" (as per later in the paragraph) are to be included, how do you define what "in one place" means?

(Comment by Japan at round 2-1st)
Intention of this sentence is to exempt listing of small amount of liquids such as Grease contained in various machinery and equipment because it is impossible to list all of them up.
If there is more appropriate description, this sentence can be amended.

(Comment by the United States at round 2-1st)
With regard to the United States' comment on section 4.5.3 and Japan's subsequent response, the United States suggests the removal of the bracketed text to avoid any confusion. If the Correspondence Group believes that confusion remains evident, then the United States suggests that the narrative in Japan's response be incorporated into the guideline.

(Comment by Japan at round 2-2nd)
At this stage, I put the square bracket on the questioned phrase "*, unless they are concentrated above 1 kg in a place*".
The intention of this sentence is to exempt listing of small amount of liquids such as grease contained in various machinery and equipment, because it is impossible to list all of them up.

However, it seems difficult to define "small amount" in the text. One possibility would be to delete the text in square brackets and leave the interpretation of "small amount" open, which may not pose serious problem in my view. Other suggestions would be welcomed.

10 *General Comments*:

(Comment by France) Importance of minimizing the wastes on board before recycling, including Tables C and D materials
All items listed in part II and III of the inventory are being disposed with the ship. Therefore they are waste (waste remaining on board). Consequently all items listed in Tables C and D should be minimized according to regulation 8.2. This disposition is very important. In fact as items listed in Table D are waste non specific to ship, if too many of them were to be sent with the ship, this could be perceived as a circumvention of the Basel Convention. In addition the importation of those waste might be forbidden by some countries under there waste national laws. Therefore it is very important that they are properly listed within the inventory so that the Administration can check that the ship is not overloaded with waste, which means that all equipments onboard correspond to a real need for the ship activity during its last trip; and that the country of destination has not forbidden importation of such wastes under its national legislation on waste shipments. Even if such precautions would rather fit in other guidelines (e.g., Guidelines for Survey and Certification) it is important that IHM guidelines draw the attention of the organization in charge of the inventory so that it bears in mind this underlying issue.

(Comment by the United States) Guidance on sampling strategy in the development of the Inventory for existing ships

With regard to France's comment and the coordinator's reply for section 4.2, the United States believes that while establishing guidance on sampling strategies for the various hazardous materials potentially on-board a ship would be helpful, the United States concurs with the coordinator that the development of such guidance is extremely difficult. The United States has developed numerous examples of sampling guidance and policies (some specific to the ship recycling industry); the process for achieving a practical, efficient, and cost-effective sampling protocol faces many challenges. The United States would welcome the opportunity to provide technical input based on our experiences. However, we suggest that developing such a strategy might be more effective at a later date; we think that any strategy would benefit from greater experience with the practical application of the Convention that will come with time. We would mention the guidance for sampling and survey developed after the adoption of the AFS Convention as precedent for this approach.

(Comment by the United States) Retention of background paperwork/checklists for the sake of future surveys

The United States recognizes the potential usefulness of the retention of background paper work and checklists, especially insofar as it may assist future surveys. We also note the potential burden from retaining all documents and lack of clarity as to what documents must be retained. We encourage further discussion among the group on what helpful documents should be retained and how such retention would be practical; this discussion should also include mitigation measures for owners regarding inadvertent loss.

(Comment by the United States) Suggested time allocation for Visual/Sampling Check

The coordinator's response to the United States' comment for appendix 5, section 2.1, states that it takes "60-80 man hours" for the document check. The United States greatly appreciates the efforts undertaken by Japan in arriving at this estimate. With this more definitive number in mind, we believe that it might be more appropriate to allocate time toward visual/sampling check through the reduction in paperwork review.

(Comment by France) Supplier's Declaration of Conformity

Declaration of conformity must be simpler to be successful.

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