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Rules for Classification and Construction

Part 1 Seagoing Ships

GUIDELINES FOR INVENTORY OF HAZARDOUS MATERIALS

Volume 15

2024 Edition

Biro Klasifikasi Indonesia

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GUIDELINES FOR INVENTORY OF HAZARDOUS MATERIALS

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The following Guidelines come into force on 1st October 2024.

Foreword

The Guidelines for Inventory of Hazardous Materials contains technical requirements and procedure for inventory hazardous materials at ship. This guidelines divide into five section as follows:

This guidelines is available to be downloaded at www.bki.co.id. Once downloaded, this Guidelines will be uncontrolled copy. Please check the latest version on the website.

Further queries or comments concerning this guidance are welcomed through communication to BKI Head Office.

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Table of Contents

[1)] Examples of how to complete the IHM part I are provided for guidance purposes only in accordance with paragraph 3.4 of the Convention Guidelines

Section 1 General

A Scope

This Guidelines have been established to provide information to those designers, equipment suppliers, shipbuilders, shipowners or operators, ship repair facilities, etc. whose ships are subject to the provisions of Part I of the Inventory of Hazardous Materials (hereinafter referred to as "**IHM part I**") specified in Regulation 5 of the Annex to the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009, (hereinafter referred to as "the Convention") subject to the provisions of the regional/national requirements on the IHM.

The primary objectives of this Guidelines are to provide assistance regarding the issuance of the "Statement of Compliance" (**SoC**) for the IHM or "Certificate" stipulated by the national regulation (hereinafter referred as "SoC interchangeably") and to introduce the notation to be affixed to the classification characters of ships which possess the IHM.

This Guidelines cover mainly Biro Klasifikasi Indonesia (hereinafter referred to as "BKI") requirements for the review and verification survey of IHM part I, the hazardous and potentially hazardous materials in a ship's structure and equipment as detailed in the IHM part I. IHM parts II and III, covering the operationally generated waste and stores are not required to be completed and hence are not subject to review until a vessel is in the process of being prepared for recycling.

B Application

This Guidelines are applicable for which applications have been received by BKI to:

— all ships for the issuance of a SoC for the IHM;

— all ships registered with BKI for the assignment of class notation (**IHM**) indicating the possession of such an inventory.

In applying this Guidelines, the ship is categorized as follows:

1) Ships excluding ships specified in 2) and 3) on which the shipowners intend to hold IHM part I as stipulated in Regulation 5 of the Annex of the Convention before the entry into force of the 2009 Hong Kong International Convention for the Safe and Environmentally Reuse of Ships.

2) Ships excluding the ships specified in 3) on which the shipowners intend to hold IHM part I as defined in Article 5 of the Regulation (EU) No 1257/2013 of the European Parliament and the Commission on Ship Recycling (hereinafter referred to as EU Regulation on Ship Recycling (EU SRR)).

3) Ships which are flying the flags of the states which have established the rules for the IHM part I to be applied.

C Notation

The class notation “Inventory of Hazardous Materials” (abbreviated **IHM**) will be assigned in accordance with this Guidelines to those ships that possess the IHM part I and SoC for the IHM or the certificate prescribed by the flag state.

Note:
The requirements based on this Guidelines are optional and unnecessary for class maintenance as per Guidance for Class Notation (Pt.0, Vol.B). However, if compliance with the requirements related to IHM part I specified in this Guidelines is not maintained, the corresponding notation will be deleted.

D Definitions

The terms used in this Guidelines, including the following have the same meaning as those defined in the Convention.

1) **Administration** means the Government of the State whose flag the ship is entitled to fly, or under whose authority it is operating.
2) **Check List** means a list used for clarifying the results at each step of the work for confirming the preparation of the Inventory by information analysis, mentioned in Annex B.
3) **Exemption** means materials specified in Section 3, A.4 that do not need to be listed on the IHM, even if such materials or items exceed the IHM threshold values.
4) **Fixed** means the conditions that equipment or materials are securely fitted with the ship, such as by welding or with bolts, riveted or cemented, and used at their position, including electrical cables and gaskets.
5) **Hazardous Material** means any material or substance given in Table 1.1 (hereinafter referred to as Table A as used in the Convention) and in Table 1.2 (hereinafter referred to as Table B as used in the Convention).
6) **Homogeneous material** means a material of uniform composition throughout that cannot be mechanically disjointed into different materials, meaning that the materials cannot, in principle, be separated by mechanical actions such as unscrewing, cutting, crushing, grinding and abrasive processes.
7) **IHM part I supplement** is an additional document attached to the IHM part I that consist of additional information due to changes, replacements or significant repairs of the structure, equipment, systems, fittings, arrangements and material, which has an impact on the IHM part I.
8) **International Certificate on Inventory of Hazardous Materials (IC IHM)** is a legal declaration issued by the Administration or by any person or organization authorized by it, after successful completion of the Initial Surveys, to any ships to which Regulation 10 of the Annex to the Convention applies.
9) **Loosely fitted equipment** means equipment or materials present on board the ship by the conditions other than ”fixed”, such as fire extinguishers, distress flares, and lifebuoys.”
10) **Material Declaration (MD)** means a declaration indicating that the product (such as machinery, equipment, material, paint) supplied by the supplier contains/does not contain the material(s) indicated in Table A and Table B, and also indicates the contents of the product.
11) **Product** means machinery, equipment, materials and applied coatings on board a ship.
12) **Ship** means a vessel of any type whatsoever operating or having operated in the marine environment and includes submersibles, floating craft, floating platforms, self elevating platforms, Floating Storage Units (FSUs), and Floating Production Storage and Offloading Units (FPSOs), including a vessel stripped of equipment or being towed.

13) **Ship Recycling Facility (SRF)** means a defined area that is a site, yard or facility used for the recycling of ships.

14) **Shipowner** means the person or persons or company registered as the owner of the ship or, in the absence of registration, the person or persons or company owning the ship or any other organization or person such as the manager, or the bareboat charterer, who has assumed the responsibility for operation of the ship from the owner of the ship. However, in the case of a ship owned by a State and operated by a company which in that State is registered as the ship's operator, "owner" shall mean such company. This term also includes those who have ownership of the ship for a limited period pending its sale or handing over to a Ship Recycling Facility.

15) **Statement of Compliance (SoC)** means a formal declaration which confirmed that the Ship has satisfied the requirements in accordance with this Guidelines, see Section 3.

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

17) **Supplier's Declaration of Conformity (SDoC)** means a declaration by the supplier assuming responsibility that the supplier's product has been manufactured or sold in accordance with the requirements of Section 3.G.

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

19) **Threshold value** is defined as the concentration value in homogeneous materials.

Table 1.1 (Table A) Materials listed in Appendix 1 of the Convention and Annex I of EU SRR

		Hazardous Material	Definition	Control measures
Annex I to the EU SRR	Appendix 1 to the HKC / Table A of the Res.MEPC.379(80)	Asbestos	Materials containing asbestos	From 1 January 2011, for all ships, new installation of materials which contain asbestos shall be prohibited.
		Ozone-depleting substances	Ozone-depleting substances means controlled substances defined in paragraph 4 of article 1 of the Montreal Protocol on Substances that Deplete the Ozone Layer, 1987. These are substances listed in Annexes A,B,C or E to the said Protocol in force at the time of application or interpretation of this Annex. - Halon 1211 Bromochlorodifluoromethane - Halon 1301 Bromotrifluoromethane - Halon 24021,2-Dibromo-1,1,2,2-tetrafluoroethane (also known as Halon 114B2) - CFC-11 Trichlorofluoromethane - CFC-12 Dichlorodifluoromethane - CFC-113 1,1,2-Trichloro-1,2,2-trifluoroethane - CFC-114 1,2-Dichloro-1,1,2,2-tetrafluoroethane - CFC-115 Chloropentafluoroethane	New installations which contain ozone-depleting substances shall be prohibited on all ships, except that new installations containing Hydrochlorofluorocarbons (HCFCs) are permitted until 1 January 2020. However, new installation which contain ozone-depleting substances shall be prohibited on all ships specified in B.2) and ships specified in the national regulations of the flag state among the ships specified in B.3).
		Polychlori-natedbiphenyl (PCB)	"Polychlorinated biphenyls" means aromatic compounds formed in such a manner that the hydrogen atoms on the biphenyl molecule (two benzene rings bonded together by a single carbon-carbon bond) may be replaced by up to ten chlorine atoms.	For all ships, new installation of materials which contain Polychlorinated biphenyls shall be prohibited.
		Anti-fouling compounds and systems	Anti-fouling compounds and systems regulated under Annex I to the International Convention on the Control of Harmful Anti-fouling Systems on Ships, 2001 (AFS Convention) in force at the time of application or interpretation of This Guidelines.	1. No ship may apply anti-fouling systems containing organotin compounds as a biocide or any other anti-fouling system whose application or use is prohibited by the AFS Convention. 2. No new ships or new installations on ships shall apply or employ anti-fouling compounds or systems in a manner inconsistent with the AFS Convention.
		Perfluorooctane sulfonic acid (PFOS) [1)]	perfluorooctane sulfonic acid' (PFOS) means perfluorooctane sulfonic acid and its derivatives	New installations which contain perfluorooctane sulfonic acid (PFOS) and its derivatives shall be prohibited in accordance with Regulation (EC) No 850/2004 of the European Parliament and of the Council

[1)] This applies only to all ships specified in B.2) and ships specified in the rules of the flag state among the ships specified in B.3)

Table 1.2 (Table B) Hazardous Materials listed in Appendix 2 of the Convention and Annex II of EU SRR (excluding Annex I substances)

Hazardous Material
Any Hazardous Materials listed in Annex 1 of the Convention
Cadmium and Cadmium Compounds
Hexavalent Chromium and Hexavalent Chromium Compounds
Lead and Lead Compounds
Lead and Lead Compounds
Mercury and Mercury Compounds
Polybrominated Biphenyls (PBBs)
Polybrominated Diphenyl Ethers (PBDEs)
Polychlorinated Naphthalene (more than 3 chlorine atoms)
Radioactive Substances
Certain Short-chain Chlorinated Paraffins (Alkanes, C10-C13, chloro)
Brominated Flame Retardant (HBCDD) [1)]
[1)] This applies only to all ships specified in B.2) and ships specified in the rules of the flag state among the ships specified in B.3).

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Section 2 Surveys and Issuance of SoC

A General

In order to issue a SoC, several surveys shall be conducted as described in this section. However, the ship should follow special regulation that is required by the Flag State, if any.

Types of surveys for issuing and maintaining the SoC are Initial, Renewal and Occasional Surveys. Before ships are taken out of service and before the recycling of the ship has started, Final Surveys will be conducted.

B Initial surveys

1 General

1.1 The aim of the Initial Surveys is to verify whether IHM part I has been prepared in accordance with this Guidelines. There are different requirements for the Initial Surveys of new ships and for those of existing ships.

1.2 Initial Surveys are to be carried out at the time the application for the survey is made.

1.3 In the case of a new ship, an Initial Survey should be conducted before the ship is put in service.

1.4 Prior to the Initial Surveys, a request for the Initial Surveys should be submitted to BKI along with the ship data required for issuing SoC and IHM notation by the shipowner or shipbuilder for a new ship; or by the shipowner for an existing ship.

1.5 During Initial Surveys, items related to IHM part I are to be confirmed in two steps: pre-document review and final document review.

1.6 The application form submitted as a request for Initial Surveys consist of:

1) name of ship;
2) distinctive number or letters;
3) port of registry;
4) gross tonnage;
5) IMO number;
6) name and address of shipowner;
7) IMO registered owner identification number;
8) IMO company identification number; and
9) date of construction.

2 Submission of documents

A shipbuilders and/or shipowners are to submit an application form as well as the documents listed below to BKI.

2.1 Documents necessary for pre-document review to be submitted:

1) For new ships, shipbuilders and/or shipowners are to submit each of the following documents as electronic data to BKI. In such cases, the following documents are to be submitted:

   A) IHM part I which identifies Hazardous Materials contained in ship structure and equipment, their location and approximate quantities, see Annex A.

   B) Location Diagram of Hazardous Material which shows the location of materials listed in Annex A on ship, see Annex C.

   C) Material Declaration (MD) and Supplier's Declaration of Conformity (SDoC) or documents that confirm the same.

   D) System/Procedures to ensure the necessary updating of IHM part I which includes the designated person's identity, a system for maintaining and updating of the IHM part I, records of new installations, repairs, maintenance and modifications to a ship or ship's IHM designated person and records of changes to IHM part I. Proper maintenance of an archive of all the associated documentation should also be included and it should include that new installations of equipment, repairs and refittings are accompanied by a Material Declaration and the Supplier's Declaration of Conformity, as provided by the suppliers of parts and equipment delivered. There may also be a random sampling policy for new or existing ship.

   E) General Arrangement plan, Engine Room layout, Piping Arrangement, Accommodation Plan, Fire-Control Plan, Fire Protection Plan, Insulation Plan (Hull and Machinery), or details of different locations of the ship.

   F) Other documents deemed necessary by BKI.

2) For existing ships, shipowners are to submit the following documents to BKI[1)] :

   A) IHM part I which identifies Hazardous Materials contained and/or Potentially Contained Hazardous Material (PCHM) in ship structure and equipment, their location and approximate quantities should be developed through a visual check and/or sampling check on board the ship, based on the visual/sampling check plan (VSCP) which developed by expert.

   B) Location Diagram of Hazardous Material which shows the location of materials listed in Annex A on ship, see Annex C.

   C) Material Declaration (MD) and Supplier's Declaration of Conformity (SDoC) or documents that confirm the same, if deemed necessary.

   D) Visual/sampling check plan (VSCP) (as reference document) which developed by expert.

   E) System/ Procedures to ensure the necessary updating of IHM part I, includes the designated person's identity, a system for maintaining and updating of IHM part I records of new installations, repairs, maintenance and modifications to a ship or ship's IHM designated person and records of changes to IHM part I.

   F) General Arrangement plan, Engine Room layout, 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: Painting schedule; Lubricating oil chart; and ODS Logbook, International Air Pollution Prevention Certificate, Results of previous visual/sampling checks and other analysis or details of different locations of the ship.

   G) Other documents deemed necessary by BKI.

[1)] For the development of IHM Part I assisting by experts through information analysis see Section 3.C

2.2 Documents necessary for final document review to be submitted:

1) For new ship, after the complete of an onboard verification, shipbuilders and/or shipowners are to submit each of the following documents as electronic data to BKI. In such cases, the following documents are to be submitted:

   A) Final IHM part I (if revised).

   B) Location Diagram of Hazardous Material (if revised).

   C) If deemed necessary, an addition Material Declaration (MD) and Supplier's Declaration of Conformity (SDoC) or documents that confirm the same.

   D) General Arrangement plan, Engine Room layout, Piping Arrangement, Accommodation Plan, Fire-Control Plan, Fire Protection Plan, Insulation Plan (Hull and Machinery), or details of different locations of the ship (if revised).

   E) Other documents deemed necessary by BKI.

2) For existing ship, shipowners are to submit the following documents to BKI after an onboard verification is completed [1)]:

   A) Final IHM part I (if revised).

   B) Location Diagram of Hazardous Material (if revised).

   C) Result of visual/sampling check.

   D) General Arrangement plan, Engine Room layout, 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: Painting schedule; Lubricating oil chart; and ODS Logbook, International Air Pollution Prevention Certificate, Results of previous visual/sampling checks and other analysis or details of different locations of the ship (if revised).

   E) Other documents deemed necessary by BKI

3 Survey items

The following items are to be confirmed during Initial Surveys:

3.1 For new ship, the items to be confirmed during Initial Surveys are as follows:

1) Pre-document review:

   A) Review of documents to be submitted as listed in 2.1.1)

   B) Verification on board the ship based on the IHM part I reviewed in A) (in such cases, the shipbuilder/ shipowner is to provide personnel to accompany the Surveyor and provide support).

2) Final document review

   Review of documents submitted according to 2.2.1) , prepared to reflect the results of 1).B).

3.2 For existing ship, the items to be confirmed during Initial Surveys are as follows:

1) Pre-document review

   A) Review of documents to be submitted as listed in 2.1.2)

   B) Verification on board the ship based on the check list reviewed in A) (in such cases, either the shipowner or their representative expert is to accompany the Surveyor and provide support).

C) Clarify that the ship complies with Section 3 of this Guidelines. Classification as PCHM should be noted in the remarks column of the IHM part I.

D) Verify that the IHM part I, especially the location of Hazardous Materials, is consistent with the arrangements, structure and equipment of the ship, through onboard verification.

2) Final document review

Review of documents submitted according to 2.2.2), prepared to reflect the results of 1).B).

4 Issuance of SoC or Certificate

4.1 As a result of the Initial Surveys, if it is found that the IHM part I conforms to the requirements of this Guideline, BKI will issue a SoC for IHM.

4.2 The SoC issued by BKI will be converted to International Certificate on Inventory of Hazardous Materials (IC IHM) when BKI has been assigned as a Recognized Organization by the Competent Authority.

C Renewal Survey

1 General

1.1 The aim of Renewal Surveys is confirming the IHM part I is being appropriately maintained according to the provisions of Section 3.

1.2 The Renewal Surveys are performed within period in accordance with Rules for Classification and Surveys (Pt.1, Vol.I) Sec.3.B.1.3.1.

2 Submission of documents

Ship owners are to submit an application form and the documents listed below to BKI:

1) Valid SoC

2) IHM part I and IHM part I supplements

3) Material Declaration (MD) and Supplier's Declaration of Conformity (SDoC) regarding changes, updates, or major repairs of structures, equipment, systems, appendages, arrangements, materials made since the last survey.

4) Location Diagram of Hazardous Material

5) General Arrangement plan, Engine Room layout, 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: Painting schedule; Lubricating oil chart; and ODS Logbook, International Air Pollution Prevention Certificate, or details of different locations of the ship (if revised or deemed necessary)

6) System/ Procedures to ensure the necessary updating of IHM part I

7) Other documents deemed necessary by BKI

3 Survey items

The following items are to be confirmed during Renewal Surveys:

1) A person as responsible for maintaining and updating IHM part I is designated.
2) A system to ensure the necessary updating of IHM part I is establish and supervised by the designated person.
3) IHM part I is appropriately maintained and updated as necessary according to the system.
4) Relevant documents such as Material Declaration and Supplier's Declaration of Conformity are appropriately maintained.
5) The IHM part I, especially the location of hazardous materials, is consistent with the arrangement, structure and equipment of the ship (confirm by visual inspection on board)
6) Any decision by the shipowner to delete equipment, system and/or area previously classed as PCHM from IHM part I is based on clear grounds for believing that the equipment, system and/or area in question contain no Hazardous Materials.
7) SoC is to be kept onboard the ship.

4 Endorsement of SoC

When BKI confirms that the latest version of IHM part I complies according to the provisions of Section 3, BKI will endorse SoC. If there are special provisions in the rules of the flag state of the ship, they shall be applied.

D Occasional Survey

1 General

1.1 The aim of Occasional Surveys is checking the status of IHM part I and confirming that the IHM part I has been amended as necessary for changes, replacements or significant repairs of the structure, equipment, systems, fittings, arrangements and material, which has an impact on the IHM part I, and is being appropriately maintained according to the provisions of Section 3.

1.2 Occasional Surveys are to be carried out at the request of ship owner when it is necessary to conduct survey, i.e., when any changes stated in IHM part I have been made, except at the time of Initial or Annual Surveys.

2 Submission of documents

Ship owners are to submit an application form and the documents listed below to BKI:

1) Valid SoC
2) IHM part I and IHM part I supplements
3) Material Declaration and Supplier's Declaration of Conformity regarding any change, replacement or significant repair of structure, equipment, systems, fittings, arrangements and material since the last survey.
4) Location Diagram of Hazardous Material

5) General Arrangement plan, Engine Room layout, 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: Painting schedule; Lubricating oil chart; and ODS Logbook, International Air Pollution Prevention Certificate, or details of different locations of the ship (if revised or deemed necessary)

6) System/ Procedures to ensure the necessary updating of IHM part I

7) Documents certifying changes in the items to be described in the SoC (if any)

8) Other documents deemed necessary by BKI

3 Survey items

The following items are to be confirmed during Occasional Survey:

1) A person as responsible for maintaining and updating the inventory is designated.

2) System to ensure the necessary updating of the IHM part I is establish and supervised by the designated person.

3) IHM part I is properly maintained and updated to reflect changes in ship structure and equipment, by according to the system.

4) Relevant documents, such as material declarations and supplier declarations of conformity, are retained appropriately for changes, replacements or significant repairs.

5) IHM part I, especially the location of hazardous materials, is consistent with the arrangement, structure and equipment of the ship (confirm by visual inspection on board)

6) Any decision by the shipowner to delete equipment, system and/or area previously classed as potentially containing hazardous materials from IHM part I is based on clear grounds for believing that the equipment, system and/or area in question contain no Hazardous Materials.

7) SoC is to be kept onboard the ship.

4 Endorsement of SoC

When BKI confirms that the latest version of IHM part I complies according to the provisions of 3., BKI will endorse SoC. If there are special provisions in the rules of the flag state of the ship, they shall be applied.

E Final Survey

Final Surveys is conducted before ship is taken out of service and before the recycling of the ship has started as requirement in IMO Res. MEPC 222(64) when BKI has been assigned as a Recognized Organization by the Competent Authority.

F Duration and validity of SoC

1 General

1.1 Validity of a SoC shall be harmonized with the Classification Certificate. However, if there are special instructions from the administration of the flag state of the ship, it shall be applied.

1.2 The SoC is invalid in the following cases:

1) When the ship's condition is considerably different from what is stated in the IHM part I and the SoC. This includes cases where IHM part I is not properly maintained and updated to reflect changes in ship structure and equipment.

2) When the Renewal Surveys is not completed within the period specified in C.1.2

3) When endorsement by Occasional Surveys is not made.

4) When a ship is transferred to another flag.

2 Issuance of SoC after change of flag

2.1 In the case that the SoC that has become invalid due to the change of flag, new SoC shall not be issued before it is sufficiently confirmed by BKI that IHM part I is properly maintained and that there is no change in the structure, organization or equipment. When it is confirmed through the surveys that IHM part I is properly maintained and there are no unauthorized changes, BKI will accept the Initial and subsequent Surveys conducted by the previous Administration or its RO to maintain the harmony of the surveys and issue a new SoC that has the same expiry date as the certificate that was invalidated because of the change of flag.

2.2 If there are additional requirements in the rules of new flag state of the ship, BKI will issue a new SoC after confirming the compliance with the additional requirements.

G Retention, Reinstatement, Reissuance or Return

1 Retention

The SoC should be retained or kept on board and to be presented when requested by BKI.

2 Reinstatement

If the causes of invalid conditions in F.1.2.2) are removed, BKI may reinstate the SoC after the ship has submitted a new application to BKI demonstrating that the IHM part I of the ship is maintained.

3 Reissuance

1. When the SoC is soiled or lost, the ship owner is to submit a written application and lost item report from police station for the reissuance of the SoC to obtain replacement thereof in due course.

2. When any changes in the SoC description, the SoC will be reissued after ship owner has requested to BKI.

4 Return

The ship owner is to immediately return the old SoC to BKI if following conditions are met:

1. The lost SoC has been found after the new SoC has been reissued in accordance with 3.;

2. SoC is invalid in accordance with F.1.2.

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Section 3 Inventory of Hazardous Materials

A General

1 Materials to be listed in the IHM part I

1.1 The materials given in Table 3.1 and Table 3.2 are to be listed in the IHM part I. However, materials A-5 and B-10 in the tables only required to be listed in the IHM part I for ships that are registered in EU member states, which have special provisions regarding the entry of such substances. For materials in this table with quantities that occurs as unintentional trace contaminants (with no threshold value), should not be listed in Material Declarations and in the IHM part I.

1.2 For loosely fitted equipment, there is no need to list in IHM part I. Such equipment which remains on board when the ship is recycled should be listed in IHM part III.

(IMO Res. MEPC.379(80) Paragraph 3.2.3)

1.3 Those batteries containing lead acid or other hazardous materials that are fixed in place should be listed in IHM part I. Batteries that are loosely fitted, which includes consumer batteries and batteries in stores, should be listed in IHM part III.

(IMO Res. MEPC.379(80) Paragraph 3.2.4)

1.4 Similar materials or items that contain hazardous materials that potentially exceed the threshold value can be listed together (not individually) on the IHM part I with their general location and approximate amount specified there (hereinafter referred to as ”Bulk Listing”). An example of how to list those materials and items is shown in Table B.1.

(IMO Res. MEPC.379(80) Paragraph 3.2.5)

2 Revision to threshold values

Revised threshold values in Table 3.1 and Table 3.2 should be used for IHM part I developed or updated after the adoption of the revised values and need not be applied to existing IHM part I and IHM part I under development. However, when materials are added to the IHM part I, such as during maintenance, the revised threshold values should be applied and recorded in the IHM part I.

(IMO Res. MEPC.379(80) Paragraph 3.5)

Table 3.1 Materials listed in Appendix 1 of MEPC.379(80) and Annex I of EU SRR

No.	Materials		Threshold value
A-1	Asbestos		0,1% [1)]
A-2	Polychlorinated biphenyls (PCBs)		50 mg/kg
A-3	Ozone-depleting substances	CFCs Halons Other fully halogenated CFCs Carbon tetrachloride 1,1,1-Trichloroethane (Methyl chloroform) Hydrochlorofluorocarbons Hydrobromofluorocarbons Methyl bromide Bromochloromethane	No threshold value[2)]
A-4	Anti-fouling systems containing organotin compounds as a biocide		2500 mg total tin/kg
	Anti-fouling systems containing cybutryne		1000 mg/kg [3)]
A-5	Perfluorooctane sulfonic acid (PFOS)		10 mg/kg (0,001% by weight [4)]
(Note) Substances A-5 is listed in EU Regulation on Ship Recycling Annex I.			

Table 3.2 Materials listed in Appendix 2 of MEPC.379(80) and Annex II of EU SRR

No.	Materials	Threshold value
B-1	Cadmium and cadmiu8m compounds	100 mg/kg
B-2	Hexavalent Chromium and hexavalent chromium compounds	1000 mg/kg
B-3	Lead and lead compounds	1000 mg/kg
B-4	Mercury and mercury compounds	1000 mg/kg
B-5	Polybrominated biphenyl (PBBs)	50 mg/kg
B-6	Polybrominated diphenyl ethers (PBDEs)	1000 mg/kg
B-7	Polychlorinated naphthalenes (more than 3 chlorine atoms)	50 mg/kg
B-8	Radioactive substances	No threshold value [5)]
B-9	Certain shortchain chlorinated paraffins (Alkanes, C10-C13, chloro)	1%
B-10	Brominated Flame Retardant (HBCDD)	100 mg/kg (0,01%)
(Note) Substances B-10 is listed in EU Regulation on Ship Recycling Annex II.		

[1)] If 1% is applied, this threshold value should be recorded in the IHM part I and, if available, the Material Declaration and can be applied instead of 0,1% not later than five years after the entry into force of the Convention. The threshold value of 0,1% need not be retroactively applied to those IHM part I and Material Declarations.

[2)] Unintentional trace contaminants should not be listed in the Material Declarations and in the IHM part I.

[3)] When samples are directly taken from the hull, average values of cybutryne should not be present above 1000 mg of cybutryne per kilogram of dry paint.

[4)] Concentrations of PFOS above 10 mg/kg (0,001% by weight) when it occurs in substances or in preparations or concentrations of PFOS in semi-finished products or articles, or parts thereof equal to or above than 0,1% by weight calculated with reference to the mass of structurally or micro-structurally distinct parts that contain PFOS or for textiles or other coated materials, if the amount of PFOS is equal to or above than 1 µg/m² of the coated material

[5)] All radioactive sources should be included in Material Declarations and in the IHM part I. Radioactive source means radioactive material permanently sealed in a capsule or closely bonded and in a solid form that is used as a source of radiation. This includes

3 Standard format of the Inventory of Hazardous Materials

3.1 The standard format outlined in Annex A should serve as the basis for developing the IHM part I. The IHM part I should list the existence of materials from Table 3.1 and Table 3.2 that have no threshold values and their approximate quantity, while in case of materials with threshold values, the existence, approximate quantity, and whether materials are below the threshold values are to be listed.

(IMO Res. MEPC.379(80) Paragraph 3.4)

3.2 In the cover of the IHM part I and other necessary parts, the names of the rules applied in the development of the IHM part I should be described clearly.

4 Exemptions - Materials not required to be listed in the IHM part I

4.1 Materials listed in Table 3.2 that are inherent in solid metals or metal alloys, such as steels, aluminums, brasses, bronzes, plating and solders, provided they are used in general construction, such as hull, superstructure, pipes, or housings for equipment and machinery, are not required to be listed in the IHM part I.

4.2 Although electrical and electronic equipment is required to be listed in the IHM, the amount of hazardous materials potentially contained in printed wiring boards (printed circuit boards) installed in the equipment does not need to be reported in the IHM part I."

(IMO Res. MEPC.379(80) Paragraph 3.3)

5 Description of location of Hazardous Materials on board

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

(IMO Res. MEPC.379(80) Paragraph 4.6)

6 Description of approximate quantity of Hazardous Materials

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

(IMO Res. MEPC.379(80) Paragraph 4.7)

B Development of the IHM part I

1 General

The Supplier's Declarations of Conformity and the Material Declarations should serve as the basis for developing the IHM part I, which should include the hazardous materials listed in Table.1.1 and Table.1.2. The list of items in the IHM part I of Table.1.2 should be as deemed appropriate by BKI.

(IMO Res. MEPC.379(80) Paragraph 4.1.1)

2 Development of the IHM part I

2.1 Collecting the Material Declarations (as defined in F.) from suppliers in the shipbuilding supply chain is required for the systems and equipment installed on the ship as well as their locations.

consumer products and industrial gauges with radioactive materials. Examples are listed in Annex G.

2.2 In addition to the collected Material Declarations, the Supplier's Declaration of Conformity specified in G. should be collected.

2.3 Paints used in machinery, equipment, materials, and coatings comprising the hull should be inspected and evaluated during the development of the IHM part I to ensure they do not contain any of the hazardous materials specified in Table.1.1. The IHM part I should, if needed, include a list of the locations and amounts of the hazardous materials in Table 3.1. The IHM part I should specify whether or not these materials have been used in accordance with the Convention's limitations.

2.4 The quantities and locations of the products should be listed in the IHM part I if, during the development process, the paints used in the machinery, equipment, materials, and coatings on board the ship contain Hazardous Materials indicated in Table.1.2 in excess of the threshold value established in Table 3.2.

2.5 Based on the "Material Declarations" provided by the suppliers in the shipbuilding supply chain (such as equipment, parts, and material suppliers), the materials listed in 2.3 and 2.4 should be verified.

(IMO Res. MEPC.379(80) Paragraph 4.1.4)

Annex B shows a typical example of the development process for IHM part I for new ships

3 Alternative IHM part I development method

If the method of developing IHM part I according to B.1. and B.2. above is difficult, the procedure described in C. may be used as an alternative IHM part I development method.

C Development of IHM part I by information analysis

1 General

1.1 The IHM part I and Hazardous Material listed in Table 3.1 should be related. As far as possible, experts should implement the development of the IHM part I.

1.2 Development of the IHM part I should be in accordance with the development flow diagram in Fig. 3.1 and C.2. through C.6.

- Step 1 Collection of necessary information;
- Step 2 Assessment of collected information;
- Step 3 Preparation of visual/sampling check plan;
- Step 4 Onboard visual/sampling check; and
- Step 5 Preparation of the IHM part I and related documentation.

1.3 In cases that a ship which already has the IHM part I is converted, repaired, or has new equipment installed accompanying the changes in the IHM part I, the changed locations in the IHM part I should be prepared in accordance with B.

2 Collection of necessary information [Step 1]

2.1 The ship owner should identify, research, request, and procure all reasonably available documentation regarding the ship.

2.2 Documents in 2.1., should include maintenance, conversion, and repair documents; certificates, manuals, ship's plans, drawings, and technical specifications; product information data sheets (such as Material Declarations); and Hazardous Material inventories or recycling information from sister ships.

2.3 Potential sources of information could include previous ship owners, the ship builder, historical societies, classification society records, and ship recycling facilities with experience working with similar ships.

(IMO Res. MEPC.379(80) Paragraph 4.2.5)

3 Assessment of collected information [Step 2]

3.1 The information gathered in 2. should be evaluated by the ship owner or the expert requested by the ship owner (henceforth referred to as the ”IHM part I developer”).

3.2 The assessment should cover all materials listed in Table.1.1; materials listed in Table.1.2 should be assessed as far as practicable. The results of the assessment should be reflected in the visual/sampling check plan. (Annex C shows a typical example of the development process for IHM part I for existing ships)

(IMO Res. MEPC.379(80) Paragraph 4.2.6)

4 Preparation of visual/sampling check plan [Step 3]

4.1 To specify the location and estimated quantity of the materials listed in Table.1.1, the IHM part I developer should prepare a visual/sampling check plan taking into account the collected information and any appropriate expertise.

4.2 The visual/sampling check plan should consist of the following three lists:

1) List of equipment, system and/or area for visual check any equipment, system and/or area specified regarding the presence of the materials listed in Table.1.1 by document analysis should be entered in the list of equipment, system and/or area for visual check

2) List of equipment, system and/or area for sampling check Any equipment, system and/or area which cannot be specified regarding the presence of the materials listed in Table.1.1 by document or visual analysis should be entered in the list of equipment, system and/or area as requiring sampling check. A sampling check is the taking of samples to identify the presence or absence of Hazardous Material contained in the equipment, systems, and/or areas, by suitable and generally accepted methods such as laboratory analysis.

3) List of equipment, system and/or area classed as “Potentially Containing Hazardous Materials (PCHM)” any equipment, system and/or area which cannot be specified regarding the presence of the materials listed in Table.1.1 by document analysis may be entered in the List of equipment, system and/or area classed as PCHM without the sampling check. However, the prerequisite for this classification is a comprehensible justification such as to the impossibility of conducting sampling without compromising the safety of the ship and its operational efficiency.

4.3 Visual/sampling checkpoints should be all points where:

1) The presence of materials to be considered for the IHM part I as listed in Table.1.1 is likely;

2) The documentation is not specific; or

3) Materials of uncertain composition were used.

(IMO Res. MEPC.379(80) Paragraph 4.2.7)

Checking of spare parts onboard the ship that may be used for the ship’s structure or equipment is to be included in the visual/sampling check plan to prevent the introduction of non-compliant components into a ship’s structure or equipment after the IHM part I is prepared.

If any of the spare parts for the ship’s structure or equipment onboard the ship are found to contain materials listed in Annex A, Table 1.1 or 1.2 their respective threshold values, these spare parts are to be documented in an appendix of the IHM part I. When these spare parts are used, IHM part I is to be updated accordingly.

5 Onboard visual/sampling check [Step 4]

5.1 The visual/sampling check plan should be followed when the onboard visual/sampling check is carried out. The sampling check ought to be conducted with the assistance of experts.

5.2 Samples should be taken during a sampling check, and the sample points should be prominently marked on the ship plan, in photos, and elsewhere, along with a reference to the sample results.

5.3 Materials of the same kind may be sampled in a representative manner. It is necessary to ensure that these materials are the same kind.

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

5.5 If the equipment, system and/or area of the ship are not accessible for a visual check or sampling check, notwithstanding 5.1. to 5.4., visual check or sampling check need not be performed. In this case, such equipment, system and/or area of the ship should be classified as PCHM. The prerequisite for such classification should be the same prerequisite as in 4.2.3).

5.6 Any equipment, system and/or area classed as PCHM may be investigated or subjected to a sampling check at the request of the ship owner during a later survey (e.g., during repair, refit or conversion).

(IMO Res. MEPC.379(80) Paragraph 4.2.8)

6 Preparation of the IHM part I and related documentation [Step 5]

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

(IMO Res. MEPC.379(80) Paragraph 4.2.9)

7 Testing methods

7.1 Samples may be tested by a variety of methods. "Indicative" or "field tests" may be used when:

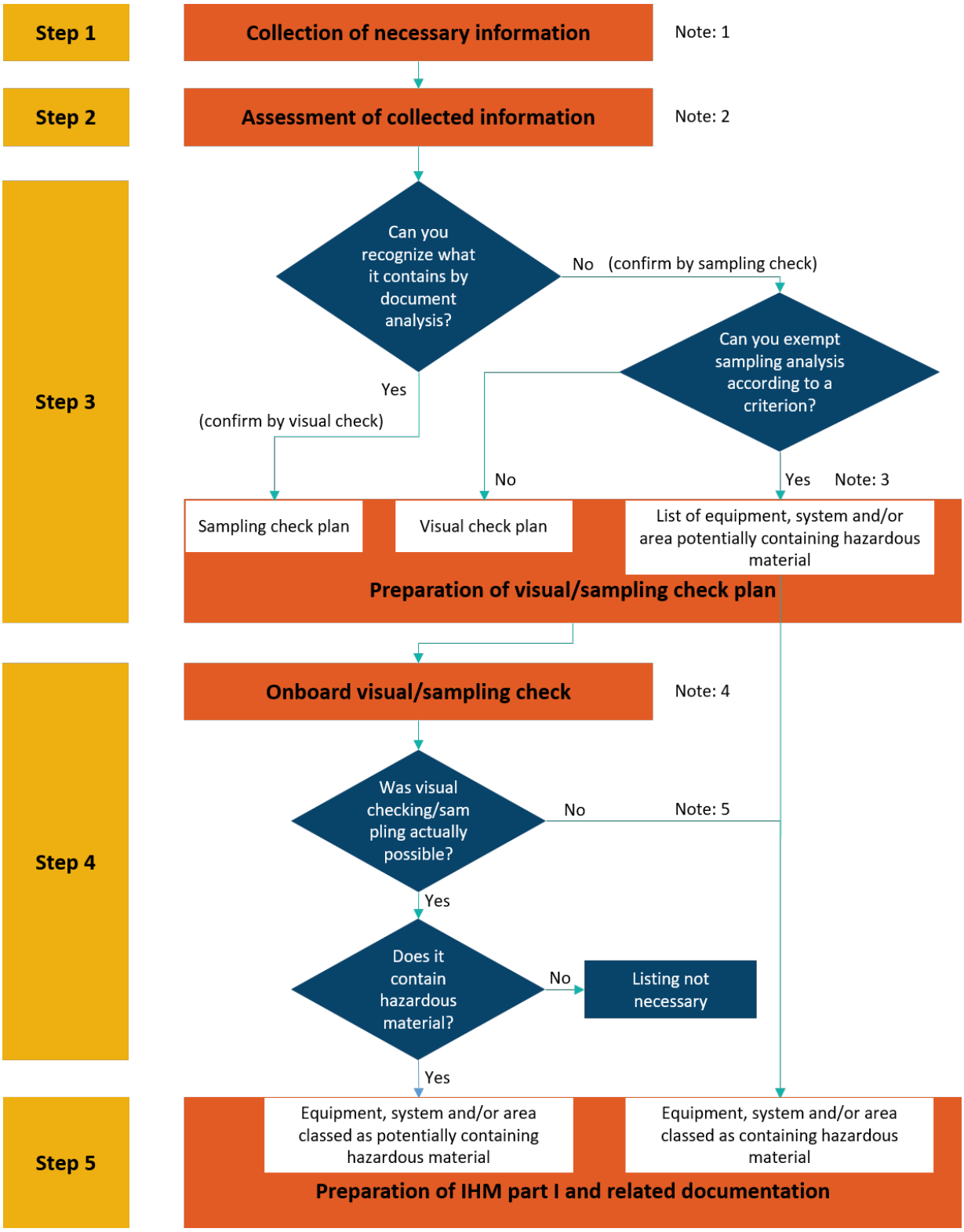
- the likelihood of a hazard is high;
- the test is expected to indicate that the hazard exists; and
- the sample is being tested by "specific testing" to show that the hazard is present.

7.2 Indicative or field tests are quick, inexpensive and useful onboard the ship or on site, but they cannot be accurately reproduced or repeated, and cannot identify the hazard specifically, and therefore cannot be relied upon except as "indicators".

7.3 In all other cases, and in order to avoid dispute, "specific testing" should be used. Specific tests are repeatable, reliable and can demonstrate definitively whether a hazard exists or not. They will also provide a known type of the hazard. The methods indicated are found qualitative and quantitative appropriate and only testing methods to the same effect can be used. Specific tests are to be carried out by a suitably accredited laboratory, working to international standards[6)] or equivalent, which will provide a written report that can be relied upon by all parties.

7.4 Specific test methods for Table 1.1 materials are provided in Annex G.

[6)] For example ISO 17025



Note 1 through 5 see Table 3.3 below

Figure 3.1 Flow diagram development of the IHM part I by information analysis

Table 3.3 Note for Flow diagram development of the IHM part I by information analysis in Fig.3.1

Note 1	Documents may include any certificates, manuals, ship's plans drawings, technical specifications and information from sister and/or similar ships
Note 2	The assessment should cover all material listed in Table 3.1, the materials listed in Table 3.2 should be listed as far as applicable. It is impossible to assess all equipment's and areas including those which are assumed not to contain hazardous materials described above. Using analysis of available documents based on knowledge and experience, it must be made clear which equipment and or area should be included in the scope of the assessment.
Note 3	Equipment, system and/or areas which cannot be specified as containing materials listed in Table 3.1 on the basis of documents can be listed in the list of equipment, system and/or area classed as PCHM without the sampling check. The prerequisite for this classification is a comprehensible justification of the conclusion, such as the impossibility to conduct samplings without compromising ship safety and operational efficiency.
Note 4	Sampling check: this means sampling and identification of hazardous material contained in the equipment, system, and/or areas by laboratory analysis. The samplings check should be applied where the presence of prohibited and restricted hazardous material is assumed but cannot be recognized by analysis of the available documentation.
Note 5	When equipment, systems and/or area of a ship are not accessible for visual check or sampling check, this equipment, system and/or area is classified as PCHM.

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

Preparation of a diagram showing the location of the materials listed in Table 3.1 is recommended in order to help Ship Recycling Facilities gain a visual understanding of the IHM part I.

D Maintaining and updating the IHM part I during operations

1 General

The IHM part I should be appropriately maintained and updated, especially after any repair or conversion or sale of a ship.

(IMO Res. MEPC.379(80) Paragraph 4.3.1)

2 Updating of the IHM part I in the event of new installation

For the item listed below, the IHM part I should be updated in accordance with the requirements outlined in B.2. However, if identical parts or coatings are installed or applied, updating is not required.

1) If any machinery or equipment is added to, removed or replaced

2) If the hull coating is renewed.

3 Continuity of the IHM part I

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

(IMO Res. MEPC.379(80) Paragraph 4.3.3)

E Requirements for ascertaining the conformity of the IHM part I

1 Design and construction stage

The conformity of the IHM part I at the design and construction stage should be ascertained by reference to the collected "Supplier's Declaration of Conformity" described in G. and the related "Material Declarations" described in F., and collected from suppliers.

(IMO Res. MEPC.379(80) Paragraph 5.1)

2 Operational stage

Shipowners should implement the following measures in order to ensure the conformity of the IHM part I:

1) Designate a person as responsible for maintaining and updating the IHM part I (the designated person may be employed ashore or on board);
2) In order to implement D.2, the designated person should establish and supervise a system to ensure the necessary updating of the IHM part I in the event of new installation;
3) Maintain the IHM part I including dates of changes or new deleted entries and the signature of the designated person (for instance, preparation of Revision History and attaching to the IHM part I); and
4) Provide related documents as required for the survey or sale of the ship.

(IMO Res. MEPC.379(80) Paragraph 5.2)

F Material Declaration (MD)

1 General

Suppliers to the shipbuilding industry should identify and declare whether or not the materials listed in Table.1.1 or Table.1.2 are present and in their product (for instance, machinery, equipment, materials and paints) and their approximate quantity. The suppliers should also declare whether their product exceeds the threshold value or not in case of those materials listed in Table 3.1 and Table 3.2 for which threshold values have been mentioned. However, this provision does not apply to chemicals which do not constitute a part of the finished product.

(IMO Res. MEPC.379(80) Paragraph 6.1)

2 Information required in the declaration

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

1) Date of declaration;
2) Material Declaration identification number;
3) Supplier's name;
4) Product name (common product name or name used by manufacturer);
5) Product number (for identification by manufacturer);
6) Declaration of whether or not the materials listed in Table 3.1 and Table 3.2 are present in the product above the threshold value stipulated in the said tables; and
7) Mass of each constituent material listed in Table 3.1 and Table 3.2, if present above threshold value.

2.2 An example of a Material Declaration is shown in Annex D.

(IMO Res. MEPC.379(80) Paragraph 6.1)

G Suppliers Declaration of Conformity (SDoC)

1 General

The purpose of the SDoC is to provide assurance that the related MD conforms to F.2, and to identify the responsible entity. The SDoC remains valid as long as the products are present on board.

(IMO Res. MEPC.379(80) Paragraph 7.1.1 and 7.1.2)

2 Requirements

The supplier compiling the SDoC should establish a company policy[7]. The supplier should establish and maintain the company policy on the management of the chemical substances in products which the supplier manufactures or sells and the policy should cover:

1) Compliance with law the regulations and requirements governing the management of chemical substances in products should be clearly described in documents which should be kept and maintained; and

2) Obtaining of information on chemical substance content in procuring raw materials for components and products, suppliers should be selected following an evaluation, and the information on the chemical substances they supply should be obtained.

(IMO Res. MEPC.379(80) Paragraph 7.1.3)

3 Contents and format of SDoC

3.1 The SDoC should contain the following:

1) Unique identification number;

2) Name and contact address of the issuer;

3) Identification of the subject of the SDoC (for instance, name, type, model number, of product and/or other relevant supplementary information);

4) Statement of conformity;

5) Date and place of issue; and

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

3.2 An example of the SDoC is shown in Annex E.

(IMO Res. MEPC.379(80) Paragraph 7.2)

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

Annex A Standard Format of the IHM part I[1)]

1. IHM part I contained in ship's structure and equipment

1.1 Paints and coating system containing materials listed in Table 3.1 and Table 3.2

Table A.1

No.	Application of paint	Name of paint	Location	Materials	Approximate quantity		Remarks
1	Anti-drumming compound	Primer, XX Co., xx primer 300	Hull Part	Lead	35,00	kg	
2	Antifouling	xx Co. xx coat 100	Underwater parts	TBT	120,00	kg	

1.2 Equipment and machinery containing materials listed in Table 3.1 and Table 3.2

Table A.2

No.	Name of equipment and machinery	Location	Material	Parts where used	Approximate quantity		Remarks
1	Switch board	Engine control room	Cadmium	Housing coating	0,02	kg	
			Mercury	Heat gauge	<0,01	kg	Less than 0,01 kg
3	Diesel Engine, xx Co., xx 200	Engine room	Lead	Starter for blower	0,01	kg	Revised by XXX on Oct., xx 2008 (revoking No.2)
4	Diesel Generator (× 3)	Engine room	Lead	Ingredient of copper compounds	0,01	kg	
5	Radioactive level gauge	No.1 Cargo tank	Radioactive substances	Gauge	5 (1,8E+11)	Ci (Bq)	Radionuclides: ^{60}Co

[1)] Examples of how to complete the IHM part I are provided for guidance purposes only in accordance with paragraph 3.4 of the Convention Guidelines

1.3 Structure and hull containing materials listed in Table 3.1 and Table 3.2

Table A.3

No.	Name of structural element	Location	Material	Used location	Approximate 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 perforated plates

Annex B Example of The Development Process of the IHM part I for New Ship

(Appendix 3 IMO Res. MEPC.379(80)

1. Objective of the typical example

This example has been developed to give guidance and to facilitate understanding of the development process of the IHM part I for new ship.

2. Development flow for the IHM part I

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

— Step 1: Collection of Hazardous Materials information

— Step 2: Utilization of Hazardous Materials information

— Step 3: Preparation of the IHM part I (by filling out standard format)

3. Collection of Hazardous Materials information

3.1 Data collection process for Hazardous Materials

Material Declaration (MD) and Supplier's Declaration of Conformity (SDoC) for equipment, materials and paints (hereinafter called "products") from suppliers (tier 1 suppliers) should be requested and collected by the shipbuilder. Tier 1 suppliers may request from their suppliers (tier 2 suppliers) the relevant information if they cannot develop the MD based on the information available. Thus the collection of data on Hazardous Materials may involve the entire shipbuilding supply chain. (Fig. B.1)

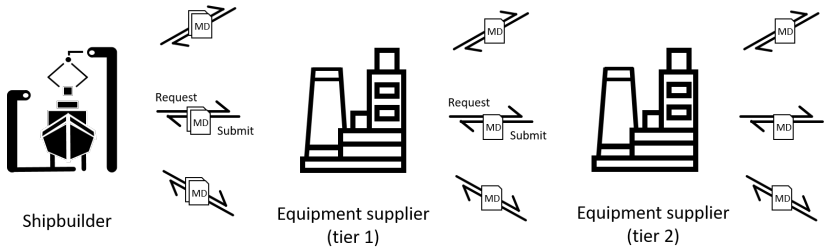


Figure B.1 Process of MD (and SDoC) showing involvement of supply chain

3.2 Declaration of Hazardous Materials

Suppliers should declare whether or not the Hazardous Materials listed in Table 1.1 and Table 1.2 in the MD are present in concentrations above the threshold values specified for each "homogeneous material" in a product. If present, they should declare their approximate quantities in the MD. If Hazardous Materials are absent, the same should be declared in the MD.

3.2.1 Materials listed in Table 1.1

If one or more materials listed in Table 1.1 are found to be present in concentrations above the specified threshold value according to the MD, the products which contain these materials shall not be installed on a ship. However, if the materials are used in a product in accordance with an exemption specified by the Convention (for example, new installations containing hydrochlorofluorocarbons (HCFCs) before 1 January 2020), the product should be listed in the IHM part I.

3.2.2 Materials listed in Table 1.2

If one or more materials listed in Table 1.2 are found to be present in concentrations above the specified threshold value according to the MD, the products should be listed in the IHM part I.

3.3 Example of homogeneous materials

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

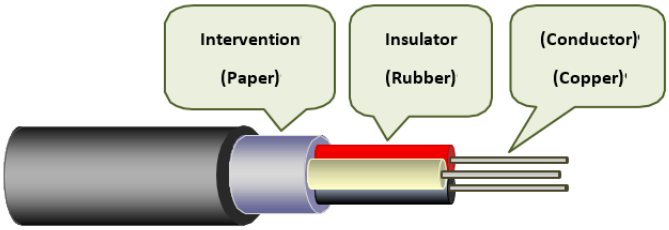


Figure B.2 Example of homogeneous materials (cable)

4. Utilization of Hazardous Materials information

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

5. Preparation of the IHM part I. (by filling out standard format)

The information received for the IHM part I, as contained in Table 3.1 and Table 3.2, ought to be structured and utilized according to the following categorization for developing the IHM part I:

1) Paints and coating systems;
2) Equipment and machinery; and
3) Structure and hull.

5.1 "Name of equipment and machinery" column

5.1.1 Equipment and machinery

The name of each item of equipment or machinery should be entered in this column. If more than one hazardous material is present in the equipment or machinery, the row relating to that equipment or machinery should be appropriately divided such that all of the hazardous materials contained in the piece of equipment or machinery are entered. If more than one item of equipment or machinery is situated in one location, both name and quantity of the equipment or machinery should be entered in the column. Examples are shown in rows 1 and 2 of Table B.1.

For identical or common items, such as but not limited to bolts, nuts and valves, there is no need to list each item individually (see Bulk Listing in paragraph Section 3, A.1.4). An example is shown in row 3 of Table B.1.

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

No.	Name of Equipment and Machinery	Location	Material	Parts where used	Approximate quantity		Remarks
1	Main Engine	Engine Room	Lead	Piston Pin Bush	0,75	kg	
			Mercury	Thermometer charge air temperature	0,01	kg	
2	Diesel Generator (x3)	Engine room	Mercury	Thermometer	0,01	kg	
3	FC valve (x100)	Throughout the ship	Lead and lead compounds		20,5	kg	

5.1.2 Pipes and cables

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

5.2 "Approximate quantity" column

The standard unit for approximate quantity of solid Hazardous Materials should be "kg." If the Hazardous Materials are liquids or gases, the standard unit should be either m^3 or kg. An approximate quantity should be rounded up to at least two significant figures. If the Hazardous Material is less than 10 g, the description of the approximate quantity should read "<0,01 kg". An example is shown in Table B.2.

Table B.2 Example of a switchboard

No.	Name of Equipment and Machinery	Location	Material	Parts where used	Approximate quantity		Remarks
1	Switch Board	Engine Control Room	Cadmium	Housing coating	0,02	kg	
			Mercury	Heat gauge	0,01	kg	less than 0,01 kg

5.3 “Location” column

5.3.1 Example of a location list

It is recommended to prepare a location list which covers all compartments of a ship based on the ship’s plans (e.g., General Arrangement, Engine-room Arrangement, Accommodation and Tank Plan) and on other documentation on board, including certificates or spare parts’ lists. The description of the location should be based on a location such as a deck or room to enable easy identification. The name of the location should correspond to the ship’s plans so as to ensure consistency between the IHM part I and the ship’s plans for the ship owner in the future. Examples of names of locations are shown in Table B.3. For bulk listings, the locations of the items or materials may be generalized. For example, the location may only include the primary classification such as ”Throughout the ship” as shown in Table B.3.

Table B.3 Examples of names of locations

(A) Primary classification	(B) Secondary classification	(C) Name of location
Throughout 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
Throughout the ship		
Machinery Part	Engine Room	Engine Room
		Main Floor
		2nd Floor
		...
		Generator Space/Room
		Purifier Space/Room
		Shaft Space/Room
		Engine Casing
		Funnel
		Engine Control Room
		...
	Pump Room	Pump Room
		...
Exterior Part	Superstructure	Superstructure
	Upper Deck	Upper Deck
	Hull Shell	Hull Shell
		Bottom
		Under Waterline
		...

5.3.2 Description of location of pipes and electrical systems

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

1) Listing of all components in the column; or

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

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

Table B.4 Example of description of a pipe system

No.	Name of equipment and machinery	Location	Material	Parts where used	Approximate quantity		Remarks
	Water Ballast System	Engine room, Hold parts					

Annex C Example of the Development Process for IHM part I for Existing Ships

(Appendix 5 IMO Res. MEPC.379(80)

1. Introduction

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

Compilation of the Inventory of Hazardous Materials involves the following 5 steps which are described in Section 3, C of this Guidelines.

— Step 1: Collection of necessary information;

— Step 2: Assessment of collected information;

— Step 3: Preparation of visual/sampling check plan;

— Step 4: Onboard visual/sampling check;

— Step 5: Preparation of IHM part I and related documentation.

2. Step 1: Collection of necessary information

2.1 Necessary documents

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

— Ship's specifications

— General arrangement drawing

— Machinery arrangement

— Spare parts and tools list

— Piping arrangement

[1)] The example of a 28000 gross tonnage bulk carrier constructed in 1985 is used in this Annex.

- Accommodation Plan
- Fire control plan
- Fire protection plan
- Insulation plan
- International Anti-Fouling System Certificate
- Related manuals and drawings
- Information from other inventories and/or sister or similar ships, machinery, equipment, materials and coatings
- Results of previous visual/sampling checks and other analysis

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

2.2 Indicative list

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

2.2.1 Materials to be checked and documented

Hazardous materials, as identified in Table 3.1 and Table 3.2, should be listed in the IHM part I. Table 3.1 and Table 3.2 contain all the materials concerned. Table 3.1 shows those which are required to be listed and Table 3.2 shows those which should be listed as far as practicable.

2.2.2 Materials listed in Table 1.1

Lists the following five materials:

- asbestos,
- polychlorinated biphenyls (PCBs),
- ozone-depleting substances,
- anti-fouling systems containing organotin compounds as a biocide or cybutryne,
- perfluorooctane sulfonic acid (PFOS). PFOS applies only to all ships specified in Section 1, B.2) and ships specified in the regional/national rules of the flag state among the ships specified in Section 1, B.3)

.1 Asbestos

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

Table C.1 "Indicative lists" for asbestos

Structure and/ or equipment	Component
Propeller shafting	Packing with low pressure hydraulic piping flange
	Packing with casing
	Clutch
	Brake lining
	Synthetic stern tubes
Diesel engine	Packing with piping flange
	Lagging material for fuel pipe
	Lagging material for exhaust pipe
	Lagging material for turbocharger
Turbine engine	Lagging material for casing
	Packing with flange of piping and valve for steam line, exhaust line and drain line
	Lagging material for piping and valve for steam line, exhaust line and drain line
Boiler	Insulation in combustion chamber
	Packing for casing door
	Lagging material for exhaust pipe
	Gasket for manhole
	Gasket for hand hole
	Gas shield packing for soot blower
	Packing with flange of piping and valve for steam line, exhaust line, fuel line and drain line
	Lagging material for piping and valve for steam line, exhaust line, drain line and fuel 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 for steam line, exhaust line, drain line and fuel 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 pressure and/or high temperature
Pipe, duct	Lagging material and insulation

Table C.1 "Indicative lists" for asbestos *(continued)*

Structure and/ or equipment	Component
Tank (fuel tank, hot water, tank, condenser), other equipment (fuel strainer, lubricant oil strainer)	Lagging material and insulation
Electric equipment	Insulation material
Airborne asbestos	Wall, ceiling
Ceiling, floor and wall in accommodation area	Ceiling, floor, wall
Fire door	Packing, construction and insulation of the fire door
Inert gas system	Packing for casing, etc.
Air conditioning system	Sheet packing, lagging material for piping and flexible joint
Miscellaneous	Ropes Thermal insulation materials Fire shields/fire proofing Space/duct insulation Electrical cable materials Brake linings Floor tiles/deck underlay Stern/water/vent flange gaskets Adhesives/mastics/fillers Sound damping Moulded plastic products Sealing putty Shaft/valve packing Electrical bulkhead penetration packing Circuit breaker arc chutes Pipe hanger inserts Weld shop protectors/burn covers Fire fighting blankets/clothing/equipment Concrete ballast

.2 Polychlorinated biphenyls (PCBs)

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

Table C.2 "Indicative lists" for Polychlorinated biphenyls (PCBs)

Structure and/ or equipment	Component
Transformer	Insulating oil
Condenser	Insulating oil
Fuel heater	Heating medium
Electric cable	Covering, insulating tape
Lubricating oil	
Heat oil	Thermometer, sensor, indicators
Rubber/felt gaskets	
Rubber hose	
Plastic foam insulation	
Thermal insulating materials	
Voltage regulators	
Switches/reclosers/bushings	
Electromagnets	
Adhesives/tapes	
Surface contamination of machinery	
Oil-based paint	
Caulking	
Rubber isolation mounts	
Pipe hangers	
Light ballasts (component within fluorescent light fixtures)	
Plasticizers	
Felt under septum plates on top of hull bottom	

.3 Ozone-depleting substances

The "Indicative list" for Ozone-depleting substances is shown in Table C.3. Ozone-depleting substances have been controlled according to the Montreal Protocol and MARPOL Convention. Although almost all substances have been banned since 1996 due to production restrictions based on the Montreal Protocol, HCFC can still be used at least until 2020. Under the Montreal Protocol, certain production of HCFC is permitted only to supplement existing equipment until the end of 2029.
However, for ships flying the flag of the EU member states, new installations which contain HCFC is already prohibited. For this reason, new installations which contain HCFC will not be allowed for non-EU ships if the ships wish to have IHM part I complying with Article 5 of the EU Regulation.

Table C.3 "Indicative lists" of ozone depleting substances

Material	Component	Period for use of ODS in Japan
CFCs(R11, R12)	Refrigerant for refrigerators	Up to 1996
CFCs	Urethane formed material	Up to 1996
	Blowing agent for insulation of LNG carriers	Up to 1996
Halons	Firefighting media	Up to 1994
Other fully halogenated CFCs	The possibility of usage in ships is low	Up to 1996
Carbon tetrachloride	The possibility of usage in ships is low	Up to 1996
1,1,1-Trichloroethane (Methyl chloroform)	The possibility of usage in ships is low	Up to 1996
HCFC(R22, R141b)	Refrigerant for refrigerating machines	Can be used until 2020
HBFC	The possibility of usage in ships is low	Up to 1996
Methyl bromide	The possibility of usage in ships is low	Up to 2005

.4 Organotin compounds

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

.5 Cybutryne

Cybutryne has been used as biocide in anti-fouling systems, and the International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFS Convention, as amended) stipulates that all ships shall not apply or reapply cybutryne after 1 January 2023, and that ships bearing an anti-fouling system that contains this substance in the external coating layer of their hulls or external parts or surfaces on 1 January 2023 shall either remove the anti-fouling system or apply a coating that forms a barrier to this substance leaching from the underlying non-compliant anti-fouling system at the next scheduled renewal of the anti-fouling system after 1 January 2023, but no later than 60 months following the last application to the ship of an anti-fouling system containing cybutryne.

.6 Perfluorooctane sulfonic acid (PFOS) (related to EU regulations)

Perfluorooctane sulfonic acid (PFOS) is required to be listed in the inventory for ships flying the flag of the EU member states according to EU regulations. The indicative list is specified in Annex C of the EMSA 's Best Practice Guidance on the Inventoty of Hazardous Materials issued in October 2016 as follows.

Table C.4 Indicative list for Perfluorooctane sulfonic acid (PFOS)

- AFFF (Aqueous film-forming foams): used for aviation, marine and shallow spill fires developed in the 1960s
- FFFP (Film-forming Fluor-protein foams): used for aviation and shallow spill fires
- AR-AFFF (Alcohol-resistant aqueous film-forming foams): multi-purpose foams
- AR-FFFP (Alcohol-resistant film-forming flour-protein foams): multipurpose foams developed in the 1970s
- Hydraulic fluids
- Cable sheath
- Coatings
- Adhesives.

2.2.3 Materials listed in Table 1.2

It is not obligatory for materials listed in Table 1.2 to be listed in the IHM part I. However, if they can be identified in a practical way, they should be listed in the Inventory, because the information will be used to support ship recycling processes. The "Indicative list" of materials listed in Table 1.2 is shown in Table C.5.

Table C.5 "Indicative lists" of materials listed in Table 1.2

Materials	Components of equipment
Cadmium and cadmium compounds	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	Corrosion-resistant primer, solder (almost all electric appliances 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	Refer to Annex H
Certain shortchain chlorinated paraffins	Non-flammable plastics
Brominated Flame Retardant (HBCDD)*	- Switch plug cover
	- Electrical extension cover
	- Polymer material of switch board
	- Fire sensor/alarm cover
	- Light cover, cable sheath
	- Polymer made fire resistance insulation
	- Coatings
	- Flooring material.

*Referred to EMSA's Best Practice Guidance on the Inventory of Hazardous Materials

3. Step 2: Assessment of collected information

Preparation of a checklist is an efficient method for developing the Inventory in order to clarify the results of each step. Based on collected information including the "Indicative list" mentioned in Step 1, all equipment, systems, and/or areas onboard assumed to contain Hazardous Materials listed in Table 1.1 and Table 1.2 should be included in the checklist. Each listed equipment, system, and/or area on board should be analyzed and assessed for its Hazardous Materials content.

The existence and volume of Hazardous Materials may be judged and calculated from the spare parts and tools list and the manufacturer's drawings. The existence of asbestos contained in floors, ceilings and walls may be identified from Fire Protection Plans, while the existence of TBT in coatings can be identified from the International Anti-Fouling System Certificate, coating scheme and the history of paint. Examples are shown Table C.6.

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

Table C.6 Example of weight calculation

No.	Hazardous Material	Location/Equipment/ Compartment	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	250 g × 14 sheet = 3,50 kg
1.2-3	HCFC	Ref. provision plant	Manufacturer's drawings	20 kg × 1 cylinder = 20 kg
1.2-4	Lead	Batteries	Manufacturer's drawings	6 kg × 16 unit = 96 kg
1.3-1	Asbestos	Engine room ceiling	Accommodation plan	

Table C.7 Checklist (Step 2) Analysis and definition of scope of assessment for sample ship

No.	Table 2 A/B	Hazardous Materials *1	Location	Name of equipment	Component	Quantity			Manufacturer's name Product name	Result of assessment of doc. *2	Check procedure *3	Check Result *4	Reference/ Dwg.No.
						Weight (kg)	No.	Total (kg)					
[Inventory Part I-1]													
1	A	TBT	Top Side	Painting & coating	A/F Paints			Nil	Paints Co. /Marine P1000	N			On Aug., 200X, sealer coat applied all over submerged area before tin free coating.
2	A	TBT	Flat Bottom				3000 m^2		Unknown AF	Unknown			
[Inventory Part I-12]													
1	A	Asbestos	Lower Deck	Main engine	Ex. pipe packing	0,25	14		Diesel Co.	Y			M-100
2	A	Asbestos	3rdDeck	Aux. boiler	Lagging		12		Unknown lagging	Unknown			M-300
3	A	Asbestos	Engine	Piping/ flange	Packing					PCHM			
4	A	HCFC	2ndDeck	Ref. plante	Refrigerant (R22)	20,00	1		Reito Co.	Y			Maker's DWG
5	B	Lead	Nav. Bri. Deck	Batteries		6	16		Denchi Co.	Y			E-300
[Inventory Part I-13]													
1	A	Asbestos	Upper Deck	Back deck ceilings	E/R ceilings		20 m^2		Unknown Ceiling	Unknown			O-25

Remarks

*1 Hazardous Materials: Classification of Hazardous Materials

*2 Result of document analysis: Y = Contained; N = Not contained, Unknown; P C H M = Potentially containing Hazardous Material.

*3 Check procedure: V= Visual check, S= Sampling check, PHCM = Yes. For PHCM, the value is approximately estimated weight.

*4 Result of check: Y= Contained, N= Not contained, PHCM

4. Step 3: Preparation of visual/sampling check plan

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

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

3. Before any visual/sampling check on board is conducted, a “visual/sampling check plan” should be prepared. An example of “visual/sampling check plan” is shown in Table C.8

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

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

Table C.8 Example of visual/sampling check plan

Name of Ship	XXXXXXXXXX
IMO Number	XXXXXXXXXX
Gross tonnage	28,000GT
L×B×D	xxx.xx × xx.xx × xx.xx m
Date of delivery	dd.mm.1987
Owner	XXXXXXXXXX
Contact point (Address, Tel., Fax, E-mail)	XXXXXXXXX TEL: XXXXXXXX FAX: XXXXXXXX E-mail: abcdefg@hijk.co.net
Check schedule	Visual check: dd, mm, 201X
	Sampling check: dd, mm, 201X
Site of check	XX shipyard, No. DOCK
In charge of check	XXXXXXX
Check engineer	XXXXXX, YYYYYYYYY, ZZZZZZZ
Sampling engineer	Person with specialized knowledge of sampling
Sampling method and anti-scattering measure for asbestos	Wet the sampling location prior to cutting and allow it to harden after cutting to prevent scatter. Notes: Workers performing sampling activities shall wear protective equipment.
Sampling of fragments of paints	Paints suspected to contain TBT should be collected and analyzed from load line, directly under bilge keel and flat bottom near amidships.
Laboratory	QQQQQQ
Chemical analysis method	ISO/DIS 22262-1 Bulk materials—Part 1: Sampling and qualitative determination of asbestos in commercial bulk materials and ISO/DIS 22262-1 Bulk materials—Part 2: Quantitative determination of asbestos by gravimetric and microscopic methods ICP luminous analysis
Location of visual/sampling check	Refer to lists for visual/sampling check

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

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

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

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

Prepared by : XXXX XXXX
T E L : YYYY-YYYY
E-Mail : XXXX@ZZZZ.co.net

·Document check /place :
dd, mm, 200X at XX Lines Colt

·Preparation date of plan : dd. mm, 200X

Table C.9 Checklist (Step 3) Analysis and definition of scope of assessment for sample ship

No.	Table 2 A/B	Hazardous Materials *1	Location	Name of equipment	Component	Quantity			Manufacturer's name Product name	Result of assessment of doc. *2	Check procedure *3	Check Result *4	Reference/ Dwg.No.
						Weight (kg)	No.	Total (kg)					
[Inventory Part I-1]													
1	A	TBT	Top Side	Painting & coating	A/F Paints			Nil	Paints Co. /Marine P1000	N	V		On Aug., 200X, sealer coat applied all over submerged area before tin free coating.
2	A	TBT	Flat Bottom				3000 m^2		Unknown AF	Unknown	S		
[Inventory Part I-12]													
1	A	Asbestos	Lower Deck	Main engine	Ex. 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. plante	Refrigerant (R22)	20,00	1		Reito Co.	Y	V		Maker's DWG
5	B	Lead	Nav. Bri. Deck	Batteries		6	16		Denchi Co.	Y	V		E-300
[Inventory Part I-13]													
1	A	Asbestos	Upper Deck	Back deck ceilings	E/R ceilings		20 m^2		Unknown Ceiling	Unknown	S		O-25

Remarks

*1 Hazardous Materials: Classification of Hazardous Materials

*2 Result of document analysis: Y = Contained; N = Not contained, Unknown; P C H M = Potentially containing Hazardous Material.

*3 Check procedure: V= Visual check, S= Sampling check, PHCM = Yes. For PHCM, the value is approximately estimated weight.

*4 Result of check: Y= Contained, N= Not contained, PHCM

5. Step 4: Onboard visual/sampling check

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

2. 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, crew members and other persons on board, to minimize the potential exposure to Hazardous Materials. Safety precautions could include the posting of signs or other verbal or written notification for personnel to avoid such areas during sampling. The personnel taking samples should ensure compliance with relevant national regulations.

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

6. Step 5: Preparation of the IHM part I and related documentation

6.1 Development of the IHM part I

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

6.2 Development of location diagram of Hazardous Materials

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

Table C.10 Checklist (Step 4 and Step 5) Analysis and definition of scope of assessment for sample ship

No.	Table 2 A/B	Hazardous Materials *1	Location	Name of equipment	Component	Quantity			Manufacturer's name Product name	Result of assessment of doc. *2	Check procedure *3	Check Result *4	Reference/ Dwg.No.
						Weight (kg)	No.	Total (kg)					
[Inventory Part I-1]													
1	A	TBT	Top Side	Painting & coating	A/F Paints			Nil	Paints Co. /Marine P1000	N	V	N	On Aug., 200X, sealer coat applied all over submerged area before tin free coating.
2	A	TBT	Flat Bottom			0,02	3000 m^2	60,00	Unknown AF	Unknown	S	Y	
[Inventory Part I-12]													
1	A	Asbestos	Lower Deck	Main engine	Ex. pipe packing	0.25	14	3,50	Diesel Co.	Y	V	Y	M-100
2	A	Asbestos	3rdDeck	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	2ndDeck	Ref. plante	Refrigerant (R22)	20,00	1	20,00	Reito Co.	Y	V	Y	Maker's DWG
5	B	Lead	Nav. Bri. Deck	Batteries		6	16	96,00	Denchi Co.	Y	V	Y	E-300
[Inventory Part I-13]													
1	A	Asbestos	Upper Deck	Back deck ceilings	E/R ceilings	0,19	20 m^2	3,80	Unknown Ceiling	Unknown	S	Y	O-25

Remarks

*1 Hazardous Materials: Classification of Hazardous Materials

*2 Result of document analysis: Y = Contained; N = Not contained, Unknown; P C H M = Potentially containing Hazardous Material.

*3 Check procedure: V= Visual check, S= Sampling check, PHCM = Yes. For PHCM, the value is approximately estimated weight.

*4 Result of check: Y= Contained, N= Not contained, PHCM

Table C.11 Example of the Inventory developed by information analysis

Inventory of Hazardous Materials

For "Sample Ship"

Particular of the "Sample Ship"

Distinctive number or letters	: .....
Port of registry	: Port of World
Type of vessel	: Bulk carrier
Gross Tonnage	: 28,000GT
IMO number	: .....
Name of shipbuilder	: ..... Shipbuilding Co. Ltd
Name of shipowner	: ..... Maritime S.A.
Date of delivery	: MM/DD/1998

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

Attachment:

1: Inventory of Hazardous Materials

2: Assessment of collected information

3: Location diagram of Hazardous Materials

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

*1 If the other regulation such as Article 5 of EU-SRR is applied in addition to IMO Guidelines, it should be indicated clearly.

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

I-1 Paints and coating systems containing materials listed in Table 1.1 and Table 1.2 of the guidelines

No.	Application of paint	Name of paint	Location *1	Materials (classification in appendix 1)	Approx. quantity	Remarks
1	AF paint	Unknown paints	Flat bottom	TBT	60,00 kg	Confirmed by sampling
2						
3						

I-2 Equipment and machinery containing materials listed in Table 1.1 and Table 1.2 of the guidelines

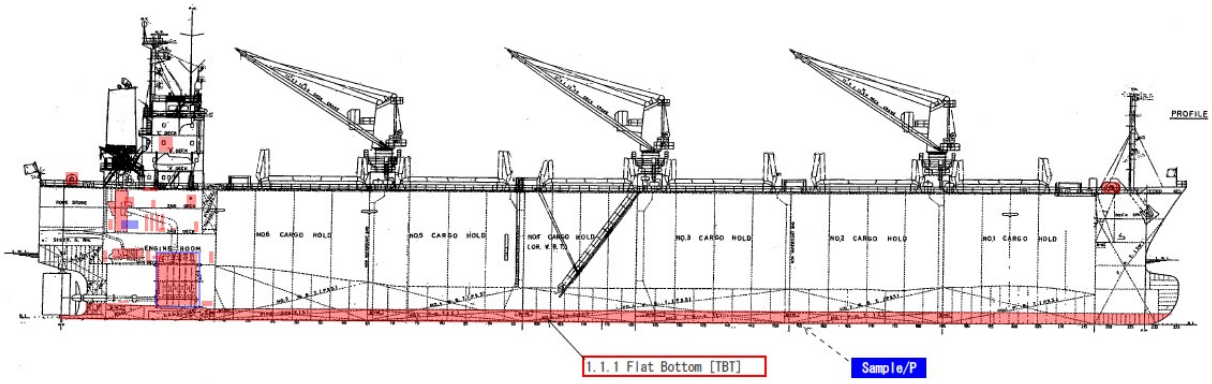
No.	Name of equipment and machinery	Location *1	Materials (classification in appendix 1)	Parts where used	Approx. quantity	Remarks
1	Main engine	Lower floor	Asbestos	Exh. pipe packing	3,50 kg	
2	Aux. boiler	3rd deck	Asbestos	Unknown packing	10,00 kg	PCHM (potentially containing Hazardous Material)
3	Piping/flange	Engine room	Asbestos	Packing	50,00 kg	PCHM
4	Ref. provision plant	2nd deck	HCFC	Refrigerant (R22)	20,00 kg	
5	Batteries	Nav. Bridge deck	Lead		96,00 kg	

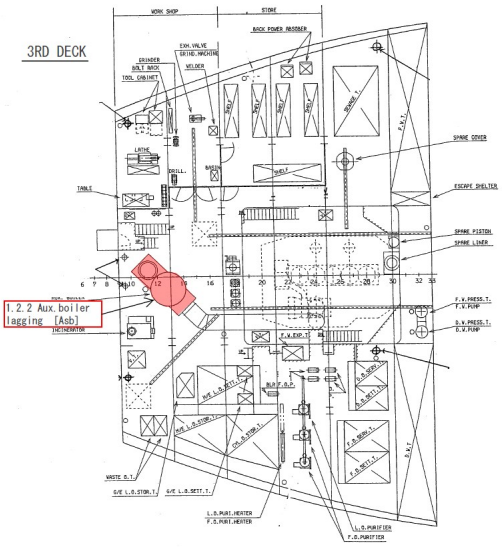
I-3 Structure and hull containing materials listed in Table 1.1 and Table 1.2 of the guidelines

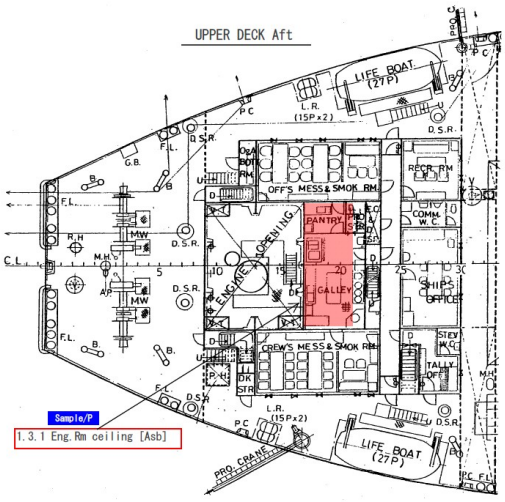
No.	Name of equipment and machinery	Location *1	Materials (classification in appendix 1)	Parts where used	Approx. quantity	Remarks
1	Back deck ceiling	Upper deck	Asbestos	Engine room ceiling (A class)	3,80 kg	Confirmed by sampling
2						
3						

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

Example of Location map of Hazardous Materials







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Annex D Form of Material Declaration

(Appendix 6 IMO Res. MEPC.379(80)

Date of Declaration

Date	

<MD ID No.>

<MD ID No.>	

< Other information >

Remarks 1	
Remarks 2	
Remarks 3	

<Supplier (Respondent) Information>

Company Name	
Division Name	
Address	
Contact Person	
Tel No.	
FAX No.	
E-mail address	
SDoC ID No.	

< Product Information >

Product Name	Product No.	Delivered unit		Product Information
		Amount	Unit	

< Materials Information >

		Unit	
This materials information shows the amount of Hazardous Materials contained in	1		(Unit: No., kg, m, m2, m3, etc.) of the product.

Table	Material name		Threshold value	Present above threshold value	If YES, material mass		If YES, information on where it is used
				YES/NO	Mass	Unit	
Table 1.1 (materials)	Asbestos	Asbestos	0,1%[1)]				
	Polychlorinated biphenyls (PCB)	Polychlorinated biphenyls (PCB)	50 mg/kg				
	Ozone-depleting substances	Chlorofluorocarbons (CFCs)	No threshold value				
		Halon					
		Other fully halogenated CFCs					
		Carbon tetrachloride					
		1,1,1-Trichloroethane (Methyl chloroform)					
		Hydrochlorofluorocarbons					
		Hydrobromofluorocarbons					
		Methyl bromide					
		Bromochloromethane					
	Anti-fouling systems containing organotins compounds as a biocide		2500 mg total tin/kg				
	Anti-fouling systems containing cybutryne		1000 mg/kg[2)]				

Table	Material name	Threshold value	Present above threshold value	If YES, material mass		If YES, information on where it is used
			YES/NO	Mass	Unit	
Table 1.2 (materials listed in appendix 2 of the Convention)	Cadmium and cadmium compounds	100 mg/kg				
	Hexavalent chromium and hexavalent chromium compounds	1000 mg/kg				
	Lead and lead compounds	1000 mg/kg				
	Mercury and mercury compounds	1000 mg/kg				
	Polybrominated Biphenyls (PBBs)	50 mg/kg				
	Polybrominated Diphenyl Ethers (PBDEs)	1000 mg/kg				
	Polychlorinated naphthalenes (Cl >= 3)	50 mg/kg				
	Radioactive Substances	No threshold value				
	Certain Short-chain Chlorinated Paraffins (Alkanes, C10-C13, chloro)	1%				

[1)] In accordance with regulation 4 of the Convention, for all ships, new installation of materials which contain asbestos shall be prohibited. According to the United Nations recommendation "Globally Harmonized System of Classification and Labelling of Chemicals (GHS)" adopted by the United Nations Economic and Social Council's Sub-Committee of Experts on the Globally Harmonized System of Classification and Labelling of Chemicals (UNSCEGHS), the UN's Sub-Committee of Experts, in 2002 (published in 2003), carcinogenic mixtures classified as category 1A (including asbestos mixtures) under the GHS are required to be labelled as carcinogenic if the ratio is more than 0,1%. However, if 1% is applied, this threshold value should be recorded in the Inventory and, if available, the Material Declaration and can be applied not later than five years after the entry into force of the Convention. The threshold value of 0,1% need not be retroactively applied to those Inventories and Material Declarations.

[2)] When samples are directly taken from the hull, average values of cybutryne should not be present above 1000 mg of cybutryne per kilogram of dry paint.

SUPPLEMENT TO THE IMO FORM OF MATERIAL DECLARATION

<SUPPLEMENT attached to MD-ID-No:>

MD- ID-No.	
Date	

< Materials Information >

		Unit	
This materials information shows the amount of Hazardous Materials contained in	1		(Unit: No., kg, m, m2, m3, etc.) of the product.

Annex of EU SRR	Material name	Threshold value	Present above threshold value	If yes, material mass		If yes, information on where it is used
			Yes/No	Mass	Unit	
Annex I (materials listed in annex I of the EU SRR)	Perfluorooctane sulfonic acid (PFOS) and its derivatives	10 mg/kg (0,001% by weight[3)]				
Annex II (materials listed in annex II of the EU SRR)	Brominated Flame Retardant (HBCDD)	100 mg/kg (0,01% by weight)				

[3)] Concentrations of PFOS above 10 mg/kg (0,001% by weight) when it occurs in substances or in preparations or concentrations of PFOS in semi-finished products or articles, or parts thereof equal to or above than 0,1% by weight calculated with reference to the mass of structurally or micro-structurally distinct parts that contain PFOS or for textiles or other coated materials, if the amount of PFOS is equal to or above than 1 µg/m² of the coated material

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Annex E Form of Supplier's Declaration of Conformity

(Appendix 7 IMO Res. MEPC.379(80)

Supplier's Declaration of Conformity for Material Declaration Management

1) Identification Number: _____
2) Issuer's Name: _____

Issuer's Address: _____

3) Object(s) of the Declaration: _____

_____

_____

_____

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

Document No.:	Title:	Edition/Date of Issue
_____	_____	_____
_____	_____	_____
_____	_____	_____

5) Additional Information: _____

_____

6) Signed for and on behalf of:

_____
Name, designation

_____ _____
Name, designation of authorized person Signature of authorized person

_____ _____
Place of issue Date of issue

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Annex F Examples of Table 1.1 and Table 1.2 Materials with CAS Numbers

(Appendix 8 IMO Res. MEPC.379(80) [1])

1. Materials listed in Table 1.1

1.1 Asbestos

Material	CAS Number [2]
Asbestos	1332-21-4
Actinolite	77536-66-4
Amosite	12172-73-5
Anthophyllite	77536-67-5
Chrysotile	12001-29-5
Crocidolite	12001-28-4
Tremolite	77536-68-6

1.2 Polychlorinated biphenyls (PCB)

Material	CAS Number [2]
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

1.3 Ozone-depleting substances (they may contain isomers that are not listed here)

Material	CAS Number [2]
Trichlorofluoromethane (CFC-11))	75-69-4
Dichlorofluoromethane (CFC-12)	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

[1] This list is developed with reference to Joint Industry Guide No.101.
This list is not exhaustive. It represents examples of chemicals with known CAS numbers and may require periodical updating.

[2] A CAS Number is a short string of text that refers to a chemical substance. CAS Numbers contain a sequence of up to ten numerical digits separated into three groups by two hyphens.

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)	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
Dichlorotrifluoroethane(HCFC 123) Dichloro-1,1,2-trifluoroethane 2,2-dichloro-1,1,1-trifluroethane 1,2-dichloro-1,1,2-trifluroethane (HCFC-123a) 1,1-dichloro-1,2,2-trifluroethane (HCFC-123b) 2,2-dichloro-1,1,2-trifluroethane (HCFC-123b)	34077-87-7 90454-18-5 306-83-2 354-23-4 812-04-4 812-04-4
Chlorotetrafluoroethane (HCFC 124) 2-chloro-1,1,1,2-tetrafluoroethane 1-chloro-1,1,2,2-tetrafluoroethane (HCFC 124a)	63938-10-3 2837-89-0 354-25-6
Trichlorofluoroethane (HCFC 131) 1-Fluoro-1,2,2-trichloroethane 1,1,1-trichloro-2-fluoroethane (HCFC131b)	27154-33-2;(134237-34-6) 359-28-4 811-95-0
Dichlorodifluoroethane (HCFC 132) 1,2-dichloro-1,1-difluoroethane (HCFC 132b) 1,1-dichloro-1,2-difluoroethane (HFCF 132c) 1,1-dichloro-2,2-difluoroethane 1,2-dichloro-1,2-difluoroethane	25915-78-0 1649-08-7 1842-05-3 471-43-2 431-06-1
Chlorotrifluoroethane (HCFC 133) 1-chloro-1,2,2-trifluoroethane 2-chloro-1,1,1-trifluoroethane (HCFC-133a)	1330-45-6 1330-45-6 75-88-7

Dichlorofluoroethane(HCFC 141) 1,1-dichloro-1-fluoroethane (HCFC-141b) 1,2-dichloro-1-fluoroethane	1717-00-6; (25167-88-8) 1717-00-6 430-57-9
Chlorodifluoroethane (HCFC 142) 1-chloro-1,1-difluoroethane (HCFC142b) 1-chloro-1,2-difluoroethane (HCFC142a)	25497-29-4 75-68-3 25497-29-4
Hexachlorofluoropropane (HCFC 221)	134237-35-7
Pentachlorodifluoropropane (HCFC 222)	134237-36-8
Tetrachlorotrifluropropane (HCFC 223)	134237-37-9
Trichlorotetrafluoropropane (HCFC 224)	134237-38-0
Dichloropentafluoropropane, (Ethyne, fluoro-) (HCFC 225) 2,2-Dichloro-1,1,1,3,3-pentafluoropropane (HCFC 225aa) 2,3-Dichloro-1,1,1,2,3-pentafluoropropane (HCFC 225ba) 1,2-Dichloro-1,1,2,3,3-pentafluoropropane (HCFC 225bb) 3,3-Dichloro-1,1,1,2,2-pentafluoropropane (HCFC 225ca) 1,3-Dichloro-1,1,2,2,3-pentafluoropropane (HCFC 225cb) 1,1-Dichloro-1,2,2,3,3-pentafluoropropane (HCFC 225cc) 1,2-Dichloro-1,1,3,3,3-pentafluoropropane (HCFC 225da) 1,3-Dichloro-1,1,2,3,3-pentafluoropropane (HCFC 225ea) 1,1-Dichloro-1,2,3,3,3-pentafluoropropane (HCFC 225eb)	127564-92-5; (2713-09-9) 128903-21-9 422-48-0 422-44-6 422-56-0 507-55-1 13474-88-9 431-86-7 136013-79-1 111512-56-2
Chlorohexafluoropropane (HCFC 226)	134308-72-8
Pentachlorofluoropropane (HCFC 231)	134190-48-0
Tetrachlorodifluoropropane (HCFC 232)	134237-39-1
Trichlorotrifluoropropane (HCFC 233) 1,1,1-Trichloro-3,3,3-trifluoropropane	134237-40-4 7125-83-9
Dichlorotetrafluoropropane (HCFC 234)	127564-83-4
Chloropentafluoropropane (HCFC 235) 1-Chloro-1,1,3,3,3-pentafluoropropane	134237-41-5 460-92-4
Tetrachlorofluoropropane (HCFC 241)	134190-49-1
Trichlorodifluoropropane (HCFC 242)	134237-42-6
Dichlorotrifluoropropane (HCFC 243) 1,1-dichloro-1,2,2-trifluoropropane 2,3-dichloro-1,1,1-trifluoropropane 3,3-dichloro-1,1,1-trifluoropropane	134237-43-7 7125-99-7 338-75-0 460-69-5
Chlorotetrafluoropropane (HCFC 244) 3-chloro-1,1,2,2-tetrafluoropropane	134190-50-4 679-85-6
Trichlorofluoropropane (HCFC 251) 1,1,3-trichloro-1-fluoropropane	134190-51-5 818-99-5
Dichlorodifluoropropane (HCFC 252)	134190-52-6
Chlorotrifluoropropane (HCFC 253) 3-chloro-1,1,1-trifluoropropane (HCFC 253fb)	134237-44-8 460-35-5
Dichlorofluoropropane (HCFC 261) 1,1-dichloro-1-fluoropropane	134237-45-9 7799-56-6

Chlorodifluoropropane (HCFC 262) 2-chloro-1,3-difluoropropane	134190-53-7 102738-79-4
Chlorofluoropropane (HCFC 271) 2-chloro-2-fluoropropane	134190-54-8 420-44-0

1.4 Organotin compounds (tributyl tin, triphenyl tin, tributyl tin oxide)

Material	CAS Number [2)]
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, 10 adecahydro-7-isopropyl-1, 4a-dimethyl-1-phenanthlenecarboxylate and its analogs (Tributyltin rosin salt)	-
Other tributyl tins & triphenyl tins	-

1.5 Anti-fouling systems containing cybutryne

Material	CAS Number [2)]
Cybutryne	28159-98-0

1.6 Perfluorooctane sulfonic acid (PFOS) and its derivatives

Annex B of EMSA's Best Practice Guidance on the Inventory of Hazardous Materials is to be referred.

2. Materials listed in Table 1.2

2.1 Cadmium/cadmium compounds

Material	CAS Number [2)]
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	-

2.2 Chromium VI compounds

Material	CAS Number [2)]
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
Potassium chromate	7789-00-6
Zinc chromate	13530-65-9
Other hexavalent chromium compounds	-

2.3 Lead/lead compounds

Material	CAS Number [2)]
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 hydrocarbonate	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	-

2.4 Mercury/ mercury compounds

Material	CAS Number [2)]
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	-

2.5 Polybrominated biphenyls (PBBs) and polybrominated diphenyl ethers (PBDEs)

Material	CAS Number [2)]
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)
Tribromobiphenyl ether	49690-94-0

2.6 Polychlorinated Naphthalenes

Material	CAS Number [2)]
Polychlorinated naphthalenes	70776-03-3
Other polychlorinated naphthalenes	-

2.7 Radioactive substances

Material	CAS Number [2)]
Uranium	-
Plutonium	-
Radon	-
Americium	-
Thorium	-
Cesium	7440-46-2
Strontium	7440-24-6
Other radioactive substances	-

2.8 Certain short-chain chlorinated paraffins (with carbon length of 10-13 atoms)

Material	CAS Number [2)]
Chlorinated paraffins (C10-13)	85535-84-8
Other Short-chain Chlorinated Paraffins	-

2.9 Brominated Flame Retardant (HBCDD)

Annex B of EMSA's Best Practice Guidance on the Inventory of Hazardous Materials is to be referred.

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Annex G Specific test methods

(Appendix 9 IMO Res. MEPC.379(80)

1. Asbestos

Types to test for: as per Convention Guidelines; Actinolite CAS 77536-66-4 Amosite (Grunerite) CAS 12172-73-5 Anthophyllite CAS 77536-67-5 Chrysotile CAS 12001-29-5 Crocidolite CAS 12001-28-4 Asbestos Tremolite CAS 77536-68-6.

Specific testing techniques: Polarized Light Microscopy (PLM), electron microscope techniques and/or X-Ray Diffraction (XRD) as applicable.

Specific reporting information: The presence/no presence of asbestos, indicate the concentration range, and state the type when necessary.

Note:

1. *The suggested three kinds of testing techniques are most commonly used methods when analyzing asbestos and each of them has its limitation. Laboratories should choose the most suitable methods to determine, and in most cases, two or more techniques should be utilized together*
2. *The quantification of asbestos is difficult at this stage, although the XRD technique is applicable. Only a few laboratories conduct the quantification rather than the qualification, especially when a precise number is required. Considering the demand from the operators and ship recycling parties, the precise concentration is not strictly required. Thereby, the concentration range is recommended to report, and the recommended range division according to standard VDI 3866 is as follows:*
   - *Asbestos not detected*
   - *Traces of asbestos detected*
   - *Asbestos content approx. 1% to 15% by mass*
   - *Asbestos content approx. 15% to 40% by mass*
   - *Asbestos content greater than 40% by mass*

   Results that specified more precisely must be provided with a reasoned statement on the uncertainty.
3. *As to the asbestos types, to distinguish all six different types is time consuming and in some cases not feasible by current techniques; while on the practical side, the treatment of different types of asbestos is the same. Therefore, it is suggested to report the type when necessary.*

2. Polychlorinated biphenyls (PCBs)

Note:

there are 209 different congeners (forms) of PCB of it is impracticable to test for all. Various organizations have developed lists of PCBs to test for as indicators. In this instance two alternative approaches are recommended. Method 1 identifies the seven congeners used by the International Council for the Exploration of the Sea (ICES).

Method 2 identifies 19 congeners and 7 types of aroclor (PCB mixtures commonly found in solid shipboard materials containing PCBs). Laboratories should be familiar with the requirements and consequences for each of these lists.

Types to test for: Method 1: ICES7 congeners (28, 52, 101, 118, 138, 153, 180). Method 2: 19 congeners and 7 types of aroclor, using the US EPA 8082a test.

Specific testing technique: GC-MS (congener specific) or GC-ECD or GC-ELCD for applicable mixtures such as aroclors. Note: standard samples must be used for each type.

Sample Preparation: It is important to properly prepare PCB samples prior to testing. For solid materials (cables, rubber, paint, etc.), it is especially critical to select the proper extraction procedure in order to release PCBs since they are chemically bound within the product.

Specific reporting information: PCB congener, ppm per congener in sample, and for Method 2, ppm per aroclor in sample should also be reported.

Note:

1. *Certain field or indicator tests are suitable for detecting PCBs in liquids or surfaces. However, there are currently no such tests that can accurately identify PCBs in solid shipboard materials. It is also noted that many of these tests rely on the identification of free chlorine ions and are thus highly susceptible to chlorine contamination and false readings in a marine environment where all surfaces are highly contaminated with chlorine ions from the sea water and atmosphere.*
2. *Several congeners are tested for as "indicator" congeners. They are used because their presence often indicates the likelihood of other congeners in greater quantities (many PCBs are mixes, many mixes use a limited number of PCBs in small quantities, therefore the presence of these small quantities indicates the potential for a mix containing far higher quantities of other PCBs).*
3. *Many reports refer to "total PCB", which is often a scaled figure to represent likely total PCBs based on the sample and the common ratios of PCB mixes. Where this is done the exact scaling technique must be stated, and is for information only and does not form part of the specific technique.*

3. Ozone Depleting Substances

Types to test for: as per Annex F of this guidelines all the listed CFCs, Halons, HCFCs and other listed substance as required by Montreal Protocol.

Specific testing technique: Gas Chromatography-Mass Spectrometry (GC-MS), coupled Electron Capture Detectors (GC-ECD) and Electrolytic Conductivity Detectors (GC-ELCD).

Specific reporting information: Type and concentration of ODS.

4. Anti-fouling systems containing organotin compounds as a biocide and/or cybutryne

4.1 Anti-fouling systems containing organotin compounds as a biocide

Types to test for: Anti-fouling compounds and systems regulated under Annex I to the International Convention on the Control of Harmful Anti-fouling Systems on Ships, 2001 (AFS Convention, as amended), including: Tributyl tins (TBT), Triphenyl tins (TPT) and Tributyl tin oxide (TBTO).

Specific testing technique: As per resolution MEPC.356(78) (2022 Guidelines for brief sampling of anti-fouling systems on ships), adopted on 10 June 2022, using ICPOES, ICP, AAS, XRF, GC-MS as applicable.

Specific reporting information: Type and concentration of organotin compound.

Note:

For "field" or "indicative" testing it may be acceptable to simply identify presence of tin, due to the expected good documentation on anti fouling systems.

4.2 Anti-fouling systems containing cybutryne

Types to test for: Anti-fouling systems containing cybutryne regulated under Annex 1 to the International Convention on the Control of Harmful Anti-fouling Systems on Ships, 2001 (AFS Convention, as amended).

Specific testing technique: As per resolution MEPC.356(78) (2022 Guidelines for brief sampling of anti-fouling systems on ships), adopted on 10 June 2022, using GC-MS.

Specific reporting information: Concentration of cybutryne.

4.3 Simplified approach to detect organotin compounds or cybutryne

Types to test for: Anti-fouling systems containing organotin compounds as biocides and/or cybutryne regulated under Annex 1 to the International Convention on the Control of Harmful Anti-fouling Systems on Ships, 2001 (AFS Convention, as amended).

Specific testing technique: As per resolution MEPC.356(78) (2022 Guidelines for brief sampling of anti-fouling systems on ships), adopted on 10 June 2022, using GC-MS.

Specific reporting information: Concentration of organotin compound and/or cybutryne.

5. Perfluorooctane sulfonic acid (PFOS) (related to EU regulations)

If standards are established by the European Commission on Standards (CEN), the standards should be applied. Until then, the tests should be conducted with reference to Annex C of EMSA ’s Best Practice Guidance on the Inventory of hazardous Materials published in October 2016.

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Annex H Examples of radioactive sources

(Appendix 10 IMO Res. MEPC.379(80)

The following list contains examples of radioactive sources that should be included in the Inventory, regardless of the number, the amount of radioactivity or the type of radionuclide.

Examples of consumer products with radioactive materials

Ionization chamber smoke detectors (typical radionuclides ^{241}Am; ^{226}Ra)
Instruments/signs containing gaseous tritium light sources (^{3}H)

Instruments/signs containing radioactive painting (typical radionuclide ^{226}Ra)

High intensity discharge lamps (typical radionuclides ^{85}Kr; ^{232}Th)

Radioactive lighting rods (typical radionuclides ^{241}Am; ^{226}Ra)

Examples of industrial gauges with radioactive materials

Radioactive level gauges

Radioactive dredger gauge[1)]

Radioactive conveyor gauges [1)]

Radioactive spinning pipe gauges [1)]

[1)] Typical radionuclides: ^{241}Am; ^{241}Am/Be; ^{252}Cf; ^{244}Cm; ^{60}Co; ^{137}Cs; ^{153}Gd; ^{192}Ir; ^{147}Pm; ^{238}Pu; ^{239}Pu/Be; ^{226}Ra; ^{75}S; ^{90}Sr (^{90}Y); ^{170}Tm; ^{169}Yb.

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