



GUIDE FOR

THE INVENTORY OF HAZARDOUS MATERIALS

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Incorporated by Act of Legislature of
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Foreword

In May 2009, the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships (Ship Recycling Convention) was formally adopted at a Diplomatic Conference in Hong Kong. The purpose of the Ship Recycling Convention is to prevent, reduce, minimize and, to the extent practicable, eliminate accidents, injuries and other adverse effects on human health and the environment caused by ship recycling, and to enhance a vessel's safety, protection of human health and the environment throughout a vessel's operating life (Article 1). Specific regulations for safe and environmentally sound recycling of vessels are annexed to the Convention. In order to adopt procedures for facilitating the effective implementation of the Convention, IMO has been focusing its efforts in developing a set of guidelines for the development of the inventory of hazardous materials, development of a ship recycling plan, authorization of ship recycling facilities, and safe and environmentally sound ship recycling etc.

Essential to the implementation scheme of the Convention is the development and maintenance of a document referred to as the Inventory of Hazardous Materials ("Inventory" or "IHM"), which was previously known as the "Green Passport" (GP) in IMO Resolution A.962(23), IMO Guidelines on Ship Recycling. The Inventory is vessel-specific and covers the whole life of the vessel, from construction, throughout the vessel's operating life up to the time of preparation for scrapping at the end of the vessel's useful life. The main differences between an Inventory and a Green Passport is that compared to a Green Passport, an Inventory requires a more detailed and reasonably accurate account of the listed hazardous substances in the inventory and the additional procedure of sampling where required, to be carried out for existing vessels.

Since the introduction of the *ABS Guide for the Class Notation Green Passport (GP)* in March 2011, several revisions to the guidelines have been adopted by IMO, these revisions have further assisted in a more accurate preparation of the Inventory.

This *ABS Guide for the Inventory of Hazardous Materials* supersedes the *ABS Guide for the Class Notation Green Passport (GP)*, 2011 (Updated February 2014).

For the details of the issuance of a new **ABS IHM** notation and the conversion of a vessel's **ABS GP** notation to the **IHM** notation please refer to Subsection 1/7 through 1/11 of this Guide.

This Guide provides the ABS requirements for the review and verification of the initial Inventory for new construction vessels and existing vessels and also for the maintenance, verification and endorsement of the Inventory for a vessel in service. The initial inventory covers mainly Part I of the IHM, as it is the only part that needs to be maintained during the life of the vessel. The preparation and review of Parts II and III of the IHM are outside the scope of this Guide. See also 3/4.5.3.

This Guide incorporates the requirements of IMO Resolution MEPC.269(68), 2015 Guidelines for the Development of the Inventory of Hazardous Materials, which are all contained in their entirety in Section 3 of this Guide. The parts in this Guide which are additional classification requirements and ABS interpretations of the aforementioned Ship Recycling Convention and/or Resolution are presented in non-italics "Times New Roman" type style. Under these parts are also, wherever applicable, ABS interpretations of IMO, IACS and other related instruments.

The application of this Guide is optional. However, recognizing the increasing attention of the maritime community on the protection of the marine environment and occupational health and safety relating to ship recycling, which is further supported by Regulation (EU) No 1257/2013 of the European Parliament and of the Council on ship recycling (EU SRR), the compliance with which is considered as a route for early ratification of the Ship Recycling Convention, designers, shipbuilders, shipowners and operators are encouraged to apply this Guide.

This Guide becomes effective on the first day of the month of publication.

Users are advised to check periodically on the ABS website www.eagle.org to verify that this version of this Guide is the most current.

We welcome your feedback. Comments or suggestions can be sent electronically by email to rsd@eagle.org.

GUIDE FOR THE INVENTORY OF HAZARDOUS MATERIALS

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SECTION 1 Introduction

1 General

The importance of an inventory detailing the type, amount, and location of hazardous materials used in a vessel's construction and operations is increasingly recognized as a means to enhance onboard safety and environmental awareness, both throughout the ship's economic life and at the end of the vessel's useful life, when the ship is being prepared for recycling.

This Guide has been developed with the objective of assisting designers, equipment suppliers, shipbuilders, ship repair facilities, operators and owners in the practical and reasonable formulation and maintenance of this inventory.

3 Application

This Guide is applicable to new and existing vessels for which an Inventory has been submitted for review and verification to the satisfaction of ABS, thereby enabling issuance of the notation **IHM**. Obtaining this notation would assist owners and operators to comply with Regulations 4, 5 and 10 of the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (SR/CONF/45).

5 Scope

This Guide has been developed with the objective of promoting the industry's ongoing commitment to providing safe working conditions of the vessel's crew, protecting the marine environment and in recognition of the maritime community's efforts, as a stake holder, assisting in the safe and environmentally sound recycling of vessels. The Guide includes information on inventorying hazardous materials on new or existing vessels, conducting verification surveys and the issuance and maintenance of the ABS notation **IHM**.

This Guide covers mainly the ABS requirements for the review and verification survey of Part I, the hazardous and potentially hazardous materials in a vessel's structure and equipment as detailed in the Inventory. 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. However, see also 3/4.5.3.

7 Notation

At the request of the owner, vessels which have had their Inventory reviewed and verified to the requirements of this Guide to the satisfaction of ABS Survey, will receive the ABS notation **IHM**. The requirements in this Guide for the purpose of obtaining the ABS notation **IHM** are to be considered as additional to all other relevant requirements of the ABS Rules and Guides.

Compliance with the applicable requirements of the following IMO documents, specifically with regard to the inventory of hazardous materials, is a prerequisite:

- i) IMO SR/CONF/45, Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009, in particular with the following Regulations:
 - Regulation 4 – Controls of ship's hazardous materials
 - Regulation 5 – Inventory of Hazardous Materials: paragraphs 1-3
 - Regulation 10 – Surveys: subparagraphs 1.1-1.3
- ii) IMO Resolution MEPC.269(68), 2015 Guidelines for the Development of the Inventory of Hazardous Materials

9 Issuance of the IHM Notation

- i) The **IHM** notation is available to vessels contracted for construction on or after the effective date of this Guide.
- ii) The **IHM** notation is also available to Existing vessels subject to compliance with the requirements of 3/4.2.3, along with the ABS requirements specified in 3/4.2.3 of this Guide.

11 Maintenance of GP Notation and Conversion from GP to IHM Notation

- i) Those vessels that currently possess a **GP** notation will continue to be eligible to maintain the **GP** notation, provided the requirements contained within the *ABS Guide for the Class Notation Green Passport (GP)* continue to be satisfied.
- ii) Vessels under construction as of the date this Guide becomes effective may receive a new ABS notation **IHM**, provided the **GP** notation was requested prior to the date this Guide becomes effective. A vessel is “under construction”, for purposes of this provision, if the contract date for construction between the shipbuilder and the prospective owner is prior to the date this Guide becomes effective.
- iii) Existing vessels that have a **GP** Notation may receive an **IHM** notation provided:
 - These vessels have Inventories that have been prepared using the procedure for “new vessels” in compliance with 3/4.1 of this Guide, or
 - These existing vessels which currently maintain an Inventory prepared by using the procedure for “existing vessels” in compliance with 3/4.2 of this Guide, along with their Inventory’s being reviewed and revised where necessary by an ABS approved external specialist. Refer to 3/4.2 of this Guide.

13 Future Regional or Governmental Regulations

Individual flag Administrations may in the future have in place additional requirements pertaining to the requirements for mandatorily maintaining an Inventory. When such additional requirements are to be enforced this Guide will be revised accordingly, considering such additional requirements. See the following Section 1, Appendix 1 of this Guide.

SECTION 1 Appendix 1 – EU Ship Recycling Regulation

On December 30, 2013 the European Union adopted Regulation (EU) No 1257/2013 of the European Parliament and of the Council on ship recycling, amending Regulation (EC) No 1013/2006 and Directive 2009/16/EC.

Since the EU SRR is at present incomplete in its requirements in so far as the permitted threshold values are concerned and is in the process of being amended, for implementation of the requirements of this Regulation, consideration should be given to the guidelines developed by the IMO ('IMO Guidelines') to support the Hong Kong Convention.

At the time of publication of this present revision of this Guide, it is to be noted that Regulation (EU) No 1257/2013, in addition to Hong Kong Convention requirements, does not permit the presence of the following hazardous materials:

- Annex I Perfluorooctane sulfonic acid (PFOS)
- Annex II Brominated Flame Retardant (HBCDD)

Furthermore, unlike the Hong Kong Convention that allows new installations containing hydrochlorofluorocarbons (HCFCs) until 1 January 2020, the EU Flagged ships Regulation (EU) No 1257/2013 does not permit such a relaxation.

To enable ease of understanding the implementation dates of the European Union Regulation No 1257/2013, reference is to be made to the Table below.

Comparison Time Line between Regulation EU No 1257/2013 and the HK Convention

Date of entry in to force of REGULATION EU No 1257/2013: 30 December 2013			SR/CONF/45, Hong Kong International Convention
Applicability to Ships	Specific Stage of Ship	Time Line for the Development of Part I of an IHM	Time Line for the Development of Part I of an IHM
EU Flagged New Ships	“New ship” means a ship: .1 for which the building contract is placed on or after the application date of this Regulation; or .2 in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or after six months after the application date of this Regulation; or .3 the delivery of which is on or after 30 months after the application date of this Regulation. Art. 3(2)	Date of application: The application of the Regulation will be from the earlier of the following two dates. .1 6 months after the date that the combined maximum annual ship recycling output of the ship recycling facilities included in the European List constitutes not less than 2,5 million light displacement tonnes (LDT). .2 on 31 December 2018 Art. 32(1);	• The H K Convention will enter into force only 24 months after the date of ratification by at least 15 states • The 15 states should represent a combined merchant fleet of at least 40 per cent of the gross tonnage of the world’s merchant shipping and whose combined maximum annual ship recycling volume during the preceding 10 years constitutes not less than three per cent of the gross tonnage of the combined merchant shipping of the same states.
EU Flagged Existing Ships	“Existing ship” means a ship which is not a new ship.	From 31 December 2020 For ships going for recycling an IHM is to be prepared prior recycling. Once the European List of Recycling Facilities is issued, EU Flagged Vessels may only be recycled at facilities listed in the EU List. [The European List is to be published not later than 31 December 2016] Art. 32(2); Art. 5(2) SP-2; Art 16(2)	
Non-EU Flagged Ships	Is a ship flying the flag of a third country (i.e. non-EU) when calling at a port or anchorage of a Member State Art. 12(1)	From 31 December 2020 Art 12(1)	

SECTION 2 Documents to be Submitted

1 Plans and Documentation

Section 2, Tables 1A and 1B below show the documents to be submitted to an ABS Engineering office for review or information and those required to be placed onboard for the initial survey of the Inventory for new and existing vessels respectively. Section 2, Table 1C shows the documents to be made available onboard for Annual Surveys and Section 2, Table 1D shows the documents to be submitted to an ABS Engineering office and placed onboard when an additional survey is requested for the update of Part I of the IHM.

TABLE 1A
Submittals for the Development of Part I of the Inventory for New Vessels

<i>Type of Document</i>	<i>Description</i>	<i>For Review (R) or Information (I)</i>	<i>Placed Onboard Ship for Survey (S)</i>
Inventory of Hazardous Materials (IHM)	- Hazardous Materials listed in Appendices 1 and 2 meeting Regulation 4 and 5.1 of SR/CONF/45 and 3/4.1 of this Guide - In standard format as per Appendix 2 of this Guide - Cover page of the IHM to include the following details of the ship: - Ship Name; - IMO Number; - International Call Sign; - Flag State; - Port of Registry; - Date of Register with the Flag State; - Ship Type; - Shipyards and Hull No.; - ABSID; - Ship Owner Name and Address;	R	S
Material Declaration (MD)	One MD for one product using IMO standard MD form in Appendix 6 of this Guide. MD should be prepared for all products regardless of the existence of hazmat specified in Appendix 1, Tables A and B of this Guide.	I	
Supplier's Declaration of Conformity (SDoC)	Every MD is to be accompanied by a SDoC. A single SDoC may refer to several items of conformity declarations as long as each item and its related product information and supplementary information can be clearly identified. See Appendix 7 of this Guide	I	
Location Diagram of Hazmat	Diagrams to show the location of materials listed in Appendix 1, Table A. See Appendix 1 and Appendix 5 of this Guide	R	S

TABLE 1A (continued)
Submittals for the Development of Part I of the Inventory for New Vessels

<i>Type of Document</i>	<i>Description</i>	<i>For Review (R) or Information (I)</i>	<i>Placed Onboard Ship for Survey (S)</i>
Ship Specific Plans	General Arrangement plan or details of different locations of the ship.	I	
Maintenance Manual	- Details of Designated Person responsible for maintaining and updating the IHM - System to maintain and update the IHM - Records of new installations, repairs, maintenance, modifications to ship - Records of changes to inventory with fields for dates and signatures	R	S

TABLE 1B
Submittals for the Development of Part I of the Inventory for Existing Vessels

<i>Type of Document</i>	<i>Description</i>	<i>For Review (R) or Information (I)</i>	<i>Placed Onboard Ship for Survey (S)</i>
Inventory of Hazardous Materials (IHM)	- Hazardous Materials listed in Appendices 1 and 2 meeting Regulation 4 and 5.2 of SR/CONF/45 and 3/4.2 of this Guide - In standard format as per Appendix 2 of this Guide - Cover page of the IHM to include the following: - Ship Name; - IMO Number; - International Call Sign; - Flag State; - Port of Registry; - Date of Register with the Flag State; - Ship Type; - Shipyard and Hull No.; - ABSID; - Ship Owner Name and Address;	R	S
Material Declaration (MD)	- Where possible - One MD for one product using IMO standard MD form in Appendix 6 of this Guide. MD should be prepared for all products regardless of the existence of hazmat specified in Appendix 1, Tables A and B of this Guide,	I	
Supplier's Declaration of Conformity (SDoC)	- Where possible - Every MD is to be accompanied by a SDoC. A single SDoC may refer to several items of conformity declaration as long as each item and its related product information and supplementary information can be clearly identified. See Appendix 7 of this Guide	I	
Visual/Sampling Check Plan	See example in Appendix 5 of this Guide	I	S

TABLE 1B (continued)
Submittals for the Development of Part I of the Inventory for Existing Vessels

<i>Type of Document</i>	<i>Description</i>	<i>For Review (R) or Information (I)</i>	<i>Placed Onboard Ship for Survey (S)</i>
Report of Visual/Sampling Check	Is to comprise the following: - Visual/Sampling check plan (see example of check plan in Appendix 5 of this Guide) - Checklist covering: - At least, items in the indicative list in Appendix 5 of this Guide, - Considered spaces, areas, structures, equipment, fittings, as specific to the ship and - Updated with the results of onboard check and laboratory sample analysis results - Support documents used for the development of visual/sampling check report (e.g., ship files, vendor product specifications, Material Declarations, laboratory analysis report, etc.)	I	
Location Diagram of Hazmat	Diagrams to show the location of materials listed in Appendix 1, Table A, See Appendix 1 and Appendix 5 of this Guide	R	S
Ship Specific Plans	General Arrangement plan or details of different locations of the ship.	I	
Maintenance Manual	- Details of Designated Person responsible for maintaining and updating the IHM - System to maintain and update the IHM - Records of new installations, repairs, maintenance, modifications to ship - Records of changes to inventory with fields for dates and signatures	R	S

TABLE 1C
Annual Survey of Part I of the Inventory

<i>Type of Document</i>	<i>Description</i>	<i>Placed Onboard Ship for Survey (S)</i>
Inventory of Hazardous Materials (IHM)	IHM with IHM Supplements if applicable	S
Material Declaration (MD)	MD collected for purchases of materials, machinery or equipment, coating renewal and spares from the date of the last approval of the IHM or IHM supplements thereof	S
Supplier's Declaration of Conformity (SDoC)	SDoC supporting MD collected from the date of the last approval of the IHM or IHM supplements thereof	S
Location Diagram of Hazmat	Updated diagrams, where applicable	S
Maintenance Manual	- Records of new installations, repairs, maintenance, modifications to ship - Records of changes to inventory with fields for dates and signatures	S

TABLE 1D
Submittals when Additional Survey of Part I of the Inventory is Requested

<i>Type of Document</i>	<i>Description</i>	<i>For Review (R) or Information (I)</i>	<i>Placed Onboard Ship for Survey (S)</i>
Inventory of Hazardous Materials (IHM)	IHM with IHM Supplements	R	S
Material Declaration (MD)	MD collected for purchases of materials, machinery or equipment, coating renewal and spares from the date of the last approval of the IHM or IHM supplements thereof	R	
Supplier's Declaration of Conformity (SDoC)	SDoC supporting MD collected from the date of the last approval of the IHM or IHM supplements thereof	R	
Location Diagram of Hazmat	Updated diagrams, where applicable	R	S
Maintenance Manual	- Records of new installations, repairs, maintenance, modifications to ship - Records of changes to inventory with fields for dates and signatures	R	S

3 Engineering Review

Plans submitted to an Engineering office will be reviewed for compliance based on the following:

3.1 Development of Part I of the Inventory for New vessels

- i) The Inventory was prepared at the design and construction stage in accordance with 3/4.1 of this Guide.
- ii) The Inventory corresponds to the information indicated on the MD and SDOC.
- iii) The Inventory identifies hazardous materials contained in ship structure, equipment and coating, along with the location and approximate quantity.
- iv) Hazardous materials listed in Appendix 1, Table A of this Guide are not used onboard the vessel above their threshold values, unless permitted by the Convention
- v) Hazardous materials listed in Appendix 1, Table B of this Guide, when used onboard the ship above their threshold values, are reported in the Inventory
- vi) The Inventory contains diagrams showing the locations of materials listed in Appendix 1, Table A of this Guide
- vii) There is a maintenance manual which is to include the identity of the designated person, a system for maintaining and updating of the Inventory, records of new installations, repairs, maintenance and modifications to a ship and records of changes to the Inventory

3.3 Development of Part I of the Inventory for Existing Vessels

- i) The Inventory was prepared in accordance with 3/4.2 of this Guide:
 - a) By a company in the ABS list of approved external specialists; or
 - b) By the shipowner with the assistance of a company from the ABS list of approved external specialist (the company engaged has signed off on the visual/sampling check plan and the report of visual/sampling check)
- ii) The Inventory corresponds with the visual/sampling check report.
- iii) The Inventory identifies hazardous materials complying with 2/3.1iii).

- iv) The classification of items as “potentially containing hazardous material (PCHM)” are noted in the remarks column of the Inventory where applicable.
- v) Hazardous materials listed in Appendix 1, Table A of this Guide, where present in quantities above the respective threshold values, are reported in the Inventory.
- vi) Hazardous materials listed in Appendix 1, Table B of this Guide, complying with 2/3.1v).
- vii) The Inventory includes diagrams complying with 2/3.1vi).
- viii) There is a maintenance manual, complying with 2/3.1vii).

3.5 When an Additional Survey of Part I of the Inventory is Requested

- i) The Inventory has been updated in accordance with 3/4.3 of this Guide.
- ii) The Inventory corresponds with the records in the maintenance manual and Material Declarations.
- iii) Hazardous materials listed in Appendix 1, Table A of this Guide, complying with 2/3.1iv).
- iv) Hazardous materials listed in Appendix 1, Table B of this Guide, complying with 2/3.1v).
- v) The Deletion of equipment and/or parts of the ship’s structure previously classed as PCHM in the Inventory were supported with reasons and evidence that the equipment, system and/or area do not contain hazardous materials or which have subsequently been sampled and found to contain hazardous material, which have been identified in the revised Inventory or a supplement to the Inventory thereof.

5 Survey

For the requirements for surveys, please refer to Section 5 of this Guide.

SECTION 3 Development of the Inventory of Hazardous Materials

Note: Text in *italics* comes from IMO Resolution MEPC.269(68), 2015 Guidelines for the Development of the Inventory of Hazardous Materials,

1 *Introduction*

1.1 **Objectives of the Guidelines**

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

1.2 **Application**

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

1.3 **Objectives of the Inventory**

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

2 *Definitions*

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

2.1 Exemption (as referred to in regulation 5 of the Convention) means materials specified in paragraph 3.3 in these guidelines that do not need to be listed on the IHM, even if such materials or items exceed the IHM threshold values.

2.2 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.

2.3 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.

2.4 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.

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

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

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

2.8 Threshold value is defined as the concentration value in homogeneous materials.

HONG KONG INTERNATIONAL CONVENTION FOR THE SAFE AND ENVIRONMENTALLY SOUND RECYCLING OF SHIPS, 2009

ARTICLE 2

Definitions

- 1 **“Convention”** means the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009.
- 2 **“Administration”** means the Government of the State whose flag the ship is entitled to fly, or under whose authority it is operating.
- 3 **“Competent Authority(ies)”** means a governmental authority or authorities designated by a Party as responsible, within specified geographical area(s) or area(s) of expertise, for duties related to Ship Recycling Facilities operating within the jurisdiction of that Party as specified in this Convention.
- 4 **“Organization”** means the International Maritime Organization.
- 5 **“Secretary-General”** means the Secretary-General of the Organization.
- 6 **“Committee”** means the Marine Environment Protection Committee of the Organization.
- 7 **“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.
- 8 **“Gross tonnage”** means the gross tonnage (GT) calculated in accordance with the tonnage measurement regulations contained in Annex I to the International Convention on Tonnage Measurement of Ships, 1969, or any successor convention.
- 9 **“Hazardous Material”** means any material or substance which is liable to create hazards to human health and/or the environment.
- 10 **“Ship Recycling”** means the activity of complete or partial dismantling of a ship at a Ship Recycling Facility in order to recover components and materials for reprocessing and re-use, whilst taking care of hazardous and other materials, and includes associated operations such as storage and treatment of components and materials on site, but not their further processing or disposal in separate facilities.
- 11 **“Ship Recycling Facility”** means a defined area that is a site, yard or facility used for the recycling of ships.
- 12 **“Recycling Company”** means the owner of the Ship Recycling Facility or any other organization or person who has assumed the responsibility for operation of the Ship Recycling activity from the owner of the Ship Recycling Facility and who on assuming such responsibility has agreed to take over all duties and responsibilities imposed by this Convention.

3 Requirements for the Inventory

3.1 Scope of the Inventory

The Inventory consists of:

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

3.2 Materials to be listed in the Inventory

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

- .1 Table A comprises the materials listed in Appendix 1 of the Convention;*
- .2 Table B comprises the materials listed in Appendix 2 of the Convention;*
- .3 Table C (Potentially hazardous items) comprises items which are potentially hazardous to the environment and human health at ship recycling facilities; and*
- .4 Table D (Regular consumable goods potentially containing hazardous materials) comprises goods which are not integral to a ship and are unlikely to be dismantled or treated at a ship recycling facility.*

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

3.2.3 *For loosely fitted equipment, there is no need to list this in Part I of the Inventory. Such equipment which remains on board when the ship is recycled should be listed in Part III.*

3.2.4 *Those batteries containing lead acid or other hazardous materials that are fixed in place should be listed in Part I of the Inventory. Batteries that are loosely fitted, which includes consumer batteries and batteries in stores, should be listed in Part III of the Inventory.*

3.2.5 *Similar materials or items that contain hazardous materials that potentially exceed the threshold value can be listed together (not individually) on the IHM 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 row 3 of Table 1 of Appendix 3.*

3.3 Exemptions – Materials not required to be listed in the Inventory

3.3.1 *Materials listed in Table B that are inherent in solid metals or metal alloys, such as steels, aluminium, 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 Inventory.*

3.3.2 *Although electrical and electronic equipment is required to be listed in the Inventory, 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 Inventory.*

3.4 Standard format of the Inventory of Hazardous Materials

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

3.5 Revision to threshold values

Revised threshold values in Tables A and B of Appendix 1 should be used for IHMs developed or updated after the adoption of the revised values and need not be applied to existing IHMs and IHMs under development. However, when materials are added to the IHM, such as during maintenance, the revised threshold values should be applied and recorded in the IHM.

4 Requirements for development of the Inventory

4.1 Development of Part I of the Inventory for new ships¹

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

4.1.2 *Checking of materials listed in Table A*

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

4.1.3 *Checking of materials listed in Table B*

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

4.1.4 *Process for checking of materials*

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

To preclude the introduction of non-compliant components in to a vessel's structure or equipment after the inventory for the vessel has been prepared, Material Declarations are also to be obtained for purchases of spare parts that would be included in the vessel's spares at delivery.

If any of the Material Declarations for spare parts contain materials listed in Appendix 1, Table A or B of this Guide above the respective threshold values, these spare parts are to be documented in an appendix to Part 1 of the IHM. When these spare parts are used, Part 1 of the IHM is to be updated accordingly.

4.2 Development of Part I of the Inventory for existing ships

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

- .1 collection of necessary information;
- .2 assessment of collected information;
- .3 preparation of visual/sampling check plan;
- .4 onboard visual check and sampling check; and
- .5 preparation of Part I of the Inventory and related documentation.

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

¹ In ascertaining whether a ship is a "new ship" or an "existing ship" according to the Convention, the term "a similar stage of construction" in regulation 1.4.2 of the annex to the Convention means the stage at which:

- .1 construction identifiable with a specific ship begins; and
- .2 assembly of that ship has commenced comprising at least 50 tonnes or 1% of the estimated mass of all structural material, whichever is less.

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

To assist shipowners identify experts for the development of Part I of the IHM, ABS has developed a qualification scheme to qualify companies offering this expertise.

ABS will qualify companies based on the following documented procedures:

- Procedures for the development of Part I of the IHM, in compliance with Hong Kong Convention and Resolution MEPC 269(68) - 2015 Guidelines for the development of IHM; and
- Qualification and training of experts

Please refer to the ABS website (www.eagle.org > Rules and Resources > Recognized Specialists) for the list of companies qualified as approved external specialists for the development of Part I of the IHM.

For existing vessels to qualify for an ABS **IHM** notation, ABS requires shipowners to engage a company from the ABS's list of approved external specialists for the development of Part I of the IHM or if shipowners wish to develop the inventory in-house, they are to engage a company from the ABS's list of external specialist to carry out visual/sampling checks onboard the vessel (an expert from the company engaged is to sign off on the visual/sampling check plan and the report of visual/sampling check)

- 4.2.4** *Reference is made to Appendix 4 (Flow diagram for developing Part I of the Inventory for existing ships) and Appendix 5 (Example of development process for part I of the Inventory for existing ships).*

4.2.5 Collection of necessary information (step 1)

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

4.2.6 Assessment of collected information (step 2)

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

4.2.7 Preparation of visual/sampling check plan (step 3)

4.2.7.1 *To specify the materials listed in Appendix 1 of these guidelines, a visual/sampling check plan should be prepared taking into account the collated information and any appropriate expertise. The visual/sampling check plan should be based on 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 Appendix 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 Appendix 1 by document or visual analysis should be entered in the List of equipment, system and/or area as requiring sampling check. A sampling check is the taking of samples to identify the presence or absence of hazardous material contained in the equipment, systems, and/or areas, by suitable and generally accepted methods such as laboratory analysis); and*

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

4.2.7.2 *Visual/sampling checkpoints should be all points where:*

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

To preclude the introduction of non-compliant components into a vessel's structure or equipment after the inventory for the ship is prepared, the visual/sampling check plan is to include checking of spare parts onboard the ship that may be used for the vessel's structure or equipment.

If any of the spare parts for the vessel's structure or equipment onboard the ship are found to contain materials listed in Appendix 1, Table A or B of this Guide above their respective threshold values, these spare parts are to be documented in an appendix to Part I of the IHM. When these spare parts are used, Part I of the IHM is to be updated accordingly.

4.2.8 Onboard visual/sampling check (step 4)

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

Photographic evidence is to be included along with the check and assignment of materials that are considered to be of the same kind for the purpose of taking representative samples.

4.2.8.2 *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.*

4.2.8.3 *If the equipment, system and/or area of the ship are not accessible for a visual check or sampling check, they should be classified as "potentially containing hazardous material". The prerequisite for such classification should be the same prerequisite as in section 4.2.7. Any equipment, system and/or area classed as "potentially containing Hazardous Material" may be investigated or subjected to a sampling check at the request of the shipowner during a later survey (e.g. during repair, refit or conversion).*

4.2.9 Preparation of Part I of the Inventory and related documentation (step 5)

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

4.2.10 Testing methods

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

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

4.2.10.2 *Indicative or field tests are quick, inexpensive and useful on board 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".*

4.2.10.3 *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 standards² or equivalent, which will provide a written report that can be relied upon by all parties.*

4.2.10.4 *Specific test methods for Appendix 1 materials are provided in Appendix 9.*

4.2.11 Diagram of the location of hazardous materials on board a ship

Preparation of a diagram showing the location of the materials listed in Table A is recommended in order to help ship recycling facilities gain a visual understanding of the Inventory.

The location diagram is a necessary submission that is to be included with other documents submitted for review.

4.3 Maintaining and updating Part I of the Inventory during operations

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

The maintenance of Part I of the Inventory is to be based on Material Declarations furnished by suppliers for equipment, parts, material etc.

Material Declarations are to be obtained for all purchases that may impact a ship's structure and equipment (e.g. materials, machinery or equipment, spare parts, etc.).

If any of the Material Declarations contain materials listed in Table A or B of 3/Appendix 1 of this Guide above the respective threshold values, Part I of the Inventory is to be updated accordingly with the use of these materials, equipment or spare parts onboard the ship.

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

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

4.3.3 Continuity of Part I of the Inventory

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

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

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

4.4.2 Operationally generated wastes to be listed in the Inventory

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

² For example ISO 17025.