C C S Technical Information

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To: All branches, relevant ship owners/managers/operators, shipyards, design companies, ship recycling facilities, and professional and testing organizations for visual/sampling inspection

Technical Notice on the Development of Part I of inventory of Hazardous Materials in Regulation EU on Ship Recycling

1. Background

Regulation (EU) No. 1257/2013 on ship Recycling (Hereinafter referred to as EU SRR) entered into force on 30th December 2013, and applied on 31th December 2018. The application date and requirement were different for new ships and existing ships flying the flag of a member state and ships flying the flag of a third country respectively as follows:

With effect from 31th December 2018, new ships flying the flag of a member state shall have on board a certificate/statement of compliance on inventory of hazardous materials attached with an inventory of hazardous materials (Hereinafter referred to as IHM), which shall identify the hazardous materials referred to in Annex II contained in the structure or equipment of the ship, their location and approximate quantities. Furthermore the installation or use of hazardous materials referred to in Annex I on ships shall be prohibited or restricted as specified in Annex I;

With effect from 31th December 2020, existing ships flying the flag of a member state shall have on board a certificate/statement of compliance on inventory of hazardous materials attached with an IHM, which shall at least identify the hazardous materials as specified in Annex I, and as far as practicable identify the hazardous

materials referred to in Annex II contained in the structure or equipment of the ship, their location and approximate quantities;

With effect from 31th December 2020, ships flying the flag of a third country calling at a port or anchorage of a Member State shall have on board a certificate/statement of compliance on inventory of hazardous materials attached with an IHM that shall be in comply with those of above existing ships flying the flag of a member state. It is not applicable for ships flying the flag of a third country in terms of 'Perfluorooctane sulfonic acid (PFOS)'.

According to EU SRR, 'new ship' means a ship for which either:

(a) the building contract is placed on or after 31th December 2018;

(b) in the absence of a building contract, the keel is laid or the ship is at a similar stage of construction on or after 30th June 2019;

(c) the delivery takes place on or after 30th June 2021.

'Existing ship' means a ship is not a new ship.

2. The differences between Hong Kong Convention and EU SRR

Comparing with Table A and B of Hong Kong Convention, 'Perfluorooctane sulfonic acid (PFOS)' and 'Brominated Flame Retardant (HBCDD)' are added respectively in Annex I and II of EU SRR. 'Perfluorooctane Sulfonic Acid (PFOS)' doesn't apply for ships flying the flag of a third country. 'Brominated Flame Retardant (HBCDD)' is not to be listed mandatorily in an IHM according to 'as far as practicable' required in Regulation 5 (2) when the initial issuance of an inventory certificate for existing ships flying the flag of a member state, or a statement of compliance for ships flying the flag of a third country, but new installations containing HBCDD shall be listed in the IHM when IHM is to be updated.

The new installations containing 'Hydrogenated Chlorofluorocarbons (HCFC)' as ozone-depleting substances should be prohibited or restricted since 31th December 2018, which should apply to both new ships and existing ships flying the flag of a member state and ships flying the flag of a third country calling at a port or anchorage of a Member State according to the requirement of EU SRR. However

installations containing 'Hydrogenated Chlorofluorocarbons (HCFC)' can be used on ships constructed before 1st January 2020 according to Hong Kong Convention and MARPOL(73/78) Convention. Therefore the following measures should be taken to meet the requirements of Hong Kong Convention and MARPOL(73/78) Convention simultaneously since the effective date of EU SRR:

1. For existing ships flying the flag of a member state, 'Hydrogenated Chlorofluorocarbons (HCFC)' installed on board shall be listed in the IHM, and new installation is prohibited;

2. For new ships flying the flag of a member state, new installation or use of 'Hydrogenated Chlorofluorocarbons (HCFC)' is prohibited;

3. For ships flying the flag of a third country, 'Hydrogenated Chlorofluorocarbons (HCFC)' can be used on ships constructed before 1st January 2020 (keel-laying or at similar stage of construction) and listed in the IHM according to article 12.2 of EU SRR.

A visual/sampling check plan shall be established for the ship flying the flag of a third country, and the IHM is to be developed on the basis according to article 12.3 of EU SRR, which are applicable to both new ships and existing ships. New ships are not required in Hong Kong Convention in this regard.

The EU SRR criterion should be indicated on the first page of IHM.

To sum up, the ship with a statement of compliance of Hong Kong Convention doesn't meet those requirements of EU SRR in terms of IHM. According to the current opinion of EU, the statement of compliance of Hong Kong Convention isn't equivalent to the inventory certificate/statement of compliance of EU SRR. Therefore the inventory certificate/statement of compliance of EU SRR and the attached IHM are required to be compiled in accordance with EU SRR.

3. Requirements for the installation or use of equipment and materials containing hazardous substances under EU SRR

The installation or use of hazardous materials referred to in Annex I shall be prohibited or restricted on new ships and existing ships flying the flag of a member

state of EU on or after 31th December 2018 according to EU SRR, but there is no traceability for those materials installed or used on such ships before the date.

The installation or use of hazardous materials referred to in Annex I shall be prohibited or restricted on ships flying the flag of a third country calling at the port or anchorage of a member state without prejudice to the exemptions and transitional arrangements applicable to those materials under international law (such as HCFC referred to article 2 above) on or after 31th December 2018. There is no traceability for those hazardous materials referred to in Annex I installed or used on such ships before the date.

4. Requirements for the development of the IHM in EU SRR

The development of the inventory of hazardous materials in EU SRR shall be referred to "EMSA's Guidance on the Inventory of Hazardous Materials", "EMSA's Best Practice Guidance on the Inventory of Hazardous Materials", “MEPC. 259(68) - 2015 Guidelines for the development of the inventory of hazardous materials” and the “CCS’s Guidelines for the development of the inventory of hazardous materials and survey”.

(1). New ship under flag of a member state

According to relevant requirements of above Guidelines, the dockyard shall collect the “Material Declarations (MD)” and “Supplier’s Declaration of Conformity (SDoC)” that includes the hazardous materials in annex I and II of EU SRR from suppliers, and develop the IHM accordingly. If the presence of hazardous substances declared in the documents above is suspected, the sampling may be taken for verification.

(2). Existing ship under flag of a member state

1) If the inventory of hazardous materials and statement of compliance with the Hong Kong Convention is not held, the professional testing organizations for visual/sampling inspection recognized or accepted by CCS shall develop the visual and sampling plan, and develop the IHM according to the report after visual and sample. The sample scope should cover the hazardous materials in the annex I of EU

SRR, the requirements for asbestos and 'Hydrogenated Chlorofluorocarbons (HCFC)' should meet those of EU SRR.

2) If the IHM and statement of compliance with the Hong Kong Convention is held, it should be proved that the hazardous material control meet the requirements of EU SRR in principle, except the 'Perfluorooctane sulfonic acid (PFOS)' and 'Hydrogenated Chlorofluorocarbons (HCFC)' in the annex I of EU SRR and the 'Brominated Flame Retardant (HBCDD)' in the annex II of EU SRR, unless there is evidence needed to take further measures to test and verify.

The sampling and testing activity onboard shall be conducted for verifying 'Perfluorooctane sulfonic acid (PFOS)' and 'Hydrogenated Chlorofluorocarbons (HCFC)' according the Article 5 (2) of EU SRR "when the inventory of hazardous materials is developed it shall identify, at least, the hazardous materials listed in Annex I."

The test report, the IHM in Hong Kong Convention,the "Material Declarations (MD)" and "Supplier's Declaration of Conformity (SDoC)" jointly form the evidence documents for developing the IHM in EU SRR. The shipowners shall initially develop the IHM in EU SRR based on the IHM in Hong Kong Convention and result on the test report.

After the initial issuance of the inventory certificate, if the 'Brominated Flame Retardant (HBCDD)' are used onboard, the "Material Declarations (MD)" and "Supplier's Declaration of Conformity (SDoC)" shall be provided, with the IHM properly maintained and updated.

(3). Ship under flag of the third country

1) For the ship put into operation before 31th December 2020, the applicability of the 'Perfluorooctane sulfonic acid (PFOS)' and 'Hydrogenated Chlorofluorocarbons (HCFC)' in the annex I of EU SRR and the 'Brominated Flame Retardant (HBCDD)' in the annex II of EU SRR shall be governed by the above-mentioned "2". If the IHM and Statement of compliance of Hong Kong Convention was not held, it shall be implemented with reference to the requirements of the existing ships under flag of a member state (see paragraph 4.(2).1)); If the IHM and Documentation of compliance

of Hong Kong Convention was held, it shall be implemented with reference to the requirements of the existing ships under flag of a member state (see paragraph 4.(2).2)) , but the sampling and testing for ‘Perfluorooctane sulfonic acid (PFOS)’ is not needed.

If the location and approximate amount of the ‘Hydrogenated Chlorofluorocarbons (HCFC)’ can be identified according to the Form AIR of the IAPP Certificate and the list and record of the Ozone-depleting substances, and there is evidence that no other equipment or materials on the ship contains "HCFCS", the IHM in EU SRR can be developed accordingly. Otherwise, the visual/sampling check plan shall be developed and the onboard sampling of ‘Hydrogenated Chlorofluorocarbons (HCFC)’ is to be needed

2) From the issuance date of this technical notice, the IHM shall be developed for the ships under construction or new-building ships according to the requirements of new ship under flag of member state if the construction standards are subject to EU SRR. The applicability of ‘Perfluorooctane sulfonic acid (PFOS)’ and ‘Hydrogenated Chlorofluorocarbons (HCFC)’ and the ‘Brominated Flame Retardant (HBCDD)’ shall be implemented in according with the above-mentioned “2”. If the construction standards are not decided yet, the information of the ship operation area should be obtained from the shipowners, and explanation on the requirements of EU SRR to shipowners are to be needed.

5. Suggestions on the development of IHM for existing ships under flag of a member state and ships under flag of the third country

The development of IHM part I for existing ships includes 5 steps according to the IMO MEPC. 259(68) (2015) Guidelines for the development of the IHM. Generally speaking, it will takes about 1-3 months from the beginning of preparation to the final holding of inventory certificate/statement of compliance.

In order to favorably implement EU SRR, it is suggested that CCS-classed ships under flag of a member state and the third country flag ships calling at the port or anchorage of a member state should be prepared early, and those shipowners should

develop the IHM together with the professional testing organizations for visual/sampling inspection recognized or accepted by CCS as soon as possible in combination with the survey plan (preferably the dry docking),and apply for the initial survey from CCS ,so that the inventory certificate/statement of compliance can be held meeting the requirements of EU SRR before 31th December 2020.

6. Survey, Certificate issuance and the Port state control

The certificate or statement of compliance in EU SRR will be issued by CCS after the satisfactory verification of the inventory of hazardous part I to meet requirements of EU SRR in the initial survey or renewal survey. The inspection types, procedures, issuance of statement of compliance shall be in accordance with the relevant contents of EU SRR, "EMSA's Guidance on the Inventory of Hazardous Materials", "EMSA's Best Practice Guidance on the Inventory of Hazardous Materials" and “CCS’s Guidelines for the development and survey of the inventory of hazardous materials and survey”.

Additional surveys may be carried out by surveyors at the request of the shipowners, to inspect whether the part I of the IHM was maintained and updated, based on the information of the alteration, replacement or major conversion of the ship's structure, equipment, systems, installations, arrangements and materials, as well as the supporting documents such as “Material Declarations (MD)” and “Supplier’s Declaration of Conformity (SDoC)” provided by the shipowners. Owing to the voluntary nature of the additional survey, surveyors may also remind shipowners of updating the IHM by consulting shipowners and checking the equipment change or repair records in class annual, intermediate and special survey.

For the ship under the flag of a state member or under flag of the third country, the risk of shipowners being warned, detained, dismissed or excluded from the ports or offshore terminals under the jurisdiction of a member state will be occurred in the event that it can’t meet the requirements of the article 11 or 12 of EU SRR. Attention is paid to: ships shall hold a valid inventory certificate/statement of compliance with the attachment IHM, and the condition of the ship or its equipment shall be in

accordance with the inventory certificate/statement of compliance and the part I of IHM, and the part I of IHM was maintained and updated in accordance with the maintenance procedures.

In addition, ships under the flag of a member state should be recycled at the recycling facilities approved by EU in the European list according to the requirements of EU SRR. The European list compliance with the article 14 and 15 of EU SRR can be found at http://ec.europa.eu/environment/waste/ships/list.htm.

Attachment:

1. EMSA's Guidance on the Inventory of Hazardous Materials
2. EMSA's Best Practice Guidance on the Inventory of Hazardous Materials
3. CCS Guidelines for Development and Survey of the Inventory of Hazardous Materials of Ships 2016

European Maritime Safety Agency

GUIDANCE ON THE INVENTORY OF HAZARDOUS MATERIALS

IHM DEVELOPMENT AND MAINTENANCE IN THE CONTEXT OF THE EU SHIP RECYCLING REGULATION

EMSA

GUIDANCE ON THE INVENTORY OF HAZARDOUS MATERIALS

EMSA
European Maritime Safety Agency

1. INTRODUCTION

This document provides best practice guidance and a harmonised approach to the development and maintenance of inventories of hazardous materials (hereinafter referred to as "the Inventory" or "the IHM") in accordance with Article 5 and Article 12 of the Regulation (EU) 1257/2013 of the European Parliament and the Council on ship recycling (hereinafter referred to as "the Regulation" or as "the SRR"). This document has been prepared on the basis of current knowledge and experience from the Member States, the industry and EMSA and other stakeholders.

Furthermore, this document provides guidance for a harmonised and effective approach to the inspection of ships ascertaining their compliance, to identifying non-compliances and to applying control procedures for the enforcement of the Regulation as regards the development and maintenance of an IHM on board ships.

EMSA's Best Practice Guidance is a non-binding document and nothing in this guidance document should be construed as generating mandatory requirements on any of the involved parties.

1.1 BACKGROUND

Keeping an up-to-date Inventory on board a ship throughout its life-cycle is a key requirement laid down in both the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships (hereinafter referred to as "the Convention" or "the HKC") and the Regulation. The Regulation's requirements for the development of the Inventory are in fact almost entirely based on the respective requirements of the Convention. An IHM developed in accordance with the Regulation must be compiled taking into account the relevant IMO guidelines.

Nevertheless, EU legislation sets a few more requirements for the Inventory than the Convention does. Therefore, it is essential that the development and maintenance of the IHM in pursuance of the SRR is done a) in a harmonised and comprehensive manner in the light of the international knowledge and experience as reflected most notably in the relevant IMO guidelines, while b) taking into account the specificities of the EU legislative context, in particular of the Regulation itself.

This guidance will be kept under review in the light of the experience that will be gained with its application and with the aim to be a workable and useful document for all the relevant stakeholders, in view of the application of the SRR.

The Hong Kong Convention and the IMO guidelines

The HKC covers the design, construction, survey, certification, operation and recycling of ships to facilitate safe and environmentally sound recycling. In accordance with Regulation 5 of the Annex of the HKC, each ship shall have on board an IHM[1]. The IHM shall be verified either by the Administration or by any person or organisation authorised by it.

1 'Existing' ships shall comply as far as practicable not later than 5 years after the entry into force of the HKC, or before going for recycling if this is earlier.

In the wake of the adoption of the HKC, the IMO has published a number of guidelines on ship recycling. As per the Regulation, the IMO guidelines, in their updated form, shall be taken into account when compiling the IHM[2], preparing a VSCP[3], conducting flag State surveys[4] or detailed inspections of the port State[5].

In this respect, this guidance document is complementary to the relevant IMO guidelines. It is to be regarded in the light of these guidelines with a view to provide a comprehensive framework for the practical implementation of the relevant provisions of the Regulation.

The EU Ship Recycling Regulation

Regulation (EU) No 1257/2013 of the European Parliament and of the Council of 20 November 2013 'on ship recycling and amending Regulation (EC) 1013/2006 and Directive 2009/16/EC' was published in the Official Journal[6] of the EU on 10 December 2013. It entered into force on 30 December 2013. Its articles will apply at various stages, as detailed in article 32 of the Regulation[7].

The SRR is closely following the HKC's structure, concepts and definitions. However, the Regulation also sets out a number of additional requirements that go beyond those set in the HKC, including on inventories of hazardous materials. In this regard, EMSA's guidance is based on the EU specific requirements when these requirements go beyond those set in the HKC.

In accordance with Article 5 of the Regulation, all ships flying the flag of a Member State shall have on board an IHM. Furthermore, in accordance with Article 12 of the Regulation, all ships flying the flag of a third country shall also have on board an IHM when calling at a port or anchorage of a Member State. In this respect, the Regulation takes a 'flag neutral' approach although all ships flying the flag of a third country will be considered as if they were 'existing ships' and, in general, will be treated accordingly[8].

In relation to the IHM, there are two basic categories of ships (i.e. flying the flag of a Member State): **'new'** and **'existing'** ships and a provisional category of **'ships going for recycling'** which includes all ships going for recycling from the date of the publication of the European List and before the final application date of the SRR[9]. In general, a 'new' ship shall have on board an IHM which shall identify at least the HM referred to in Annex II of the Regulation while an 'existing' ship or a 'ship going for recycling'[10] before the final application date of the SRR, shall have on board an IHM which shall identify, at least, the HM listed in Annex I of the Regulation. Annex I of the Regulation lists five types of hazardous materials; Annex II lists the items of Annex I as well as an additional ten types of hazardous materials.

2 Resolution MEPC.269(68).
3 See footnote (2).
4 Resolution MEPC.222(64).
5 Resolution MEPC.223(64).
6 OJ L 330, 10-12-2013, p.1-20.
7 See Annex A for the timeline of the application of the Regulation.
8 See Table A for some possible differences between 'existing' (EU) and 'non-EU' ships.
9 N.B.: And, because of the application dates of the Regulation (see Article 32), do not have yet on board an IHM as appropriate. For more details, see Annex A.
10 The term is used in accordance with the second subparagraph of Article 5(2) of the Regulation and applies only for ships flying the flag of a Member State.

All ships flying the flag of a Member State shall be subject to a survey regime and they shall carry on board a ship-specific 'Inventory Certificate' issued by the administration or a RO authorised by it and supplemented by Part I of the IHM.

When calling at a port or anchorage of a Member State, all ships flying the flag of a third country shall carry on board a ship-specific 'statement of compliance' issued by the relevant authorities of the third country whose flag the ship is flying or an organisation authorised by them and supplemented by Part I of the IHM.

In both cases the IHM shall be properly maintained and updated throughout the operational life of the ship, reflecting new installations containing any HM referred to in Annex II of the Regulation and relevant changes in the structure and equipment of the ship. However, for the ships flying the flag of a third country, any possible exemptions and transitional arrangements applicable to those materials under international law will also be taken into account.

Member States shall apply port State control provisions for ships in accordance with the PSC Directive[11]. This control shall be limited to checking that either an inventory certificate or a ready for recycling certificate is kept on board ships flying the flag of a Member State of the Union. Ships flying the flag of a third country should always be in a position to submit a copy of the statement of compliance together with the Inventory. In addition, Member States shall apply port State control provisions for ships in accordance with Article 11 or Article 12 of the Regulation as appropriate, and they may carry out detailed inspections to enforce the relevant provisions of the Regulation. [12][13]

1.2 OBJECTIVE

The aim of this document is to assist the Member States and all the relevant stakeholders involved in the IHM process, with a reference document that provides both technical information and procedural guidance.

In addition, EMSA's best practice guidance should provide the overarching principles for the development and maintenance of the IHM in order to ensure compliance with the EU requirements.

Finally, it should support the SRR with regard to all the aspects related to the IHM, building upon the existing IMO guidelines, identifying best practices and providing reference standards for the development and maintenance of the IHM and for the training and qualifications of the personnel which will be involved in the process.

The ultimate goal of this guidance document is to facilitate the development of a credible ship-specific IHM which will provide reliable information on the actual HM present on board, in order to protect health and safety and to prevent pollution at ship recycling facilities.

11 Directive 2009/16/EC, OJ L 131, 28-5-2009, p.57.
12 Resolution MEPC.223(64).
13 See below under chapter 7 'Enforcement'.

1.3 SCOPE OF APPLICATION

The Regulation applies to ships on international voyages, of 500 GT and above flying the flag of a Member State or the flag of a third country under the conditions of Article 12 of the Regulation.

The Regulation applies to all vessels of any type whatsoever operating or having operated in the marine environment including submersibles, floating craft, floating platforms, self-elevating platforms, FSUs and FPSOs, as well as ships stripped of equipment or being towed.

It does not apply to any warships, naval auxiliary or other ships owned or operated by a state and used, for the time being, only on government non-commercial service. 'New' and 'existing' ships, 'ships going for recycling' as well as 'ships flying the flag of a third country' shall have on board an IHM in accordance with the relevant provisions of Article 5 or Article 12 of the Regulation.

The scope of this guidance coincides with the scope of the Regulation. Therefore, the provisions of the guidance document should be utilised for the development and proper maintenance and update of the IHM throughout the operational life of ships for which the SRR applies. Furthermore, it is suggested that this guidance is utilised by the administrations of the Member States, the relevant authorities involved in Port State Control activities, the recognised organisations and the authorised organisations, for the application and enforcement of the relevant requirements of the Regulation in a consistent, harmonised and effective manner.

2. DEFINITIONS

The terms used in this guidance document have the same meaning as those defined in the Regulation and in the IMO guidelines with the following additional definitions which apply for the purposes of this guidance document only

- **'IHM process'** is the whole process of development and maintenance of an IHM throughout the operational life-cycle of the ship. It involves all the steps of developing an IHM including issuing/checking of any relevant documentation (e.g. Material Declarations), sampling and analysis, verification and life-cycle management

- **'Individual IHM expert'** is a person who has the appropriate training, qualifications and knowledge to conduct HM surveys for the development and maintenance of an IHM. He or she should have experience on ship structure and on handling of HM and sufficient knowledge of how to compile an IHM and of all the relevant international and EU legislation[14]

- **'IHM expert company'** is an entity employing or contracting individual IHM experts to conduct any relevant work or task in relation to the IHM process for the purpose of compiling or updating Inventories of Hazardous Materials. The IHM expert company should use a documented management system and should work on suitable standards, covering the relevant activities of the company

14 See Annex B as a reference.

- **'HM survey'** is an investigation to trace and identify the presence or absence of Hazardous Materials contained in the equipment, systems, and/or areas on board a ship and may include review of any relevant documents, visual inspections and sampling

- **'Sampling check'** is the taking of samples to identify the presence or absence of HM contained in the equipment, systems, and/or areas on board a ship, by suitable and generally accepted methods such as laboratory analysis

- **'Representative sampling'** is a method to sample materials of the same kind in a representative manner. Such materials should be checked to ensure that they are of the same kind

- **'Blank Sample'** is a clean sample or sample of matrix processed so as to measure artifacts in the measurement (sampling and analysis) process

- **'Blind Sample'** is a sample submitted to evaluate performance with concentration and identity unknown to the analyst

- **'Bulk Sample'** is a sample taken from a larger quantity (lot) for analysis or recording purposes

- **'Specific testing'** is a repeatable and reliable method of testing samples, which can demonstrate definitively whether a Hazardous Material exists or not and provide a known type of the Hazardous Material

- **'Accredited laboratory'** is a laboratory accredited in accordance with ISO 17025 or an equivalent standard for the purpose of conducting specific tests for HMs included in the SRR and capable of providing a written report that can be relied upon by all parties.

3. MATERIALS TO BE LISTED IN THE IHM

The Inventory consists of:

- Part I: HM contained in ship structure or equipment and referred to in Annexes I and Annexes II of the SRR;

- Part II: Operationally generated wastes; and

- Part III: Stores.

In general, the IMO guidelines[15] provide sufficient information for the development of the IHM in relation to the HM included in Appendices 1 and 2 of the HKC as well as an indicative list of these HM with CAS numbers and respective specific test methods. Therefore, for information on the HM included in Appendices 1 and 2 of the HKC and in Annexes 1 and 2 of the SRR reference should be made to the IMO guidelines. In Annex C of this guidance document some specific information is provided on the two additional HM (PFOS[16] and HBCDD) included only in Annexes I and II of the SRR.

15 Resolution MEPC.269(68).
16 Not applicable for ships flying the flag of a third country.

The Inventory should be developed on the basis of the standard format set out in appendix 2 of the IMO guidelines. However, in this format there should be a reference stating that the IHM has been developed to cover also the requirements of the SRR[17]. This would entail that the Inventory would keep the classification of Materials according to the IMO guidelines with the addition of two HM (PFOS and HBCDD) as appropriate.

3.1 RECORDING OF HM IN THE IHM PART I

For ships flying a flag of a Member State HM shall be listed in the IHM Part I in accordance with the provisions of paragraphs (1) and (2) of Article 5 of the SRR.

For ships flying the flag of a third country HM shall be listed in the IHM Part I in accordance with the provisions of paragraphs (3) and (4) of Article 12 of the SRR.

Recording of HM in the IHM Part I should be done in accordance with the IMO guidelines. Loosely fitted equipment, batteries, spare parts, exemptions, and 'bulk listing' of similar materials should be treated in line with the IMO guidelines.

3.2 THRESHOLD VALUES OF HM INCLUDED IN THE IHM PART I

HM should be reported in the IHM when the material is present in the product above the applicable threshold value. However, when there is no specified threshold value for a HM[18] then it should be reported in the IHM when deliberately used in the formulation of a product where its continued presence is desired to provide a specific characteristic, appearance, property, attribute or quality regardless of quantity. Suppliers should report such substances when they have knowledge (or with reasonable inquiry should have knowledge) of their presence.

As a general principle, unless expressly provided otherwise in the relevant EU legislation, revised threshold values for the materials to be listed in the IHM Part I, should be used for IHM developed or updated after the adoption of the revised values and need not be applied to existing IHM and IHM 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.

Annex B provides information on the HM that should be listed in the IHM Part I, the relevant threshold values and the referenced EU legislation which may be of relevance to the respective HM.

17 E.g. "the Inventory follows the requirements set out in the HKC and in the EU Ship Recycling Regulation (EU) 1257/2013".
18 i.e. Ozone Depleting Substances or Radioactive substances.

4. BASIC CONCEPTS FOR THE DEVELOPMENT AND MAINTENANCE OF THE IHM

The development and maintenance of the IHM is a key requirement of the Regulation. The Regulation requires 'ships' to have it on board therefore, the obligation lies in principle with the shipowner. Furthermore, the 'installation' (or use) of HM referred to in Annex I of the SRR is prohibited or restricted as specified in this Annex and, subsequently, this entails additional responsibilities to the shipbuilders and other stakeholders (e.g. to manufacturers and suppliers).

The development procedure of a new IHM may differ depending on whether the ship is a new or an existing one[19]. However, the overarching principles remain the same. The ship owner or the shipbuilder may draw upon assistance by an IHM expert. This is strongly recommended for safety and health protection reasons and in order to have a minimum assurance that the work is carried out by competent personnel, under a quality management system and in accordance with recommended guidance (i.e. the EMSA's guidance document and the relevant IMO guidelines).

The hereunder provisions provide a framework for a harmonised, qualitative and credible development and maintenance of the Inventory with a view to securing a level playing field for the responsible actors and enhancing the overall quality and credibility of the produced IHM under the SRR.

4.1 OVERARCHING PRINCIPLES

The development and maintenance of the IHM should be subject to the principles of *independence, quality and accountability.*

These overarching principles should apply throughout the whole IHM process by all the relevant stakeholders including ship-builders, manufacturers, shipowners, administrations, recognised organisations, authorised organisations, and any involved personnel, individual IHM experts or IHM expert companies. The flag State administrations and any relevant national authority are primarily responsible for securing the application of these principles.

More specifically:

Independence

The persons involved in the IHM process should be able to demonstrate personal integrity in the performance of their duties.

Impartiality and objectivity is needed in all work conducted by anyone involved in the IHM process in particular the IHM experts.

Independence from the entity responsible for the verification of the IHM on behalf of the flag State is indispensable. In this regard, conflicts of interest between the entity (individual, company or organisation) developing or updating the IHM and the entity verifying the IHM on behalf of the flag State should be prevented.

19 See below Chapter 5.1 and 5.2.

Quality

The persons involved in the IHM process should be able to demonstrate a high level of professional competence in the performance of their duties.

The work of any person or party involved in the IHM process should be of the highest possible quality and in compliance with the requirements of the Regulation and any applicable international legislation.

All the entities involved in the IHM process (i.e. IHM experts, shipbuilders, shipping companies) should apply a documented management system and quality controls to ensure the credibility of the IHM process for the development or maintenance of the Inventory.

Accountability

Any person or party involved in the IHM process should have a clear understanding of the duties and responsibilities he/she/it assumes in this process.

The responsibility for the IHM's compliance with the requirements of the Regulation lies primarily with the ship owner and/or the shipbuilder. They have the duty of exercising due diligence when they appoint or instruct any person or party to conduct HM surveys, to compile reports or to perform any kind of work within the context of the IHM process. Appointing an IHM expert to compile/update an IHM in accordance with this guidance document should, in principle, be considered as exercise of due diligence in order to meet the relevant requirements of the Regulation.

The persons or parties involved in the IHM process should keep records of the HM surveys performed. Written records should be kept to the extent possible. Every person involved in the IHM process may be held liable in case of fault or gross negligence in the execution of his/her duties. Every party involved in the IHM process may also be held liable in case of fault or gross negligence of any of its employees.

The persons involved in the IHM process should exercise due professional care in conducting and supervising the respective activities and in preparing related reports. They should use their professional judgment when exercising their duties during the IHM process.

4.2 ACCREDITATION AND CERTIFICATION

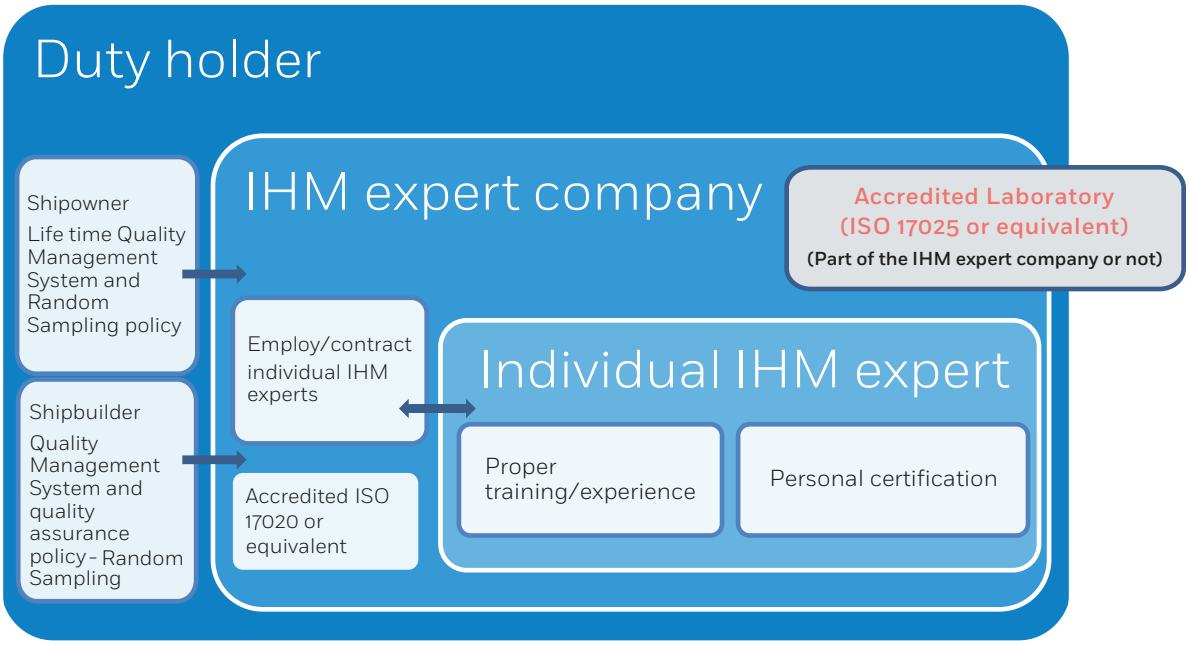
✓ **The individual IHM expert** should work within a general quality assurance framework provided by a management system in accordance with the overarching principles for the development and maintenance of the IHM. Anyone using an individual IHM expert for compiling or updating an IHM is responsible to confirm that the IHM expert is competent to carry out the work required.

✓ **The IHM expert company** should implement quality processes and procedures preferably in accordance with ISO 17020 or any equivalent standard covering all the relevant activities of the company. Seeking accreditation against a standard from EU accreditation bodies or ILAC/MRA signatory bodies is the most effective way to demonstrate independence and necessary qualifications. *Anyone using an IHM expert company for compiling or updating an IHM is responsible to confirm that the IHM expert company is duly capable to implement quality processes and procedures.*

- ✓ **The laboratory** to carry out specific tests should be accredited in accordance with ISO 17025 or an equivalent standard for the purpose of conducting specific tests for HMs included in the SRR. It should perform internal proficiency testing and evaluation of the personnel, it should implement quality control procedures and it should be capable of providing a written report that can be relied upon by all parties. Seeking accreditation against a standard from EU accreditation bodies or ILAC/MRA signatory bodies is the most effective way to demonstrate independence and necessary qualifications. *Anyone using a laboratory for the analysis of samples for HM included in the Annex II of the Regulation is responsible to confirm that the laboratory is suitably accredited.*

The **optimum** organisational framework for the IHM process is described in the following graph:

Graph 1 – Optimum organisational framework



4.3 TRAINING & QUALIFICATION

The persons involved in the IHM process should have appropriate training, qualifications, knowledge and experience to perform their respective duties.

An individual may obtain a 'personnel certification' for HM surveying from a Certification Body accredited in accordance with ISO 17024 or equivalent provided that the necessary training and experience are covered.

To become an IHM expert an individual should at least have training, on the following topics:

1. The SRR and the EU relevant legislation
2. EMSA's best practice guidance on the development and maintenance of the IHM

3. The basic principles of the HKC and the respective IMO guidelines particularly the 'guidelines for the development of the Inventory of Hazardous Materials'[20] in their up-to-date format
4. Ship structure and equipment
5. Properties of the HM mentioned in the Annex II of the SRR
6. Requirements for the IHM preparation of New and Existing Ships
7. Sampling Methodology
8. How to prepare a risk assessment before conducting HM surveys/sampling on board ships
9. How to prepare a VSCP and a RCP
10. HM survey on board a ship. Sampling on board ships, methods of sampling HM included in the Annex II of the SRR
11. Health and Safety. Precautionary measures for safe sampling and use of personal protective equipment
12. Reference standards for testing samples
13. Calculation of the HM amounts based on the analysed results
14. HM survey reports
15. Preparation of an IHM in its standard format in accordance with the EMSA guidance and the IMO guidelines.

In addition, to become an IHM expert an individual should have experience on ship structure and on handling of HM and should be able to demonstrate supervised practical field experience.

The aforementioned training of individual IHM experts is without prejudice to any requirements set out in the EU legislation[21] or in any national legislation where he/she is based, for the employers to provide appropriate training for workers who are or likely to be, exposed to Hazardous Materials.

4.4 SUPPLIER'S DECLARATION OF CONFORMITY AND MATERIAL DECLARATIONS

Suppliers should identify and declare the presence of a HM included in the Annex II of the SRR if it exceeds the threshold value specified in Annex B of this guidance. However, this provision does not apply to chemicals which do not constitute a part of the finished product. Suppliers should provide their customers with Supplier's Declarations of Conformity and Material Declarations in any case even when no HM are contained above the applicable threshold values.

SDoC and MD should be prepared and signed in accordance with the IMO guidelines and they should be drawn in the format provided in the IMO guidelines. However, due regard should be given to include in the IMO/MD form a supplement with a reference to the presence (or absence) of the two additional HM (PFOS[22] and HBCDD) included only in Annexes I and II of the SRR. An example of the Supplement to the IMO form of Material Declaration is shown in **Annex D** of this guidance.

20 Resolution MEPC.269(68).
21 i.e. Article 14 of the Directive 2009/148/EC 'on the protection of workers from the risks related to exposure to asbestos at work'.
22 Not applicable for ships flying the flag of a third country.

The supplier compiling the SDoC should establish a company policy and use a suitable quality management system for the management of the chemical substances in products which the supplier manufactures or sells.

4.5 SAMPLING AND ANALYSIS

The overall objective of any sampling activity is to obtain a sample which can be used for the targeted purpose i.e. to identify the presence or absence of HM contained in the equipment, systems, and/or areas on board a ship by suitable and generally accepted methods such as laboratory analysis.

Sampling and analysis should comply with specific national legislation where it exists and with international standards. The whole process should be in accordance with the provisions of this guidance and the IMO guidelines.

Due diligence should be exercised when undertaking any work on sampling and analysis. The sampling activity involves certain risks to personnel involved or to other persons on board. Therefore, sampling should only be undertaken by competent personnel i.e. IHM experts, with the proper use of suitable equipment. Furthermore, analysis of the samples should only be carried out by suitably accredited laboratories using qualified and trained personnel, suitable testing methods and the necessary equipment.

Sampling should be carried out in accordance with a pre-decided methodology and supported by an appropriate check plan.

Sampling methodology

Standard working procedures for sampling (sampling methodology) should be established and agreed upon before the start of the sampling campaign. The sampling methodology should include the following:

- ✓ Determine on a **'targeted'** or **'random'** sampling campaign or both. Targeted sampling should be applied where the presence of prohibited and restricted Hazardous Materials is assumed but cannot be recognized by analysis of the available documentation or visual checking. Random sampling may be applied where the presence of prohibited and restricted Hazardous Materials has been excluded by document analysis but either there are suspicions of existence of HM or there is a policy for performing random checks as a quality assurance procedure

- ✓ **Targeted sampling** should take place during the preparation of the IHM of an existing ship in accordance with the relevant procedure of the IMO guidelines and should include any equipment, system and/or area which cannot be specified regarding the presence of HM[23] by document or visual analysis except those which shall be classed as 'Potentially Containing HM' (PCHM).

  Random sampling may be used as a quality assurance process and may take place for new ships during the design and construction stage, on existing ships during the initial preparation of the IHM along with targeted sampling or on any ship after the initial preparation of the Inventory[24].

23 N.B.: Mostly HM referred to in Annex 1 of the SRR. For existing ships and 'ships going for recycling' the IHM should identify the HM included in the Annex 2 of the SRR as far as practicable.
24 Either because there are suspicions of existence of non-recorded HM on board or in applying the 'precautionary principle'.

- ✓ Identity of the sampler/IHM expert.
- ✓ Preparation of a 'visual/sampling check plan' (VSCP) or of 'random checking plan' (RCP) as appropriate.
- ✓ The estimated number of samples to be taken, the types of samples to be chosen and a description of or reference to the sampling method. As a general rule, the samples should be representative of the materials being checked and in sufficient numbers. As guidance the rule of 10% may be established meaning that roughly 10% of the components of any system identified for a sampling check[25] should be sampled. However, taking of samples and the number of samples to be taken should always be determined according to the professional judgement of the entity carrying out the HM survey and proper/pragmatic ceilings in the number of samples should be established per each product or system. Materials of the same kind may be sampled in a representative manner.
- ✓ Selection of location (checkpoints), date of sample-taking and the overall duration of the sampling campaign. It should be noted that the sampling campaign may be adjusted and other sampling points may be identified during the survey according to the actual conditions on-board and in accordance with the professional judgement of the IHM expert.
- ✓ A risk assessment for the HM survey using all the information available before the sampling (MD, SDoC, certificates, plans, diagrams, manuals, other information etc). This assessment should determine the existing risks (e.g. chemical hazards, electrical hazards, working in closed spaces, at heights or on operable machinery, noise, disturbing sampling, necessary PPE, decontamination and disposal arrangements etc). The risk assessment should then identify the necessary precautions and safety procedures to be followed during the HM survey and sampling.
- ✓ Labelling which gives detailed information or a specific sample code that cannot be removed easily. The sampling position on board may also be labelled with the same identifier. Marked-up ship plans and photographic records should be kept showing the location and extent of the sample.
- ✓ Preservation of the integrity of samples during transport and storage (before analysis).
- ✓ Close cooperation between the sampler and the accredited laboratory and establishment of quality assurance and quality control (QA/QC) procedures (e.g. appropriate sampling containers, blank samples, blind Samples etc). It is essential to consult with the accredited laboratory before sampling to ensure that the measurement methods available can meet the defined sampling needs.

25 Either according to a policy for performing random checking of materials on board ships or according to the results of a document or visual analysis specifying the presence of HM and providing for targeted sampling of any equipment, system or area which cannot be specified regarding the presence of HM except those which shall be classed as 'potentially containing HM'.

Visual/sampling check plan – Random checking plan

Before any visual/sampling check is conducted, a VSCP or a RCP should be prepared. The IMO guidelines provide an example for the development of a VSCP and a relevant check list which may be used[26]. Annex E.A of this guidance document provides an indicative example of a RCP/check list which may be used in case of random sampling. It should be noted that the sampling campaign may be adjusted further during the HM survey according to the actual conditions on-board and in accordance with the professional judgement of the IHM expert.

A. Random checking plan

If a decision is taken to conduct random sampling, the important element when preparing a RCP is that there should be no items categorized as 'unknown' in the column for the results of the document analysis. Therefore, the selection of any equipment, system and/or area for inclusion in the RCP and for sampling should be based on whether there are suspicions of non-credible documentation and/or on the experience of the IHM expert.

In this case, the selection should be done from the items identified by the document analysis as 'not contained'. A RCP may be used describing **only** the selected list of equipment, system and/or area for sampling check[27].

Compiling a RCP is not a prerequisite for conducting random sampling. However, it is recommended in order to support a more effective, rational and documented sampling campaign.

B. Visual and sampling check plan

The preparation of a VSCP for targeted sampling on an existing ship and on a ship flying the flag of a third country, when developing the IHM, is a legal requirement[28] and it should be done in accordance with the IMO guidelines. It should be based on three lists i.e. list of equipment, system and/or area for visual check, list of equipment, system and/or area for sampling check and the list of equipment, system and/or area classed as 'potentially containing hazardous material'. If random sampling is to be conducted along with targeted sampling the VSCP should reflect the items identified by the document analysis as 'not contained' (or PCHM) that may be checked by random sampling[29].

Laboratories

Laboratories should be accredited in accordance with ISO 17025 or an equivalent standard for the purpose of conducting specific tests for HMs included in the SRR. This includes applying procedures such as:

- ✓ Cleaned laboratory equipment, material, and chemicals to be used to avoid contamination.
- ✓ Quality assurance and quality control procedures (e.g. a system ensuring that effectiveness of the measurements and procedures is continuously supervised through the analysis of procedural blank samples).

26 See Appendix 5 of the Resolution MEPC.269(68). See also Annex E.B of this guidance document for a practical indicative example of a VSCP.
27 See Annex E.A for an example of a RCP/check list.
28 See paragraph 4 of Article 5 and paragraph 3 of Article 12 of the SRR.
29 See Annex E.B.

- ✓ Application of the analysis methods and, if applicable, combination of different specified methods according to HKC and this guidance document.
- ✓ Regular injection of solvent blanks and standard solutions.
- ✓ Tests to be carried out to evaluate the accuracy of the method, e.g. efficiency of the extraction methods, the recovery of the analytes, stability and loss of analytes in solution during storage, calibration using matrix matched standards or standard addition, and use of proper internal standards.
- ✓ Tests to be carried out to evaluate the precision (repeatability and reproducibility), the limits of detection (LODs) and quantification (LOQs), the robustness and the specificity of the whole method, from sampling to detection.
- ✓ Clearly defined criteria for identification and quantification need to be applied, and calibration curves to be used.
- ✓ Storage of analysed samples and data (including instrumental raw data) for a defined time of at least six months after analysis.
- ✓ Laboratory personnel should be trained on the analytical procedures and methodologies and also on quality assurance and quality control. Records of the training should be kept.
- ✓ Internal proficiency testing and evaluation of the personnel.
- ✓ The laboratory should be capable of providing a written report that can be relied upon by all parties. Essential prerequisites for obtaining high-quality results include specification of the analytical technique used, maintenance of the analytical equipment, validation of all methods used (including in-house methods) and proper training of laboratory staff.

Testing Methods

Samples may be tested by a variety of methods. Specific testing should be used in accordance with the IMO guidelines or any equivalent method which can demonstrate equivalent standards.

In **Annex C** of this guidance document some indicative specific test methods are provided on the two additional HM (PFOS and HBCDD) included only in Annexes I and II of the SRR.

Health & Safety

The sampling activity involves certain risks to personnel involved or to other persons on board. Therefore, all the work should be carried out according to the general safety procedures and those defined in the risk assessment. Entry of other people to any sampling area should be restricted or suitable warnings posted. Care should be taken to minimise disturbance to HM especially ACMs. Airborne emissions should normally be controlled by selection of appropriate tools for sampling, prewetting the material to be sampled with water and/or a suitable wetting agent.

All samples should be properly sealed, the sample area should be left clean and any sampling points should be sealed to prevent the release of HM (i.e. fibres). Various methods may be used to reseal the sampling point (e.g. tapes and fillers).

Sampling personnel should carry adequate PPE (e.g. glasses, coveralls, masks and gloves). Disposable coveralls, overshoes and gloves should be worn especially when there is a likelihood of asbestos contaminating the surveyor's clothing. The risk assessment should take into account the sampling conditions and determine if additional safety precautions and decontamination procedures will be needed.

5. DEVELOPMENT AND MAINTENANCE PROCESS OF THE IHM

The development procedure of the IHM Part I differs depending on whether the ship is a new or an existing one. The development procedure of the IHM Part II and Part III relates only to ships[30] flying the flag of a Member State when going for recycling.

5.1 DEVELOPMENT PROCESS OF THE IHM PART I FOR NEW SHIPS

Part I of the Inventory for new ships should be developed at the design and construction stage. Reference should be made to the relevant IMO guidelines which provide examples for the development process for Part I of the IHM for new ships. The process should include three steps:

A. Collection of HM information

The shipbuilder is responsible for complying with the relevant international requirements on installing HM on board new-build ships. In this respect, the conformity of Part I of the Inventory at the design and construction stage should be ascertained by reference to the Supplier's Declaration of Conformity and the related Material Declarations collected from suppliers[31]. Therefore, the information provided by the suppliers should be adequate and to the satisfaction of the shipbuilder. MD and SDoC from suppliers should be requested and collected by the shipbuilder as it is described in the graph 2 diagram.

However, in practice, there were cases where random sampling checking proved that MDs were not accurate.

Therefore, the shipbuilder should establish a quality assurance policy for performing random checking of materials provided by the suppliers. This policy should take into account the type of the material, the location and the intended use on board the ship, the required life-time maintenance and the origin of the material. Additional information should also be taken into account e.g. historical data on products of a specific brand, information about HM on board sister ships already built, etc.

The checking of the materials may include visual checking and/or random samples which will be tested by indicative or field testing and/or random samples to be tested by specific testing. Random sampling may be carried out in accordance with a pre-decided sampling methodology as described in sampling methodology in 4.5 of this document.

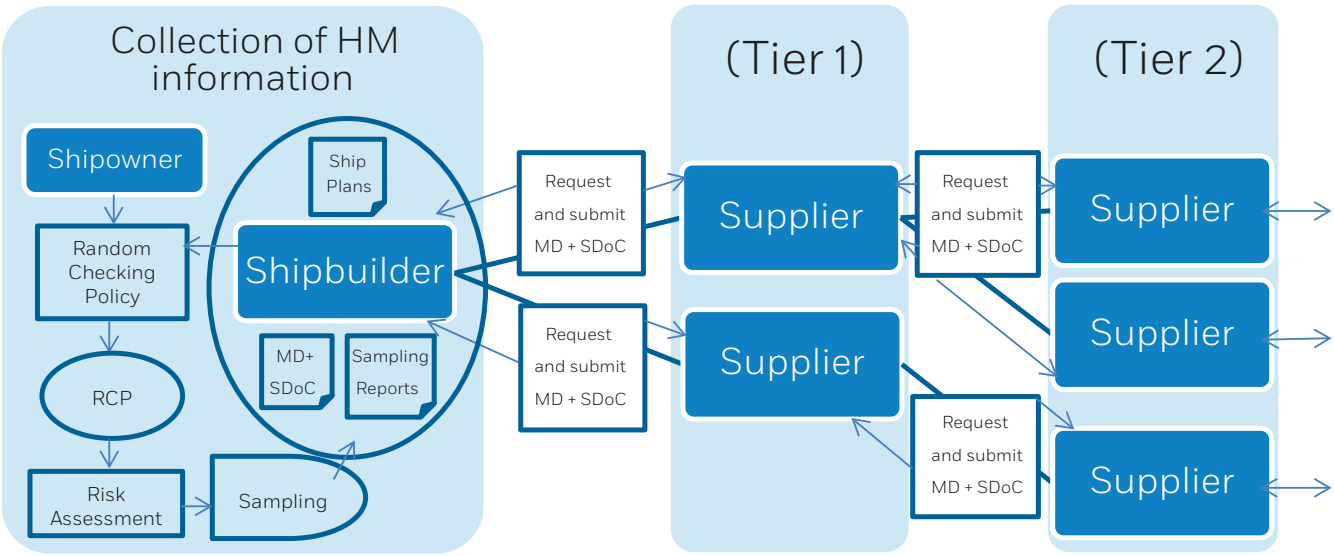
30 See Appendix 3 of the Resolution MEPC.269(68).
31 As described in chapter 4.4 of this guidance document

The entity carrying out the HM survey and sampling should be an IHM expert as defined in this guidance document working under the conditions described in this guidance document.

The shipowner may also establish a policy for performing random checking of materials for new ships[32]. In this context, the same process as for carrying out random checking by the shipbuilder may be applied.

The collection of HM information during the development process of the IHM Part I for new ships may involve the entire shipbuilding supply chain as in the following graph.

Graph 2 – Collection of HM information



B. Utilization of HM information

After the collection of all the HM information by the shipbuilder, there should be an assessment for identifying all products/systems which contain HM above the applicable threshold value[33]. Utilization of HM information should determine the location and calculate the quantities of the HM.

C. Preparation of the IHM

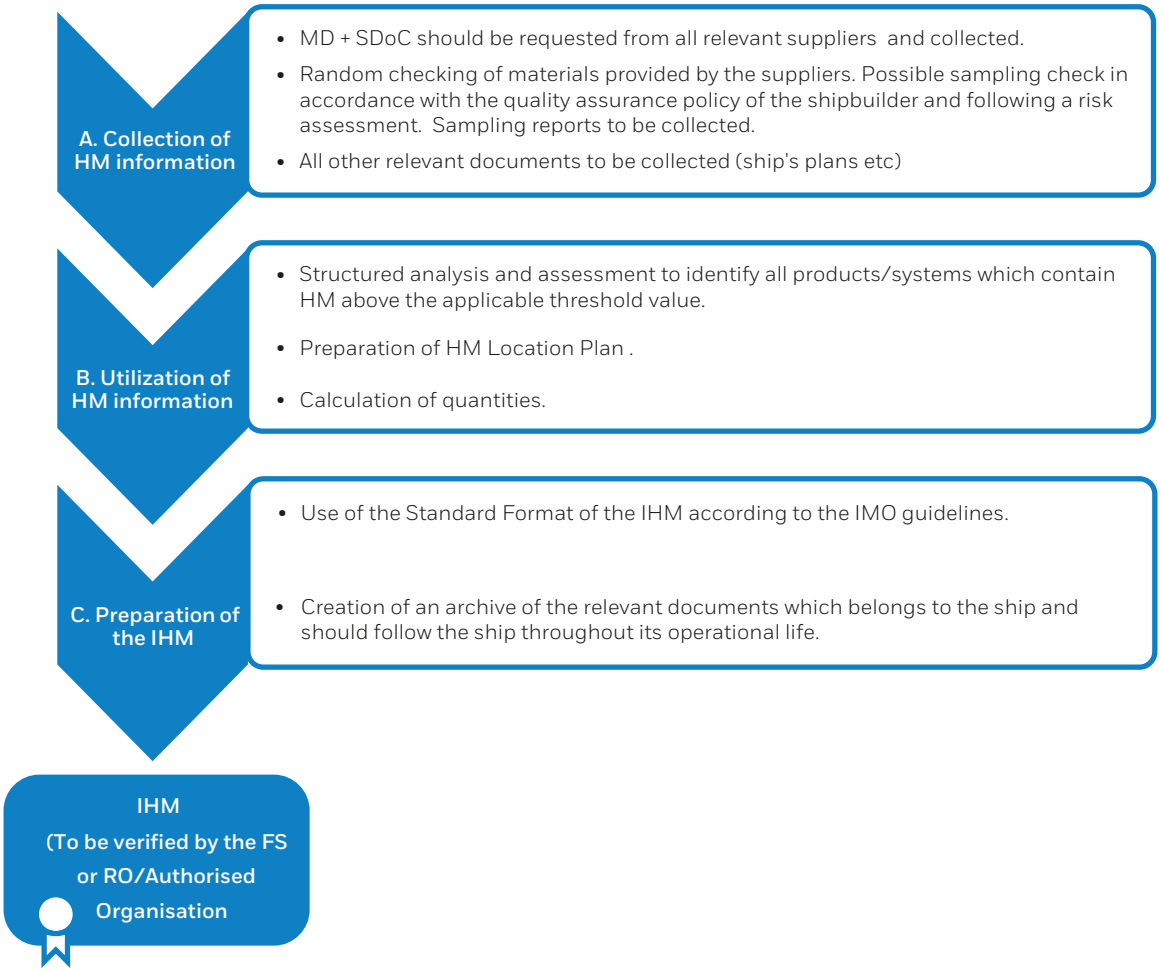
Finally, the IHM should be prepared by filling out the standard format set out in appendix 2 of the IMO guidelines[34].

The collected documents should be listed in an archive[35] which should follow the ship throughout its operational life.

The stages of the development process of the IHM Part I for new ships are described in the following graph.

32 Before the delivery.
33 See for details chapter 3.2 of this guidance.
34 See Chapter 3 of this guidance for the two additional HM (PFOS and HBCDD) and the reference to the SRR.
35 It may be in electronic format.

Graph 3 – Development process of the IHM Part I for new ships



5.2 DEVELOPMENT PROCESS OF THE IHM PART I FOR EXISTING SHIPS

Part I of the Inventory for existing ships[36] should be developed by the shipowner. Reference should be made to the relevant IMO guidelines which provide examples for the development process for Part I of the IHM for existing ships[37]. The process should include five steps:

A. Collection of necessary information

It should be conducted in accordance with the IMO guidelines. The shipowner should make every possible effort to obtain all reasonably available documentation regarding the ship.

B. Assessment of collected information

The information collected should be assessed to cover all HM referred to in Annex I of the SRR[38]. HM included in the Annex II of the SRR should be assessed as far as practicable.

36 It covers also 'ships going for recycling' according to the second subparagraph of paragraph 2 of Article 5 of the SRR and ships flying the flag of a third country.
37 See Appendices 4 and 5 of the Resolution MEPC.269(68). Due consideration should also be given to the relevant provisions of this guidance document.
38 N.B.: PFOS is not applicable for ships flying the flag of a third country.

C. Preparation of visual/sampling check plan

A 'visual/sampling check plan' (VSCP) should be prepared in accordance with the IMO guidelines and the provisions of this guidance. Following the preparation of the VSCP a risk assessment should take place to determine the existing risks and to identify the necessary precautions and safety procedures to be followed during the HM survey and sampling[39].

D. On board visual/sampling check

Targeted sampling should be carried out in accordance with the IMO guidelines and with reference to a pre-decided sampling methodology as described in chapter 4.5.1 of this document.

Random sampling may also be carried out with reference to a pre-decided sampling methodology as described in sampling methodology in 4.5 of this document.

The entity carrying out the HM survey and sampling should be an IHM expert as defined in this guidance document working under the conditions described in this guidance document.

The shipowner may also establish a policy for performing random sampling of materials on board existing ships after the initial preparation of the Inventory (e.g. when purchasing a ship or after a repair or conversion of the ship). In this context, the same process as for carrying out random sampling on a new ship may be applied as far as practicable[40].

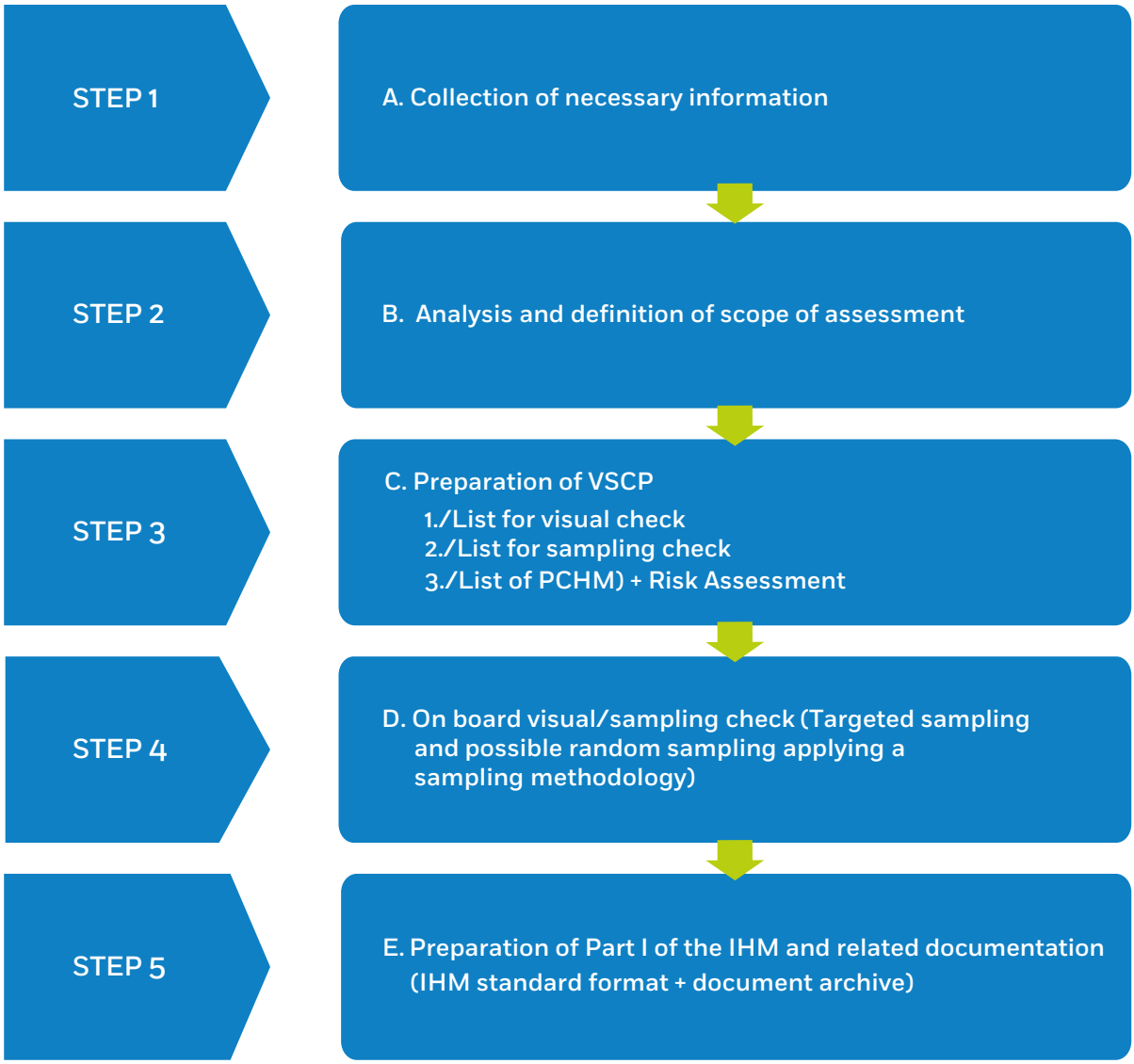
E. Preparation of Part I of the Inventory and related documentation

Finally, the IHM should be prepared by filling out the standard format set out in Appendix 2 of the IMO guidelines[41]. A diagram showing the location of the identified HMs should also be prepared. The collected documents should be listed in an archive which should follow the ship throughout its operational life[42].

The flow diagram for developing Part I of the IHM for existing ships is described in Appendix 4 of the IMO guidelines and should be consulted during the hereunder process for developing the IHM according to the EU SRR.

39 See chapter sampling methodology in 4.5 above.
40 See chapter 5.1A above.
41 See Chapter 3 of this guidance for the two additional HM (PFOS and HBCDD) and the reference to the SRR.
42 It may be in electronic format.

Graph 4 – Development process of the IHM Part I for existing ships



5.3 DEVELOPMENT PROCESS OF THE IHM PART II

Once the decision to recycle a ship flying the flag of a Member State 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 such a way as to minimise the amount of cargo residues, remaining fuel oil and ship generated waste remaining on board[43]. Due regard should be given to the provisions of the EU PRF Directive[44].

The IMO guidelines[45] provide a catalogue of potentially HM in table C of appendix 1 listing the materials either in Part II or in Part III of the Inventory.

The development of IHM Part II should be done in accordance with the IMO guidelines.

43 See paragraph 2(b) of Article 6 of the SRR.
44 Directive 2000/59/EC on port reception facilities for ship-generated waste and cargo residues. OJ L 332, 28.12.2000, p. 81.
45 Resolution MEPC.269(68).

5.4 DEVELOPMENT PROCESS OF THE IHM PART III

Once the decision to recycle a ship flying the flag of a Member State has been taken, Part III of the IHM should be developed before the final survey, taking into account the fact that a ship destined to be recycled shall minimise the wastes remaining on board.

The IMO guidelines provide a catalogue of potentially HM in table C of appendix 1 listing the materials either in Part II or in Part III of the Inventory.

The development of IHM Part III should be done in accordance with the IMO guidelines.

5.5 LIFE-CYCLE MANAGEMENT

According to paragraph 6 of Article 5 of the SRR, Part I of the IHM of ships flying the flag of a Member State shall be properly maintained and updated throughout the operational life of the ship, reflecting new installations containing any HM referred to in Annex II of the Regulation and relevant changes in the structure and equipment of the ship.

According to paragraph 4 of Article 12 of the SRR, the IHM of ships flying the flag of a third country shall be properly maintained and updated throughout the operational life of the ship, reflecting new installations containing any hazardous materials referred to in Annex II of the Regulation and relevant changes in the structure and equipment of the ship, *taking into account the exemptions and transitional arrangements applicable to those materials under international law.*

Therefore, shipowners should establish the necessary procedures on board the ship and within their company to manage their long-term environmental responsibilities.

Procedure for the maintenance of Part I of the IHM

The shipowner is responsible for the maintenance of Part I of the IHM during the lifetime of the ship. Part I of the IHM 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.

In accordance with the IMO guidelines[46], shipowners should implement a series of measures to ensure the conformity of Part I of the Inventory. In this context, designating a person as responsible for maintaining and updating the Inventory is a crucial responsibility for the shipowner.

The main responsibility of the designated person is the maintenance and updating of the IHM in accordance with the IMO guidelines and this guidance. The duties of the designated person should be incorporated in the shipowner's quality management system and should be clearly described in writing taking into account that keeping an updated IHM may be a simplified process but it might also become quite demanding e.g. if a major conversion or extensive repair works are undertaken[47].

It should be noted that the IHM should be updated according to the requirements for new ships as stipulated in the relevant provisions of the IMO guidelines and in chapter 5.1 of this guidance. The respective changes to the IHM should be made accordingly and

46 See Resolution MEPC.269(68), section 5.2.
47 Particularly in such cases the designated person (regardless if he/she is a crew member, employee of the shipping company or external contractor) may well be an individual IHM expert as defined in this guidance document.

all the relevant documentation (e.g. MD and SDoC in case of machinery or equipment is added or sampling reports in case of random sampling) should be collected and maintained in the ship's archive[48].

Lifetime quality management

Ships are high value assets of high mobility being capable of being transferred from one owner to another or from one registry to another very easily and quickly. It is standard international practice and a provision of IMO international instruments that the relevant certificates cease to be valid upon transfer of the ship to the flag of another State.

However, the IHM must be properly maintained and updated throughout the operational life of the ship and it will supplement any 'Inventory Certificate' or 'Statement of Compliance' issued by any Member State or third country (or by a RO or an authorised organisation respectively).

Therefore, it is particularly important that the continuity of the IHM is maintained if the flag, owner or operator of the ship changes. It is equally important that the quality of the IHM is secured and maintained throughout the operational life of the ship in order to remain a credible document when the decision to recycle a ship is taken.

In this respect, a lifetime quality management system should be established by the shipowners and should include specific provisions to safeguard the quality and continuity of the IHM when building, buying or selling a ship or changing ship's registry or ship's IHM designated person.

Moreover, the quality management system should identify the procedures to safeguard the proper updating of the IHM during scheduled or unscheduled works involving changes, replacements or repairs to the structure, equipment, systems, fittings, arrangements and material, which has an impact on the Inventory.

Proper maintenance of an archive of all the associated documentation should also be included in the lifetime quality management system of the shipowner and it should ensure that new installations of equipment, repairs and refittings are accompanied by a MD and the SDoC, as provided by the suppliers of parts and equipment delivered.

As part of the lifetime quality management system, there may be a random sampling policy for new or existing ships and there should be assurances that the IHM development and maintenance shall be undertaken by competent entities (i.e. IHM experts) in accordance with recommended guidance (i.e. the EMSA's best practice guidance document and the relevant IMO guidelines).

A software tool may be used to support the IHM development and maintenance process and the management of all the relevant documents, information and data.

48 See chapter 5.1C and 5.2E above.

6. SURVEY AND CERTIFICATION

All ships flying the flag of a Member State shall be subject to a survey regime in accordance with Article 8 of the Regulation[49]. They shall carry on board a ship-specific 'Inventory Certificate' issued by the administration or a RO[50] authorised by it and supplemented by Part I of the IHM. Surveys shall be carried out by officers of the administration, or of the RO, taking into account the relevant IMO guidelines[51].

These ships shall be subject to the following surveys:

(a) an initial survey;

(b) a renewal survey;

(c) an additional survey;

(d) a final survey.

Initial and renewal surveys must verify that the IHM Part I complies with the requirements of the Regulation. Additional surveys must ensure that any change, replacement, or significant repair of the structure, equipment, systems, fittings, arrangements and material, which has an impact on the IHM, has been made in a manner that ensures that the ship continues to comply with the requirements of the Regulation, and that Part I of the IHM is amended as necessary. Final surveys must verify that the IHM (Parts I, II and III) and the ship recycling plan comply with the requirements of the Regulation and that the ship recycling facility where the ship is to be recycled is included in the European List.

The administrations or the ROs should monitor the whole IHM process as close as possible and should ensure the proper implementation of the overarching principles of independence, quality and accountability.

All ships flying the flag of a third country, when calling at a port or anchorage of a Member State, shall carry on board a ship-specific 'statement of compliance' issued by the relevant authorities of the third country whose flag the ship is flying or an organisation authorised by them and supplemented by Part I of the IHM[52].

The SoC shall be issued after verification of the IHM by the relevant authorities of the third country whose flag the ship is flying or an organisation authorised by them, in accordance with the national requirements.

For all ships flying either a flag of a Member State or a flag of a third country, particular attention should be given when verifying the IHM during an initial inspection or before the issuance of the SoC respectively, to the address the requirements of the SRR.

49 See Annex A for the timeline of the application of the Regulation for EU ships.
50 RO means an organisation recognised in accordance with Regulation (EC) No 391/2009 of the European Parliament and of the Council.
51 Resolution MEPC.222(64) "2012 Guidelines for the survey and certification of ships under the HKC"
52 See Annex A for the timeline of the application of the Regulation for non-EU ships.

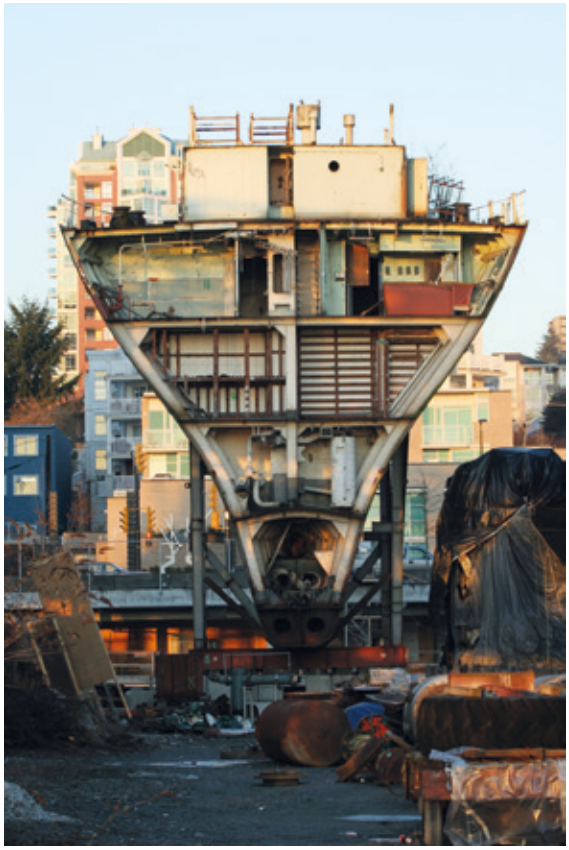
The following table summarizes the minimum[53] initial control and respective inclusion in the IHM of the two additional HM on board ships either flying the flag of a Member State or a flag of a third country:

Table A – EU SRR additional requirements for IHM initial verification

HM	EU SRR			IMO HKC
	Control measure			Control measures
	EU ships		Non-EU ships	
	New ships	Existing ships		
PFOS	✓	✓	-	-
HBCDD	✓	-	-**	-

* After the initial preparation of the IHM, it shall be properly maintained and updated reflecting new installations containing HM referred to in Annex II of the SRR (meaning that thereafter all the HM included in Annex I and **Annex II** of the SRR should be included in the IHM).

** After the initial preparation of the IHM, it shall be properly maintained and updated reflecting new installations containing HM referred to in **Annex II** of the SRR taking into account the exemptions and transitional arrangements applicable to those materials under international law.



53 N.B.: For existing and non-EU ships HM included only in Annex II of the SRR should be identified in the IHM as far as practicable.

7. ENFORCEMENT

The Regulation provides for the control of ships flying the flag of a Member State and ships flying the flag of a third country when calling at a port or anchorage of a Member State.

Reference can be made to **Annex A** for the timeline of the application of the Regulation as regards the application of port State control provisions[54]. It should be noted that for existing ships, an IHM should be on board after 31/12/2020[55]. For ships flying the flag of a third country, an IHM should also be on board after 31/12/2020[56]. Therefore, for existing ships and for ships flying the flag of a third country, an IC or a SoC respectively may not be controlled before 31/12/2020.

7.1 PORT STATE CONTROL IN ACCORDANCE WITH DIRECTIVE 2009/16/EC

The Annex IV of Directive 2009/16/EC has been amended to include in the list of certificates and documents to be checked during a port State control inspection a 'certificate on the inventory of hazardous materials' or a 'statement of compliance' as applicable pursuant to the SRR. Therefore, any *port State control inspection in accordance with the Directive 2009/16/EC* either on board a ship flying the flag of a Member State or on a ship flying the flag of a third country shall include a verification of the IC or SoC respectively.

Any such inspection **should be limited to checking that either an IC[57] or a SoC is kept on board,** which, *if valid*, shall be considered sufficient for the inspection to be approved.

In applying port State control provisions, if no certificate[58] or if an invalid certificate is found on board, or any other clear ground revealed, then a PSCO should either undertake a detailed inspection in accordance with the SRR[59] or he/she should ask the relevant authority of the Member State to carry out a detailed inspection in accordance with the SRR, as appropriate.

An *'invalid certificate'* is a document issued not in accordance with the provisions of the SRR (e.g. issued from a non-competent organisation, no IHM provided, IHM has not been verified as appropriate, IHM does not include all HM as referred to in the SRR etc).

7.2 PORT STATE CONTROL IN ACCORDANCE WITH THE SRR

Port State control in accordance with the Directive 2009/16/EC should not be confused with the application of port *State control, in accordance with the provisions of the SRR*[60], i.e. the capability of a Member State to ask for respective documentation and, if appropriate, **perform detailed inspections** on board a foreign flagged ship to verify compliance with the SRR as applicable.

54 Either in accordance with the Directive 2009/16/EC or in accordance with the SRR (Regulation (EU) 1257/2013). See chapter 7.1 and 7.2 respectively.
55 See Article 5.2 and Article 32.2(b) of the SRR.
56 See Article 12.1 and Article 32.2(b) of the SRR.
57 Or a 'ready for recycling certificate', as applicable, for EU ships.
58 i.e. IC, SoC or RfRC as appropriate. RfRC is included in accordance with Article 11.1 of the SRR.
59 Provided he/she is authorised to do so. This procedure should not fall within the scope of the Port State Control Directive.
60 Although may be exercised by the same personnel.

In this regard, a Member State as a port State may apply control provisions for foreign flagged ships when calling at a port or anchorage of that Member State. The control provisions should either be limited to checking the relevant documents on board or may be expanded to performing detailed inspections foreseen by the SRR. The detailed inspections are triggered either by 'missing certificate' or 'invalid certificate' or by 'clear grounds' taking into account the relevant IMO guidelines[61].

An *invalid certificate* is a document issued not in accordance with the provisions of the SRR (e.g. issued from a non-competent organisation, no IHM provided, IHM has not been verified as appropriate, IHM does not include all HM as referred to in the SRR etc).

The SRR and the IMO guidelines provide a non-exhaustive list of *'clear grounds'* to trigger a detailed inspection.

When checking the relevant document on board, particular attention should be given to the proper development and maintenance of the IHM.

Annex B of this guidance provides the list of the HM to be identified in an IHM developed in accordance with the SRR. If the threshold value used for reporting a specific HM exceeds the respective applicable threshold value, that does not necessarily mean that this HM is contained in the ship's systems and equipment (where in the respective column there is a 'not contained' entry). However, it may trigger a detailed inspection to verify that the IHM fully complies with the EU legislative requirements. In this case, the control officer may ask for additional assurances of the proper completion of the IHM (e.g. MD and SDoC or sampling reports specifying the presence or not of the HM).

If a ship cannot provide evidence of compliance to the satisfaction of the control officer, control measures may be taken in accordance with each Member State's national control and inspection system (i.e. consult the flag State, ask for proper correction of the IHM e.g. change the relevant entries to specify either 'contained' or 'Potentially Containing Hazardous Materials' etc).

A ship may be *warned, detained, dismissed or excluded* from the ports or offshore terminals under the jurisdiction of a Member State in the event that it fails to submit to the relevant authorities of that Member State a copy of the relevant certificate[62] as appropriate and on request of those authorities.

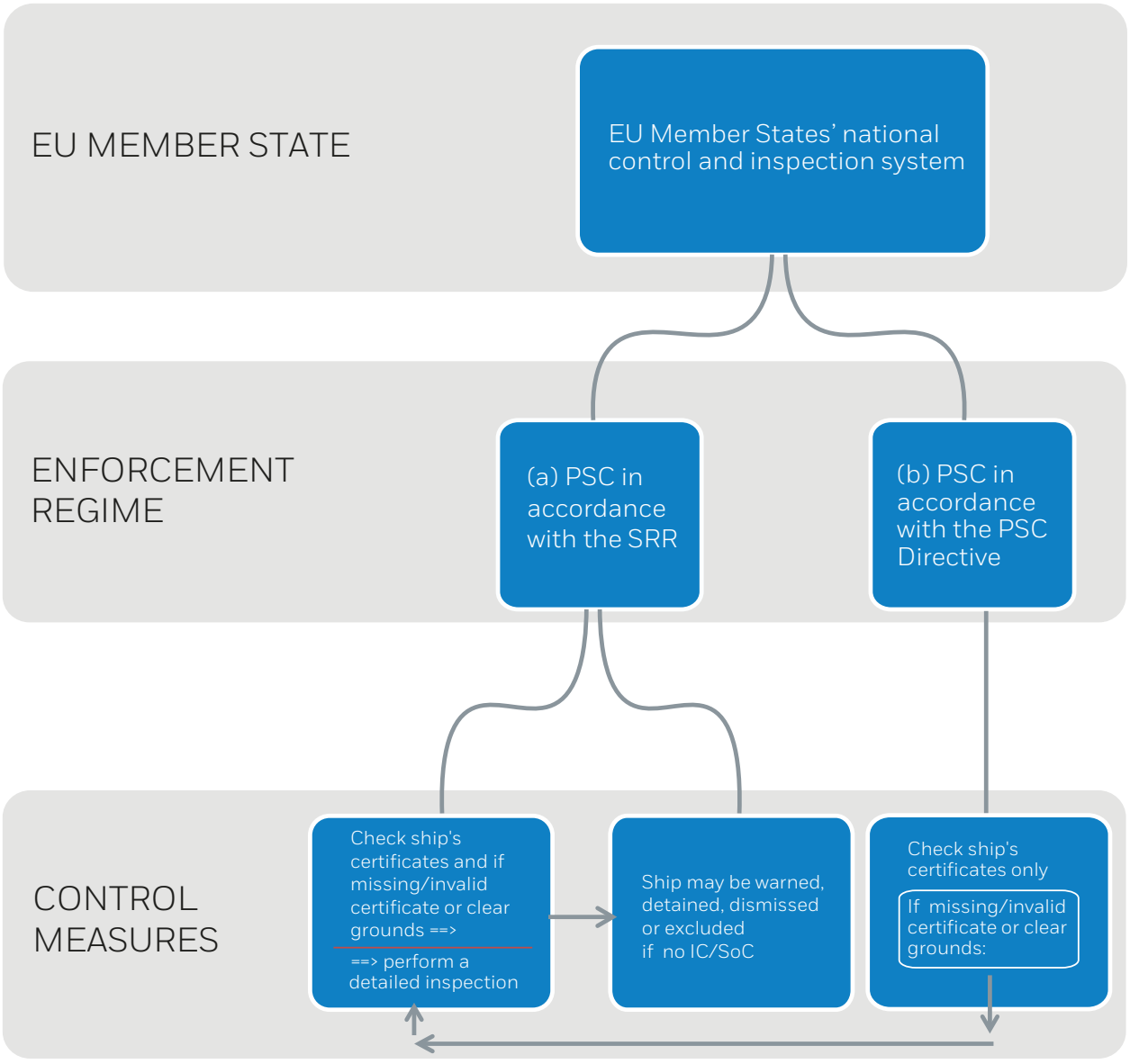
A Member State taking such action shall immediately inform the administration of another Member State or the relevant authorities of the third country concerned. Failure to update the IHM should not constitute a detainable deficiency, but any inconsistencies in the IHM should be reported to the administration[63] or the relevant authority concerned.

Access to a specific port or anchorage may be permitted by the relevant authority of a Member State in the event of *force majeure or overriding safety considerations,* or to *reduce or minimise the risk of pollution* or *to have deficiencies rectified,* provided that adequate measures to the satisfaction of the relevant authority of that Member State have been implemented by the owner, the operator or the master of the ship to ensure safe entry.

61 Resolution MEPC.223(64) "2012 Guidelines for the inspection of ships under the HKC".
62 i.e. IC, RfRC or SoC.
63 In this case, the inconsistencies should be rectified at the time of the next survey.

The following flow diagram describes the enforcement regime established by the SRR as regards the development and maintenance of the IHM on board ships:

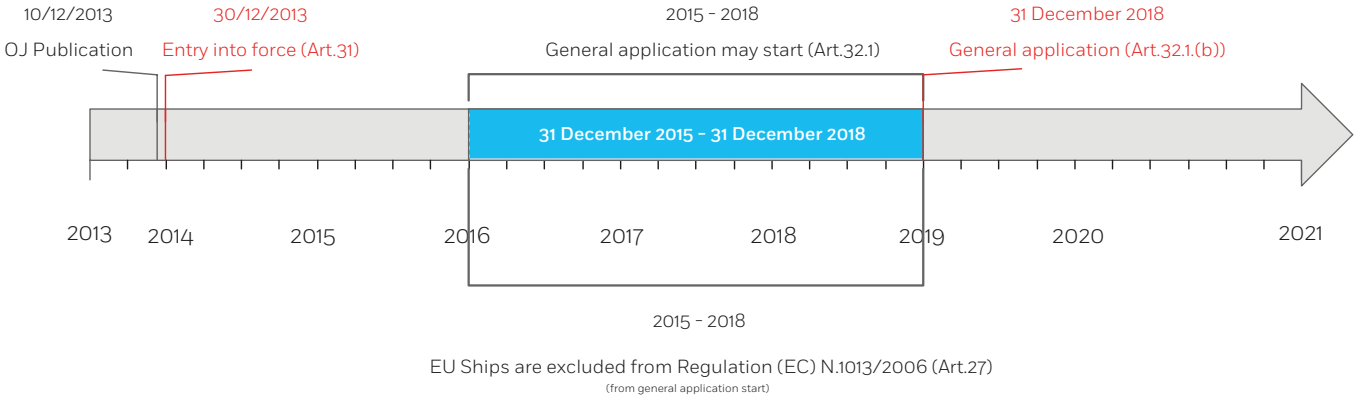
Graph 5 – Enforcement mechanism



ANNEX A

TIMELINE OF THE APPLICATION OF THE REGULATION (EU) N.1257/2013

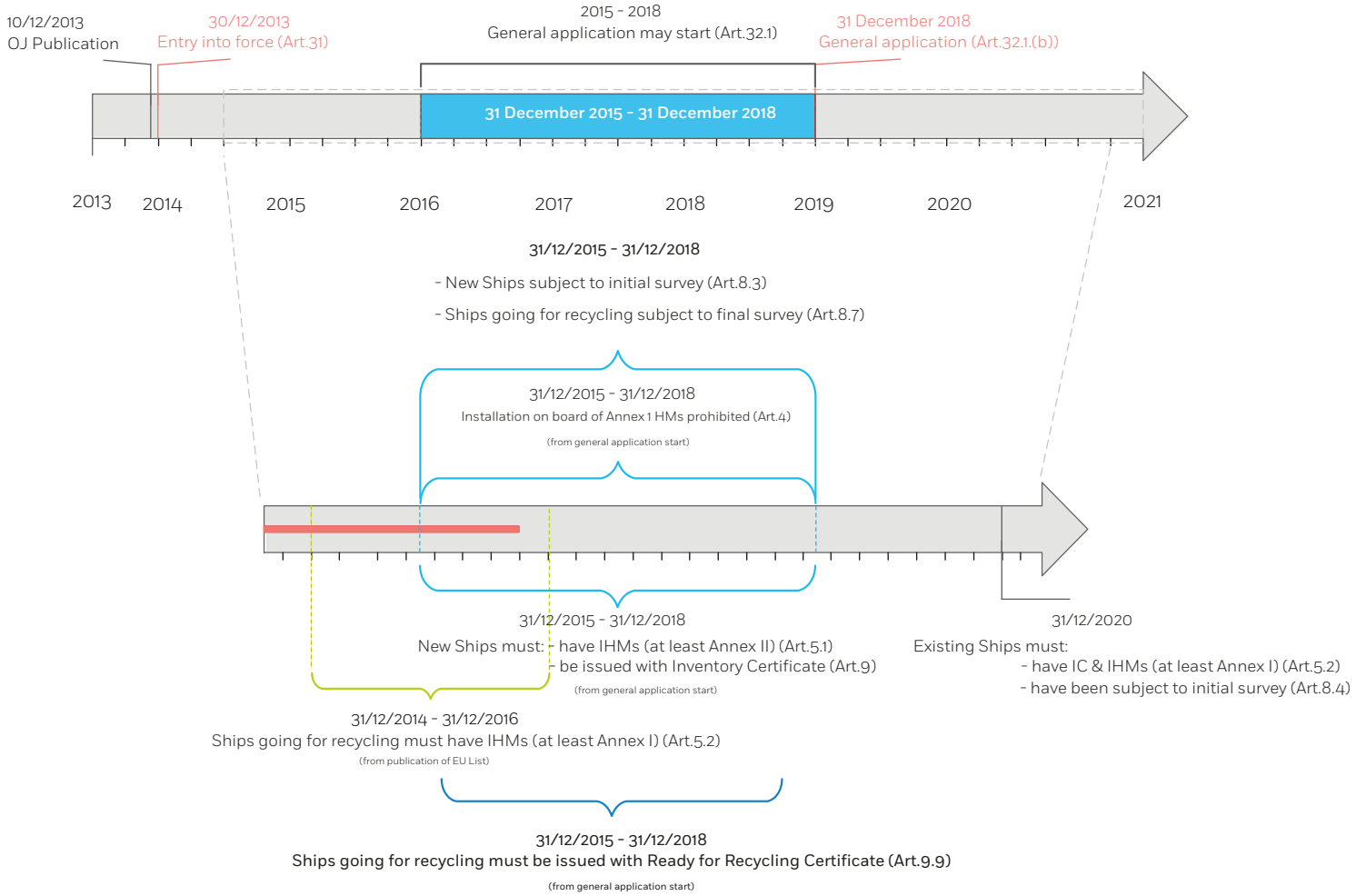
APPLICATION TIMELINE



General application starts the earlier date of (not before 31/12/2015) (Art.32.1):

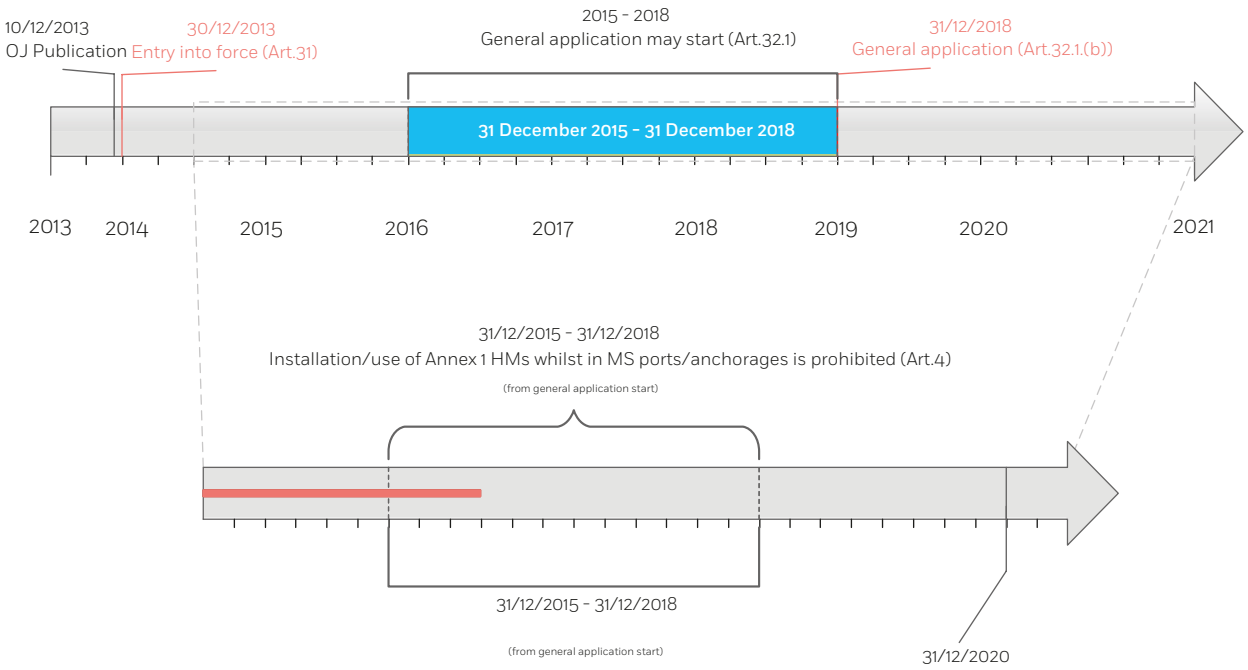
- 6 months after the combined output of the EU List SRFs is 2,5 million LDTs, or
- 31/12/2018

APPLICATION TIMELINE FOR EU FLAGGED SHIPS



APPLICATION TIMELINE FOR NON-EU FLAGGED SHIPS

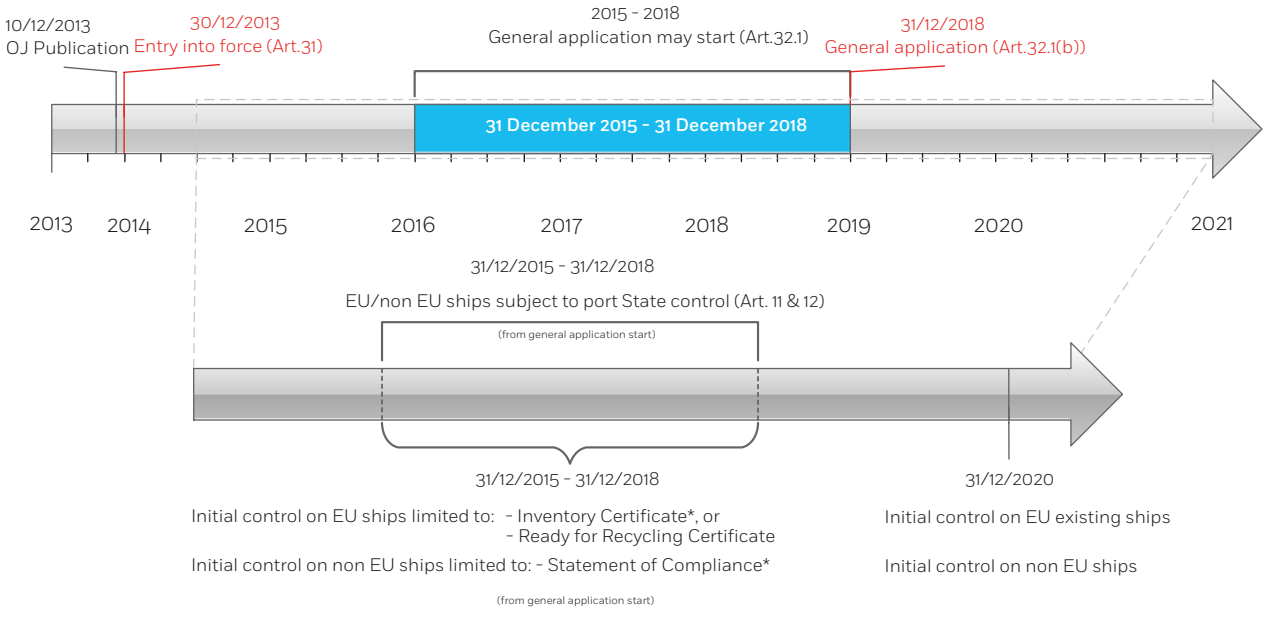
Regulation (EU) N.1257/2013 – Application Timeline for non-EU flagged Ships



- Ships calling EU ports/anchorages must have IHMs (Annex I) (Art.12.1) and SoC (Art. 12.6)
- Ships applying for MS registration must have IHMs within 6 months registration/next survey if earlier (Art.12.8)

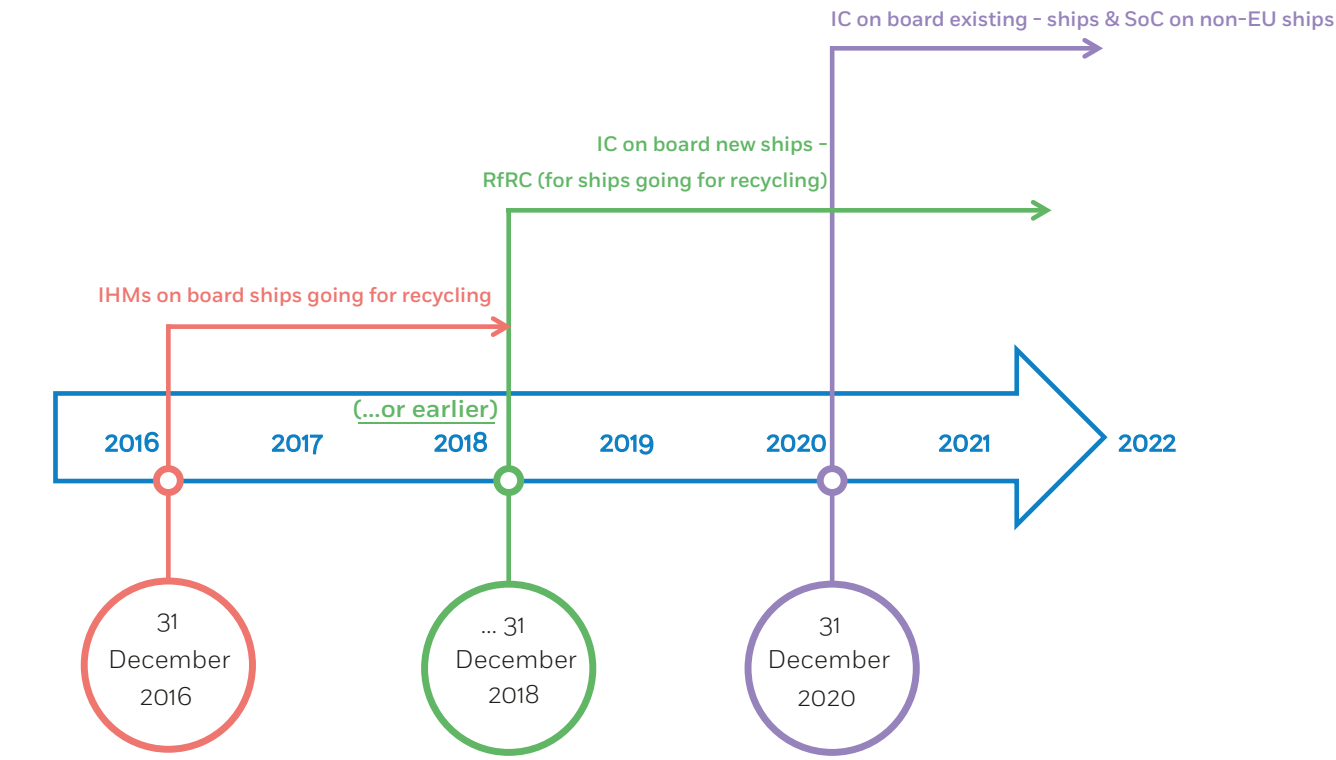
APPLICATION TIMELINE FOR PORT STATE CONTROL

Regulation (EU) N.1257/2013 – Application Timeline for port State control



* N.B.: For existing EU ships an IHM should be issued after 31/12/2020 (Art.5.2 & Art.32.2(b)). For non-EU ships an IHM should be issued after 31/12/2020 (Art.12.1 & Art.32.2(b)). Therefore, for all these ships an IC or a SoC resoectively may not be controlled before 31/12/2020

MILESTONES FOR THE APPLICATION OF THE SRR IN RELATION TO THE IHM



Publication of the EU List

General application date

Delayed application date for existing and non-EU ships


HAZMAT

MATERIALS TO BE LISTED IN THE IHM PART I

The following threshold values of reporting HM in the IHM should apply taking into account the IMO guidelines and the referenced EU legislation:

HAZARDOUS MATERIAL	THRESHOLD VALUE	REFERENCED EU LEGISLATION*
Asbestos[64]	0.1%	SRR/Annex I, Regulation (EC) 1907/2006 "Registration, Evaluation, Authorisation and Restriction of Chemicals" (REACH), Council Directive 76/769/EEC "on the approximation of the laws, regulations and administrative provisions of the MS relating to restrictions on the marketing and use of certain dangerous substances and preparations[65]", Directive 2009/148/EC "on the protection of workers from the risks related to exposure to asbestos at work[66]".
Ozone Depleting Substances[67] (ODS)	No threshold value	SRR/Annex I. Regulation No 1005/2009 on substances that deplete the ozone layer[68].
Polychlorinated Biphenyls (PCB)	50 mg/kg	SRR/Annex I, Regulation (EC) 850/2004 "on persistent organic pollutants[69]".
Perfluorooctane sulfonic acid[70] (PFOS) and its derivatives (CAS No: 1763-23-1) $C_8F_{17}SO_2X$ (X = OH, Metal salt (O-M +), halide, amide, and other derivatives including polymers) Examples of PFOS derivatives: Potassium perfluorooctane sulfonate (CAS no. 2795-39-3); Lithium perfluorooctane sulfonate (CAS no. 29457-72-5); Ammonium perfluorooctanesulfonate (CAS no. 29081-56-9); diethanolammonium perfluorooctane sulfonate (CAS no. 70225-14-8); tetraethylammonium perfluorooctane sulfonate (CAS no. 56773-42-3); didecyldimethylammonium perfluorooctane sulfonate (CAS no. 251099-16-8).	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.	SRR/Annex I, Regulation (EC) 850/2004 "on persistent organic pollutants", Directive 2006/122/EC "relating to restrictions on the marketing and use of certain dangerous substances and preparations (perfluorooctane sulfonates)[71]".
Anti-fouling compounds and systems	2500 mg total tin/kg	SRR/Annex I, Regulation (EC) 782/2003 "on the prohibition of Organotin Compounds on ships[72]", Council Directive 76/769/EEC "on the approximation of the laws, regulations and administrative provisions of the MS relating to restrictions on the marketing and use of certain dangerous substances and preparations[73]".
Cadmium and Cadmium Compounds	100 mg/kg	SRR/Annex II, RoHS Directive 2011/65/EU "on the restriction of the use of certain hazardous substances in electrical and electronic equipment[74]", Regulation (EC) 1907/2006 "Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)".
Hexavalent Chromium and Hexavalent Chromium Compounds	1000 mg/kg	SRR/Annex II, RoHS Directive 2011/65/EU "on the restriction of the use of certain hazardous substances in electrical and electronic equipment, Regulation (EC) 1907/2006 "Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)".

HAZARDOUS MATERIAL	THRESHOLD VALUE	REFERENCED EU LEGISLATION*
Lead and Lead Compounds	1000 mg/kg	SRR/Annex II, RoHS Directive 2011/65/EU "on the restriction of the use of certain hazardous substances in electrical and electronic equipment, Regulation (EC) 1907/2006 "Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)".
Mercury and Mercury Compounds	1000 mg/kg	SRR/Annex II, RoHS Directive 2011/65/EU "on the restriction of the use of certain hazardous substances in electrical and electronic equipment, Regulation (EC) 1907/2006 "Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)".
Polybrominated Biphenyl (PBBs)	50 mg/kg	SRR/Annex II, Regulation (EC) 1907/2006 "Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)",
Polybrominated Diphenyl Ethers (PBDEs)	1000 mg/kg	SRR/Annex II, RoHS Directive 2011/65/EU "on the restriction of the use of certain hazardous substances in electrical and electronic equipment".
Polychlorinated Naphthalenes (more than 3 chlorine atoms)	50 mg/kg	SRR/Annex II, Regulation (EC) 850/2004 "on persistent organic pollutants".
Radioactive Substances	No threshold value	SRR/Annex II, Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation[75].
Certain Shortchain Chlorinated Paraffins (Alkanes, C10-C13, chloro)	1%	SRR/Annex II, Regulation (EC) 1907/2006 "Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)", Regulation 519/2012, Regulation (EC) 850/2004 "on persistent organic pollutants".
Brominated Flame Retardant (HBCDD) EC No: 221-695-9, 247-148-4, CAS No: 3194-55-6 25637-99-4, alpha-hexabromocyclododecane CAS No: 134237-50-6, beta-hexabromocyclododecane CAS No: 134237-51-7, gamma-hexabromocyclododecane CAS No: 134237-52-8.	100 mg/kg (0.01%)**	SRR/Annex II, Regulation (EC) 850/2004 "on persistent organic pollutants"[76], Regulation (EC) 1907/2006 "Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)", Directive 2011/65/EU "on the restriction of the use of certain hazardous substances in electrical and electronic equipment".

* N.B.: The referenced legislation is an indicative list of EU legal instruments not necessarily applicable on ships
** See below Annex C.b.3

64 N.B.: The IMO guidelines (Resolution MEPC.269(68)) provide the following in a footnote : "In accordance with regulation 4 of the Convention, for all ships, new installation of materials which contain asbestos shall be prohibited. According to the UN 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"
65 OJ L 262, 27-9-1976, p. 201
66 OJ L 330, 16-12-2009, p.28.
67 According to the HKC new installations containing hydrochlorofluorocarbons (HCFCs) are permitted until 1 January 2020. However, this provision has not been incorporated in the SRR.
68 OJ L 286, 31-10-2009, p.1.
69 OJ L 158, 30-4-2004, p. 7.
70 **Not applicable for ships flying the flag of a third country.**
71 OJ L 372, 27-12-2006, p.32.
72 OJ L 115, 9-5-2003, p.1.
73 OJ L 262, 27-9-1976, p. 201.
74 OJ L 174, 1-7-2011, p.88.
75 OJ L 159, 29-6-1996, p.1.
76 OJ L 55, 02-03-2016, p.7.

ANNEX C

PFOS AND HBCDD

A. PERFLUOROOCTANE SULFONIC ACID (PFOS)

PFOS has been used in a variety of industrial applications and consumer products since the 1950s, mainly due to its capability to create special surface properties. Applications range from textile and paper treatment and a variety of other areas within the coating industries, to chromium plating, hydraulic fluids (for aviation) and firefighting foam.

C.a.1 PFOS properties

PFOS can be formed by degradation from a large group of related substances, referred to as PFOS related substances, and is a member of a larger family of perflouroalkyl sulfonate (PFAS). In May 2009 PFOS was added to the Annex B of the Stockholm Convention and classified as a Persistent Organic Pollutant (POP).

PFOS is chronically toxic, injurious to reproduction, carcinogenic, toxic to aquatic organisms and widely distributed in the global environment. In the marine industry, it can be found in fire-fighting foams on vessels carrying inflammable fluids and those with helicopter decks, rubber and plastic materials (i.e.: cable sheaths, PVC flooring, gaskets and seals) and coatings (i.e.: paint).

C.a.2 Application on ships

The main application on board ships is considered to be firefighting foams of the type AFFF (Aqueous Film Forming Foams). PFOS-containing AFFF could be applied on board a range of ship types, but the larger volumes are usually installed on vessels carrying inflammable fluids, and on vessels with helicopter deck. Volumes normally range from some 100 litres to 10 000 litres, depending on the type and size of the vessel. The foam is typically stored in one tank serving a main system, potentially with additional smaller and separate devices (for example 20 litres), usually in the machinery room(s). Concentration of PFOS normally lay within 0.017-0.037 kg/litre foam.

A list of possible PFOS uses and those of related chemicals is given in Annex 1-A of the Draft Guidance on Sampling, Screening and Analysis of Persistent Organic Pollutants in Products and Articles (Secretariat of the Stockholm Convention 2013).

An indicative list of materials and components that may contain PFOS is the following:

- 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.

C.a.3 PFOS control

In accordance with Article 3 of the Regulation (EC) 850/2004 "on persistent organic pollutants" the production, placing on the market and use of substances listed in Annex I of this Regulation, whether on their own, in preparations or as constituents of articles, shall be prohibited.

However, Article 3 shall not apply in the case of a substance occurring as an unintentional trace contaminant in substances, preparations or articles . In this case, in accordance with Annex I of the Regulation (EC) 850/2004, this exemption shall apply to concentrations of PFOS equal to or below 10 mg/kg (0,001% by weight) when it occurs in substances or in preparations. Furthermore, the exemption shall apply to concentrations of PFOS in semi-finished products or articles, or parts thereof, if the concentration of PFOS is lower 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 lower than 1 µg/m² of the coated material.

Use of articles already in use in the Union before 25 August 2010 containing PFOS as a constituent of such articles shall be allowed.

C.a.4 Sampling and analysis of PFOS

Once standards are adopted by the European Committee for Standardisation (CEN) they should be used as the analytical test methods for demonstrating the conformity of substances, preparations and articles to the requirements set out in the Regulation (EC) 850/2004. Any other analytical method for which the user can prove equivalent performance could be used as an alternative to the CEN standards.

Reference should be made to the Draft Guidance on Sampling, Screening and Analysis of Persistent Organic Pollutants in Products and Articles[77].

- ✓ Sampling

A sampling protocol should be used and should contain the type of sample, the location of sampling and any relevant information on the sample.

The sample should be wrapped in aluminium foil and transferred into a vessel or container (e.g.: glass or another inert material) with a cap or screw top. The vessel should be labelled (readable, persistent against solvents and water, with unique information e.g.: code related to sampling protocol, if the sample represents any hazard this should be noted and the sample labelled respectively). The collected samples should be stored adequately (e.g. appropriate temperature; possibly exclusion of light).

Specific care should be given to cross contamination of the samples during the sampling process or in the laboratory.

- ✓ Analysis

Analytical standard methods for quantification of PFOS are under development, and very few technical standards have been defined. Due to their relative low volatility, good solubility in water and lack of chromospheres the analysis of perfluorinated alkyl substances is a challenging task. When using the different available analytical methods for PFOS and its related substances caution should be given to follow the measures needed to assure that they provide reliable results.

77 "Draft guidance on Sampling, Screening and Analysis of Persistent Organic Pollutants in Products and Articles Relevant to the substances listed in Annexes A, B and C to the Stockholm Convention on Persistent Organic Pollutants in 2009 and 2011" (Secretariat of the Stockholm Convention 2013).

Several methods may be utilized for example EPA 3550C:2007, EPA 3540C:1996, EPA 8321B:2007, ISO 25101-2009 often combined with laboratory in-house procedures.

The NPR-CEN/TS 15968 is a 'standard' for the determination of the extractable content of PFOS in solid items (e.g. textiles, leather, paper) and in chemical products (AFFF, cleaning agents, etc.) within the scope of supporting the Regulation (EC) 850/2004 on persistent organic pollutants (POP). A method has been developed here for "Determination of extractable perfluorooctanesulphonate (PFOS) in coated and impregnated solid articles, liquids and firefighting foams - Method for sampling, extraction and analysis by LCqMS or LC-tandem/MS".

The method is currently a technical specification (TS) meaning it is not fully validated. In addition, it only addresses the extractable PFOS and a few PFOS precursor. The method does not address the chemically bound PFOS related substances and also does not describe a holistic analysis of PFOS related substances. It is applicable to concentrations of PFOS in the extract solution in the range between 0.5 µg/L and 50 µg/L.

An analytical detection method for PFOS is currently Liquid Chromatography Mass-Spectrometer[78] (LC-MS or LC-MS/MS) for the anionic compounds (including PFOS), whereas both LC-MS(MS) and Gas Chromatography Mass Spectrometry (GC-MS) can be used for the determination of the neutral per-and poly-fluorinated alkylated substances including several precursors of PFOS.

B. BROMINATED FLAME RETARDANT (HBCDD)

HBCDD is used as flame retardant additive, providing fire protection during the service life of vehicles, buildings or articles, as well as protection while stored. The main uses of HBCDD globally are in expanded (EPS) and extruded (XPS) polystyrene foam insulation while the use in textile applications and electric and electronic appliances is smaller.

C.b.1 HBCDD properties

HBCDD is very toxic to aquatic organisms, persistent and may cause long-term adverse effects in the aquatic environment. HBCDD is a persistent, bioaccumulative and toxic (PBT) substance and has potential for long-range transport.

Extended Polystyrene (EPS) and Extruded Polystyrene (XPS) were the major uses of HBCDD in the world market. Only flame retarded EPS contains HBCD. The use of HBCDD in XPS and EPS depends on the application and on the region, e.g[79].: in Western Europe approximately 70 % of the EPS is flame retarded while in East Europe about 99%.

C.b.2 Application on ships

In the maritime industry, HBCDD can be found in expanded polystyrene (EPS) used for cryogenic insulation, such as for liquefied gas tanks (LGT), refrigerated areas, thermal insulation boards (i.e. foam materials), rubber and plastic materials (i.e. cable sheaths, PVC flooring, gaskets, seals) and coatings (i.e. paint).

The main application of HBCDD on board ships is considered to be expanded polystyrene (EPS) used for cryogenic insulation, such as for liquefied gas tanks (LGT), but also for refrigerator areas and similar. On larger LGT carriers, volumes of EPS insulation could potentially range up to several thousand cubic metres, depending on type and size of the vessel.

78 Reportedly, detection of organic compounds can be at ultra-low levels up to 1 ppm.
79 See the draft (2015) guidance for the inventory, identification and substitution of Hexabromocyclododecane (HBCD) (Secretariat of the Stockholm Convention 2013).

An indicative list of materials and components that may contain HBCDD is the following:

- 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.

C.b.3 HBCDD control

In accordance with Article 56 and Annex XIV of the Regulation[80] (EC) 1907/2006 HBCDD had a sunset date[81] on 21/08/2015. In addition, in May 2013, the Conference of the Parties amended the Stockholm Convention on persistent organic pollutants (POPs) to add HBCDD to Annex A of the convention.

An overview on derivation of International occupational exposure limits (OELs) is provided by the European Agency for Health and Safety at work (EU-OSHA website). No OEL has been derived by the European Scientific Committee on Occupational Exposure Limits (SCOEL). No OELs and threshold limit values (TLVs) of HBCDD are given at the International Chemical Safety Card -ICSC database, which was prepared in the context of cooperation between the International Programme on Chemical Safety and the European Commission.

In accordance with the POP Regulation[82], Article 4(1)(b) of this Regulation (exemptions from control measures) shall apply to concentrations of hexabromocyclododecane equal to or below 100 mg/kg (0,01 % by weight) when it occurs in substances, preparations, articles or as constituents of the flame-retarded parts of articles, subject to review by the Commission by 22 March 2019.

C.b.4 Sampling and analysis of HBCDD

HBCDD has been the only flame retardant used in EPS and XPS until recently. Therefore, all EPS and XPS tested bromine positive which have been produced before 2014 contain most likely HBCDD.

✓ Sampling

A sampling protocol should be used and should contain the type of sample, the location of sampling and any relevant information on the sample.

The screening of bromine can be a simple, rapid and cost-effective method for pre-selection steps of samples to determine which samples to select for a more complex and expensive confirmation analysis.

80 Regulation (EC) 1907/2006 "concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/ EC" as amended. (OJ L 396, 30.12.2006, p. 1).

81 As referred to in Article 58(1)(c)(i) of the REACH Regulation. In accordance with Article 58(1)(c)(i) placing on the market and the use of the substance shall be prohibited unless an authorisation is granted.

82 See Commission Regulation (EU) 2016/293 on amending Regulation (EC) No 850/2004 of the European Parliament and of the Council on persistent organic pollutants as regards Annex I, OJ L 55, 02-03-2016, p.7.

Since HBCDD has been the only flame retardant used in EPS and XPS until recently, all EPS and XPS tested bromine positive which have been produced before 2014 contain most likely HBCDD. Therefore, bromine screening can be used for a screening of HBCDD in EPS and XPS. In textiles also PBDE and other brominated flame retardants are used in addition to HBCDD. Therefore, for textiles bromine positive samples need a further confirmation analysis to determine the used flame retardant. Since also PBDE are listed as POPs a bromine positive textile sample might indicate the presence of POPs.

A range of technologies can be used for screening bromine in materials like plastics, polystyrene (PS) or polyurethane (PUR) foams, textile or rubber. Technologies used include X-ray fluorescence (XRF), Sliding Spark Spectroscopy, X-ray transmission (XRT) or Laser-Induced Breakdown Spectrometry (LIBS).

Reference should be made to the draft (2015) guidance for the inventory, identification and substitution of Hexabromocyclododecane (HBCDD) (Secretariat of the Stockholm Convention 2013). More details on screening of POPs in articles can be found in the Draft Guidance on Sampling, Screening and Analysis of Persistent Organic Pollutants in Products and Articles (Secretariat of the Stockholm Convention 2013).

- ✓ Analysis

Analysis refers to the extraction, purification, separation, identification, quantification and reporting of POP-PBDEs and/or HBCDD concentrations. In order to obtain meaningful and acceptable results, the analytical laboratory should have the necessary infrastructure (housing) and proven experience.

Extraction and clean-up is performed to isolate the HBCDD from the co-extracted interfering compounds. Extraction methods of HBCDD from polymers (such as EPS or XPS) have been developed and provide an appropriate base for the monitoring of HBCDD in articles and products.

Several methods may be utilized for example EPA8321B-2007, EPA3550C:2007, EPA 8270D:2007.

Current analytical methods allow the chromatographic separation and determination of all HBCDD stereoisomers (α- to ε-HBCDD). These methods are based on reversed phase liquid chromatography (LC). LC based separation methods of chiral compounds allow analysis of HBCDD enantiomers. HBCDD can also be determined by gas chromatography (GC), but the separation of stereoisomers is not possible by this approach. Also HBCDD can degrade on the GC column if too high temperatures are applied in the analysis (e.g. injector block) or if long GC columns are used.

Reference should be made to the draft (2015) guidance for the inventory, identification and substitution of Hexabromocyclododecane (HBCDD) (Secretariat of the Stockholm Convention 2013). More details on the analysis of POPs in articles can be found in the Draft Guidance on Sampling, Screening and Analysis of Persistent Organic Pollutants in Products and Articles (Secretariat of the Stockholm Convention 2013).

ANNEX D

SUPPLEMENT TO THE IMO FORM OF MATERIAL DECLARATION

<SUPPLEMENT attached to MD-ID-No:>

MD-ID-No.	
Date	

<Materials information>w

This materials information shows the amount of hazardous materials contained in

	Unit
1	

(unit: piece, kg, m, m^2, m^3, 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*)				
Annex II (materials listed in annex II of the EU SRR)	Brominated Flame Retardant (HBCDD)	100 mg/kg (0.01% by weight)				

*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.

ANNEX E

EXAMPLES OF RCP – VSCP

A. RANDOM CHECKING PLAN (ONLY RANDOM SAMPLING, INDICATIVE & OPTIONAL)

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10		Column 11
Location, Zone, Compartment, System	Equipment	Object to check (Component, Material), Parts of use	Hazardous Material	Document Analysis Result (IHM + Documentation)	Check procedure	Sample No.	Pic. No.	Check Result	Quantity		Remarks
									Approx. Quantity of the Component/ Material/ Parts of use containing the HM	Approx. Quantity of the Hazardous Material (calculated)	
Bridge	Ceiling	Ceiling Panel	Asbestos	Not contained	Sampling check	P44-01	1	Contained	3000 kg	50 Kg	--
Accommodation area		Paint	Lead	Not contained	Sampling check	P44-02	2	Contained	30 Kg	0.2 Kg	--
Accommodation area	Fire doors in accommodation area	Sealing	Asbestos	Not contained	Sampling check	P44-03	3	Not contained	--	--	--

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10		Column 11
Location, Zone, Compartment, System	Equipment	Object to check (Component, Material), Parts of use	Hazardous Material	Document Analysis Result (IHM + Documentation)	Check procedure	Sample No.	Pic. No.	Check Result	Quantity		Remarks
									Approx. Quantity of the Component/ Material/ Parts of use containing the HM	Approx. Quantity of the Hazardous Material (calculated)	
Engine room	Exhaust gas system	Lagging for exhaust gas pipe	Asbestos	Not contained	Sampling check	P44-04	4	Contained	5000 Kg	200 Kg	IHM to be amended accordingly
Engine room	Auxiliary boiler	Insulation	Asbestos	Not contained	Sampling check	P44-05	5	Not contained	--	--	--
Engine room	Refrigeration plant	Refrigerant	CFCs	Not contained	Visual check	--	6	Not contained	--	--	--
Poop deck	Mooring winch	Brake lining	Asbestos	Not contained	Sampling check	P44-06	7	Contained	10 kg	0.1 Kg	IHM to be amended accordingly
Stern tube	Propeller shafting	Packing with hydraulic piping	Asbestos	PCHM	Sampling check	P44-07	8	Contained	200 kg		Checked during dry dock-repair works. IHM to be amended accordingly

B. VSCP (DEVELOPING AN IHM FOR EXISTING SHIP - TARGETED SAMPLING ONLY OR COMBINED WITH RANDOM SAMPLING)

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10		Column 11
Location: Zone, Compartment, System	Equipment	Object to check (Component, Material), Parts of use	Hazardous Material	Document Analysis Result	Check procedure	Sample No.	Pic. No.	Check Result	Quantity		Remarks
									Approx. Quantity of the Component/ Material/ Parts of use containing the HM	Approx. Quantity of the Hazardous Material (calculated)	
Bridge	Ceiling	Ceiling Panel	Asbestos	Contained	Visual check	--	1	Contained	3000 kg	50 Kg	--
Accommodation area		Paint	Lead	Contained	Visual check	P44-01	2	Contained	110 kg	1 Kg	--
Accommodation area	Fire doors in accommodation area (15 pieces)	Sealing (1kg)	Asbestos	Unknown	Sampling check	P44-02	3	Contained	15 x 1 = 15 kg	3 Kg	--
Engine room	Exhaust gas system	Lagging for exhaust gas pipe	Asbestos	unknown	Sampling check	P44-03	4	Contained	5000 Kg	200 Kg	--
Engine room	Main engine	Piston pin bush (10 pieces)	Lead	Unknown	Assumption	--	5	PCHM	1 x 10 = 10 kg	10 Kg	No access, relevant for ship operation
		Thermometers charge air temperature	Mercury	Contained	Visual check	--	6	Contained	0.04 kg	0.04 Kg	--
Engine room	Diesel generator (x3)	Thermometers	Mercury	Contained	Visual check	--	7	Contained	0.03 kg	0.03 Kg	--

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10		Column 11
									Quantity		
Location: Zone, Compartment, System	Equipment	Object to check (Component, Material), Parts of use	Hazardous Material	Document Analysis Result	Check procedure	Sample No.	Pic. No.	Check Result	Approx. Quantity of the Component/ Material/ Parts of use containing the HM	Approx. Quantity of the Hazardous Material (calculated)	Remarks
Engine room	Auxiliary boiler	Insulation	Asbestos	Not contained	Sampling check	P44-04	8	Contained	500 kg	100 Kg	Assumption Asbestos containing (experience). Random sampling
		Thermometers	Mercury	Contained	Visual check	--	9	Contained	0.01 kg	0.001 Kg	--
Engine room	Refrigeration plant	Refrigerant	CFCs	Not contained	Visual check	--	10	Not contained	--	--	--
Throughout the ship	FC valve (*100)	Insulation and gaskets (2 Kg each)	Asbestos	Unknown	Sampling check	P44-05	11	Contained	100 x 2 = 200 kg	30 Kg	--
Stern tube	Propeller shafting	Packing with hydraulic piping	Asbestos	Unknown	Assumption	--	12	PCHM	--	--	No access relevant for ship operation
Poop deck	Mooring winch (x 6)	Brake lining (3 Kg each)	Asbestos	Not contained	Sampling check	P44-06	13	Contained	6 x 3 = 18 kg	5.4 Kg	Assumption Asbestos containing (experience). Random sampling

ANNEX F

REFERENCES

1. Regulation (EC) 1907/2006 “Registration, Evaluation, Authorisation and Restriction of Chemicals” (REACH)
2. RoHS Directive 2011/65/EU “on the restriction of the use of certain hazardous substances in electrical and electronic equipment”
3. Regulation (EC) 850/2004 “on persistent organic pollutants”
4. Directive 2006/122/EC “relating to restrictions on the marketing and use of certain dangerous substances and preparations (perfluorooctane sulfonates)”
5. Directive 2009/148/EC “on the protection of workers from the risks related to exposure to asbestos at work”
6. Regulation (EC) 782/2003 “on the prohibition of Organotin Compounds on ships”
7. Council Directive 76/769/EEC “on the approximation of the laws, regulations and administrative provisions of the MS relating to restrictions on the marketing and use of certain dangerous substances and preparations”
8. Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation
9. Practical Guidelines for the information and training of workers involved with Asbestos removal or maintenance work (European Commission, October 2011)
10. Joint Industry Guide (JIG) JIG-101 Ed 4.1 (Revision of JIG-101 Ed. 4.0, March 2011) May 21, 2012 (Material Composition Declaration for Electrotechnical Products)
11. MEPC 57/3/19 8 February 2008 “proposal to include three Hazardous Materials in the draft Convention submitted by Norway”
12. MSC.1/Circ.1426 “Unified Interpretation of SOLAS Regulation II-1/3-5 (June 2012)”
13. MSC.1/Circ.1374 “Information on Prohibiting the Use of Asbestos On board Ships (December 2010)”
14. MSC.1/Circ.1379 “Unified Interpretation of SOLAS Regulation II-1/3-5 (December 2010)”
15. MSC/Circ.1045 “Guidelines for maintenance and monitoring of on-board materials containing asbestos” (May 2002)
16. Resolution MEPC.196(62) “2011 Guidelines for the development of the ship recycling plan”
17. Resolution MEPC.222(64) “2012 Guidelines for the survey and certification of ships under the HKC”

18. Resolution MEPC.210(63) “2012 Guidelines for safe and environmentally sound ship recycling”

19. Resolution MEPC.211(63) “2012 Guidelines for the authorisation of ship recycling facilities”

20. Resolution MEPC.222(64) “2012 Guidelines for the survey and certification of ships under the HKC”

21. Resolution MEPC.223(64) “2012 Guidelines for the inspection of ships under the HKC”

22. SC-4/17 “Listing of perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride”

23. UNEP/POPS/COP.7/INF/21 “Revised draft guidance on best available techniques and best environmental practices for the use of perfluorooctane sulfonic acid and related chemicals listed under the Stockholm Convention”

24. UNEP/POPS/COP.7/INF/26 “Revised draft guidance for the inventory of perfluorooctane sulfonic acid and related chemicals listed under the Stockholm Convention”

25. “Guidance on best available techniques and best environmental practices for the use of perfluorooctane sulfonic acid (PFOS) and related chemicals listed under the Stockholm Convention on Persistent Organic Pollutants” Draft July 2012

26. “Draft guidance on Sampling, Screening and Analysis of Persistent Organic Pollutants in Products and Articles Relevant to the substances listed in Annexes A, B and C to the Stockholm Convention on Persistent Organic Pollutants in 2009 and 2011” Draft February 2013

27. “Guidance for the inventory, identification and substitution of Hexabromocyclododecane (HBCD)” Draft April 2015.

LIST OF ABBREVIATIONS	
ACM	Asbestos Containing Material
AFS	Anti-fouling compounds and systems
EMSA	European Maritime Safety Agency
EU	European Union
GT	Gross Tonnage
HM	Hazardous Material
HBCDD	Brominated Flame Retardant
HKC	Hong Kong International Convention for the Safe and Sound Recycling of Ships
IC	Inventory Certificate
IHM	Inventory of Hazardous Materials
IMO	International Maritime Organization
LDT	Light Displacement Tonnes
MD	Material Declaration
ODS	Ozone-depleting substances
MARPOL	International Convention for the Prevention of Pollution from Ships
PCB	Polychlorinated biphenyls
PBB	Polybrominated Biphenyl
PBDE	Polybrominated Diphenyl Ethers
PCHM	Potentially Containing Hazardous Material
PFOS	Perfluorooctane sulfonic acid
POP	Persistent Organic Pollutant
PPE	Personal Protective Equipment
PSC	Port State Control
PSCO	Port State Control Officer
RCP	Random Checking Plan
RO	Recognised Organisation
RfRC	Ready for Recycling Certificate
SDoC	Supplier's Declaration of Conformity
SoC	Statement of Compliance
SRF	Ship Recycling Facility
SRP	Ship Recycling Plan
SRR	Ship Recycling Regulation
VSCP	Visual/Sampling Check Plan

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ABOUT THE EUROPEAN MARITIME SAFETY AGENCY

The European Maritime Safety Agency is one of the European Union's decentralised agencies. Based in Lisbon, the Agency's mission is to ensure a high level of maritime safety, maritime security, prevention of and response to pollution from ships, as well as response to marine pollution from oil and gas installations. The overall purpose is to promote a safe, clean and economically viable maritime sector in the EU.

Get in touch for more information

European Maritime Safety Agency
Praça Europa 4
Cais do Sodré
1249–206 Lisboa
Portugal

Tel +351 21 1209 200 / Fax +351 21 1209 210
emsa.europa.eu / Twitter@EMSA_Lisbon

European Maritime Safety Agency

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

IHM development and maintenance in the context of the EU Ship Recycling Regulation.

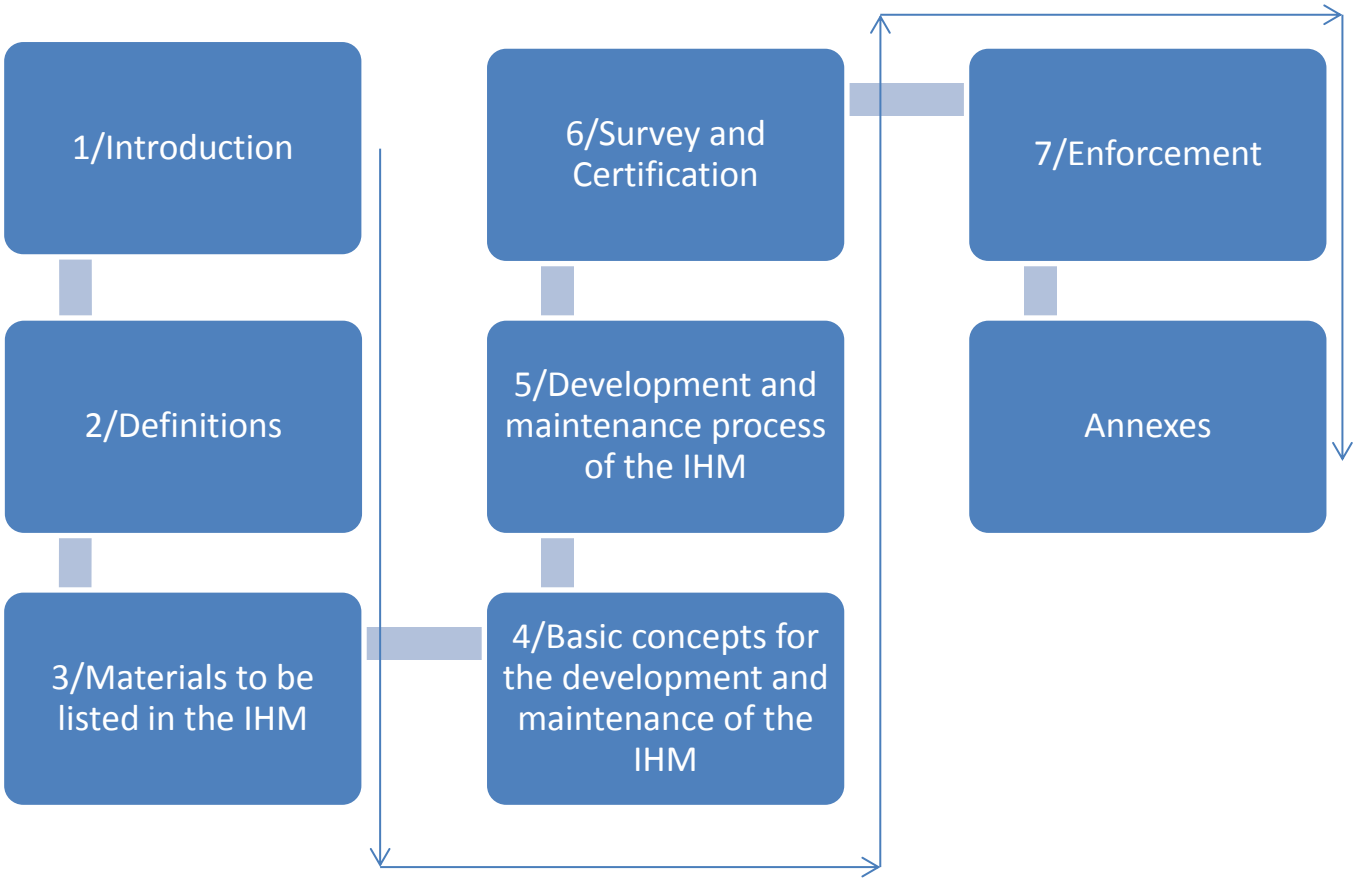
Monitoring and enforcement in the context of the EU Ship Recycling Regulation.

Date: 28-10-2016

EMSA

Table of Contents

EMSA's BEST PRACTICE GUIDANCE ON THE DEVELOPMENT AND MAINTENANCE OF THE IHM:



List of Abbreviations

ACM	Asbestos Containing Material
AFS	Anti-fouling compounds and systems
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PFOS	Perfluorooctane sulfonic acid
POP	Persistent Organic Pollutant
PPE	Personal Protective Equipment
PSC	Port State Control
PSCO	Port State Control Officer
RCP	Random Checking Plan
RO	Recognised Organisation
RfRC	Ready for Recycling Certificate
SDoC	Supplier’s Declaration of Conformity
SoC	Statement of Compliance
SRF	Ship Recycling Facility
SRP	Ship Recycling Plan
SRR	Ship Recycling Regulation
VSCP	Visual/Sampling Check Plan

1. Introduction

This document provides best practice guidance and a harmonised approach to the development and maintenance of inventories of hazardous materials (hereinafter referred to as “the Inventory” or “the IHM”) in accordance with Article 5 and Article 12 of the Regulation (EU) 1257/2013 of the European Parliament and the Council on ship recycling (hereinafter referred to as “the Regulation” or as “the SRR”). This document has been prepared on the basis of current knowledge and experience from the Member States, the industry and EMSA and other stakeholders.

Furthermore, this document provides guidance for a harmonised and effective approach to the inspection of ships ascertaining their compliance, to identifying non-compliances and to applying control procedures for the enforcement of the Regulation as regards the development and maintenance of an IHM on board ships.

EMSA’s Best Practice Guidance is a non-binding document and nothing in this guidance document should be construed as generating mandatory requirements on any of the involved parties.

1.1 Background

Keeping an up-to-date Inventory on board a ship throughout its life-cycle is a key requirement laid down in both the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships (hereinafter referred to as "the Convention" or "the HKC") and the Regulation. The Regulation’s requirements for the development of the Inventory are in fact almost entirely based on the respective requirements of the Convention. An IHM developed in accordance with the Regulation must be compiled taking into account the relevant IMO guidelines.

Nevertheless, EU legislation sets a few more requirements for the Inventory than the Convention does. Therefore, it is essential that the development and maintenance of the IHM in pursuance of the SRR is done a) in a harmonised and comprehensive manner in the light of the international knowledge and experience as reflected most notably in the relevant IMO guidelines, while b) taking into account the specificities of the EU legislative context, in particular of the Regulation itself.

This guidance will be kept under review in the light of the experience that will be gained with its application and with the aim to be a workable and useful document for all the relevant stakeholders, in view of the application of the SRR.

1.1.1 The Hong Kong Convention and the IMO guidelines

The HKC covers the design, construction, survey, certification, operation and recycling of ships to facilitate safe and environmentally sound recycling. In accordance with Regulation 5 of the Annex of the HKC, each ship shall have on board an IHM[1]. The IHM shall be verified either by the Administration or by any person or organisation authorised by it.

In the wake of the adoption of the HKC, the IMO has published a number of guidelines on ship recycling. As per the Regulation, the IMO guidelines, in their updated form, shall be taken into account when compiling the IHM[2], preparing a VSCP[3], conducting flag State surveys[4] or detailed inspections of the port State[5].

In this respect, this guidance document is complementary to the relevant IMO guidelines. It is to be regarded in the light of these guidelines with a view to provide a comprehensive framework for the practical implementation of the relevant provisions of the Regulation.

[1] ‘Existing’ ships shall comply as far as practicable not later than 5 years after the entry into force of the HKC, or before going for recycling if this is earlier.
[2] Resolution MEPC.269(68).
[3] See footnote (2).
[4] Resolution MEPC.222(64).
[5] Resolution MEPC.223(64).

1.1.2 The EU Ship Recycling Regulation

Regulation (EU) No 1257/2013 of the European Parliament and of the Council of 20 November 2013 'on ship recycling and amending Regulation (EC) 1013/2006 and Directive 2009/16/EC' was published in the Official Journal[6] of the EU on 10 December 2013. It entered into force on 30 December 2013. Its articles will apply at various stages, as detailed in article 32 of the Regulation[7].

The SRR is closely following the HKC's structure, concepts and definitions. However, the Regulation also sets out a number of additional requirements that go beyond those set in the HKC, including on inventories of hazardous materials. In this regard, EMSA's guidance is based on the EU specific requirements when these requirements go beyond those set in the HKC.

In accordance with Article 5 of the Regulation, all ships flying the flag of a Member State shall have on board an IHM. Furthermore, in accordance with Article 12 of the Regulation, all ships flying the flag of a third country shall also have on board an IHM when calling at a port or anchorage of a Member State. In this respect, the Regulation takes a 'flag neutral' approach although all ships flying the flag of a third country will be considered as if they were 'existing ships' and, in general, will be treated accordingly[8].

In relation to the IHM, there are two basic categories of ships (i.e. flying the flag of a Member State): '**new**' and '**existing**' ships and a provisional category of '**ships going for recycling**' which includes all ships going for recycling from the date of the publication of the European List and before the final application date of the SRR[9]. In general, a 'new' ship shall have on board an IHM which shall identify at least the HM referred to in Annex II of the Regulation while an 'existing' ship or a 'ship going for recycling'[10] before the final application date of the SRR, shall have on board an IHM which shall identify, at least, the HM listed in Annex I of the Regulation. Annex I of the Regulation lists five types of hazardous materials; Annex II lists the items of Annex I as well as an additional ten types of hazardous materials.

All ships flying the flag of a Member State shall be subject to a survey regime and they shall carry on board a ship-specific 'Inventory Certificate' issued by the administration or a RO authorised by it and supplemented by Part I of the IHM.

When calling at a port or anchorage of a Member State, all ships flying the flag of a third country shall carry on board a ship-specific 'statement of compliance' issued by the relevant authorities of the third country whose flag the ship is flying or an organisation authorised by them and supplemented by Part I of the IHM.

In both cases the IHM shall be properly *maintained* and *updated* throughout the operational life of the ship, reflecting new installations containing any HM referred to in ***Annex II*** of the Regulation and relevant changes in the structure and equipment of the ship. However, for the ships flying the flag of a third country, any possible exemptions and transitional arrangements applicable to those materials under international law will also be taken into account.

Member States shall apply port State control provisions for ships in accordance with the PSC Directive[11]. This control shall be limited to checking that either an inventory certificate or a ready for recycling certificate is kept on board ships flying the flag of a Member State of the Union. Ships flying the flag of a third country should always be in a position to submit a copy of the statement of compliance together with the Inventory. In addition, Member States shall apply port State control provisions for ships in accordance with Article 11 or Article 12 of the Regulation as appropriate, and they may carry out detailed inspections to enforce the relevant provisions of the Regulation[12][13].

[6] OJ L 330, 10-12-2013, p.1-20.
[7] See ***Annex A*** for the timeline of the application of the Regulation.
[8] See Table A for some possible differences between 'existing' (EU) and 'non-EU' ships.
[9] N.B.: And, because of the application dates of the Regulation (see Article 32), do not have yet on board an IHM as appropriate. For more details, see Annex A.
[10] The term is used in accordance with the second subparagraph of Article 5(2) of the Regulation and applies only for ships flying the flag of a Member State.
[11] Directive 2009/16/EC, OJ L 131, 28-5-2009, p.57.
[12] Resolution MEPC.223(64).
[13] See below under Chapter 7 'Enforcement'.

1.2 Objective

The aim of this document is to assist the Member States and all the relevant stakeholders involved in the IHM process, with a reference document that provides both technical information and procedural guidance.

In addition, EMSA's best practice guidance should provide the overarching principles for the development and maintenance of the IHM in order to ensure compliance with the EU requirements.

Finally, it should support the SRR with regard to all the aspects related to the IHM, building upon the existing IMO guidelines, identifying best practices and providing reference standards for the development and maintenance of the IHM and for the training and qualifications of the personnel which will be involved in the process.

The ultimate goal of this guidance document is to facilitate the development of a credible ship-specific IHM which will provide reliable information on the actual HM present on board, in order to protect health and safety and to prevent pollution at ship recycling facilities.

1.3 Scope of Application

The Regulation applies to ships on international voyages, of 500GT and above flying the flag of a Member State or the flag of a third country under the conditions of Article 12 of the Regulation.

The Regulation applies to all vessels of any type whatsoever operating or having operated in the marine environment including submersibles, floating craft, floating platforms, self-elevating platforms, FSUs and FPSOs, as well as ships stripped of equipment or being towed.

It does not apply to any warships, naval auxiliary or other ships owned or operated by a state and used, for the time being, only on government non-commercial service. 'New' and 'existing' ships, 'ships going for recycling' as well as 'ships flying the flag of a third country' shall have on board an IHM in accordance with the relevant provisions of Article 5 or Article 12 of the Regulation.

The scope of this guidance coincides with the scope of the Regulation. Therefore, the provisions of the guidance document should be utilised for the development and proper maintenance and update of the IHM throughout the operational life of ships for which the SRR applies. Furthermore, it is suggested that this guidance is utilised by the administrations of the Member States, the relevant authorities involved in port State control activities, the recognised organisations and the authorised organisations, for the application and enforcement of the relevant requirements of the Regulation in a consistent, harmonised and effective manner.

2. Definitions

The terms used in this guidance document have the same meaning as those defined in the Regulation and in the IMO guidelines with the following additional definitions which apply for the purposes of this guidance document only:

- '***IHM process***' is the whole process of development and maintenance of an IHM throughout the operational life-cycle of the ship. It involves all the steps of developing an IHM including issuing/checking of any relevant documentation (e.g. Material Declarations), sampling and analysis, verification and life-cycle management.

- '***Individual IHM expert***' is a person who has the appropriate training, qualifications and knowledge to conduct HM surveys for the development and maintenance of an IHM. He or she should have experience on ship structure and on handling of HM and sufficient knowledge of how to compile an IHM and of all the relevant international and EU legislation[14].

- '***IHM expert company***' is an entity employing or contracting individual IHM experts to conduct any relevant work or task in relation to the IHM process for the purpose of compiling or updating Inventories of

[14] See Annex B as a reference.

Hazardous Materials. The IHM expert company should use a documented management system and should work on suitable standards, covering the relevant activities of the company.

- '***HM survey***' is an investigation to trace and identify the presence or absence of Hazardous Materials contained in the equipment, systems, and/or areas on board a ship and may include review of any relevant documents, visual inspections and sampling.

- '***Sampling check***' is the taking of samples to identify the presence or absence of HM contained in the equipment, systems, and/or areas on board a ship, by suitable and generally accepted methods such as laboratory analysis.

- '***Representative sampling***' is a method to sample materials of the same kind in a representative manner. Such materials should be checked to ensure that they are of the same kind.

- '***Blank Sample***' is a clean sample or sample of matrix processed so as to measure artifacts in the measurement (sampling and analysis) process.

- '***Blind Sample***' is a sample submitted to evaluate performance with concentration and identity unknown to the analyst.

- '***Bulk Sample***' is a sample taken from a larger quantity (lot) for analysis or recording purposes.

- '***Specific testing***' is a repeatable and reliable method of testing samples, which can demonstrate definitively whether a Hazardous Material exists or not and provide a known type of the Hazardous Material.

- '***Accredited laboratory***' is a laboratory accredited in accordance with ISO 17025 or an equivalent standard for the purpose of conducting specific tests for HMs included in the SRR and capable of providing a written report that can be relied upon by all parties.

3. Materials to be listed in the IHM

The Inventory consists of:

Part I: HM contained in ship structure or equipment and referred to in Annexes I and II of the SRR;

Part II: Operationally generated wastes; and

Part III: Stores.

In general, the IMO guidelines[15] provide sufficient information for the development of the IHM in relation to the HM included in Appendices 1 and 2 of the HKC as well as an indicative list of these HM with CAS numbers and respective specific test methods. Therefore, for information on the HM included in Appendices 1 and 2 of the HKC and in Annexes 1 and 2 of the SRR reference should be made to the IMO guidelines. In ***Annex C*** of this guidance document some specific information is provided on the two additional HM (PFOS[16] and HBCDD) included only in Annexes I and II of the SRR.

The Inventory should be developed on the basis of the standard format set out in appendix 2 of the IMO guidelines. However, in this format there should be a reference stating that the IHM has been developed to cover also the requirements of the SRR[17]. This would entail that the Inventory would keep the classification of Materials according to the IMO guidelines with the addition of two HM (PFOS and HBCDD) as appropriate.

[15] Resolution MEPC.269(68).
[16] Not applicable for ships flying the flag of a third country.
[17] E.g.: "the Inventory follows the requirements set out in the HKC and in the EU Ship Recycling Regulation (EU) 1257/2013".

3.1 Recording of HM in the IHM Part I

For ships flying a flag of a Member State HM shall be listed in the IHM Part I in accordance with the provisions of paragraphs (1) and (2) of Article 5 of the SRR.

For ships flying the flag of a third country HM shall be listed in the IHM Part I in accordance with the provisions of paragraphs (3) and (4) of Article 12 of the SRR.

Recording of HM in the IHM Part I should be done in accordance with the IMO guidelines. Loosely fitted equipment, batteries, spare parts, exemptions, and 'bulk listing' of similar materials should be treated in line with the IMO guidelines.

3.2 Threshold values of HM included in the IHM Part I

HM should be reported in the IHM when the material is present in the product above the applicable threshold value. However, when there is no specified threshold value for a HM[18] then it should be reported in the IHM when deliberately used in the formulation of a product where its continued presence is desired to provide a specific characteristic, appearance, property, attribute or quality regardless of quantity. Suppliers should report such substances when they have knowledge (or with reasonable inquiry should have knowledge) of their presence.

As a general principle, unless expressly provided otherwise in the relevant EU legislation, revised threshold values for the materials to be listed in the IHM Part I, should be used for IHM developed or updated after the adoption of the revised values and need not be applied to existing IHM and IHM 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.

Annex B provides information on the HM that should be listed in the IHM Part I, the relevant threshold values and the referenced EU legislation which may be of relevance to the respective HM.

4. Basic concepts for the development and maintenance of the IHM

The development and maintenance of the IHM is a key requirement of the Regulation. The Regulation requires '*ships*' to have it on board therefore, the obligation lies in principle with the shipowner. Furthermore, the '*installation*' (or use) of HM referred to in Annex I of the SRR is prohibited or restricted as specified in this Annex and, subsequently, this entails additional responsibilities to the shipbuilders and other stakeholders (e.g. to manufacturers and suppliers).

The development procedure of a new IHM may differ depending on whether the ship is a new or an existing one[19]. However, the overarching principles remain the same. The ship owner or the shipbuilder may draw upon assistance by an IHM expert. This is strongly recommended for safety and health protection reasons and in order to have a minimum assurance that the work is carried out by competent personnel, under a quality management system and in accordance with recommended guidance (i.e. the EMSA's guidance document and the relevant IMO guidelines).

The hereunder provisions provide a framework for a harmonised, qualitative and credible development and maintenance of the Inventory with a view to securing a level playing field for the responsible actors and enhancing the overall quality and credibility of the produced IHM under the SRR.

4.1 Overarching Principles

The development and maintenance of the IHM should be subject to the principles of *independence*, *quality* and *accountability*.

[18] i.e.: Ozone Depleting Substances or Radioactive substances.
[19] See below Chapter 5.1 and 5.2.

These overarching principles should apply throughout the whole IHM process by all the relevant stakeholders including ship-builders, manufacturers, shipowners, administrations, recognised organisations, authorised organisations, and any involved personnel, individual IHM experts or IHM expert companies. The flag State administrations and any relevant national authority are primarily responsible for securing the application of these principles.

More specifically:

4.1.1 Independence

The persons involved in the IHM process should be able to demonstrate personal integrity in the performance of their duties.

Impartiality and objectivity is needed in all work conducted by anyone involved in the IHM process in particular the IHM experts.

Independence from the entity responsible for the verification of the IHM on behalf of the flag State is indispensable. In this regard, conflicts of interest between the entity (individual, company or organisation) developing or updating the IHM and the entity verifying the IHM on behalf of the flag State should be prevented.

4.1.2 Quality

The persons involved in the IHM process should be able to demonstrate a high level of professional competence in the performance of their duties.

The work of any person or party involved in the IHM process should be of the highest possible quality and in compliance with the requirements of the Regulation and any applicable international legislation.

All the entities involved in the IHM process (i.e. IHM experts, shipbuilders, shipping companies) should apply a documented management system and quality controls to ensure the credibility of the IHM process for the development or maintenance of the Inventory.

4.1.3 Accountability

Any person or party involved in the IHM process should have a clear understanding of the duties and responsibilities he/she/it assumes in this process.

The responsibility for the IHM's compliance with the requirements of the Regulation lies primarily with the ship owner and/or the shipbuilder. They have the duty of exercising due diligence when they appoint or instruct any person or party to conduct HM surveys, to compile reports or to perform any kind of work within the context of the IHM process. Appointing an IHM expert to compile/update an IHM in accordance with this guidance document should, in principle, be considered as exercise of due diligence in order to meet the relevant requirements of the Regulation.

The persons or parties involved in the IHM process should keep records of the HM surveys performed. Written records should be kept to the extent possible. Every person involved in the IHM process may be held liable in case of fault or gross negligence in the execution of his/her duties. Every party involved in the IHM process may also be held liable in case of fault or gross negligence of any of its employees.

The persons involved in the IHM process should exercise due professional care in conducting and supervising the respective activities and in preparing related reports. They should use their professional judgment when exercising their duties during the IHM process.

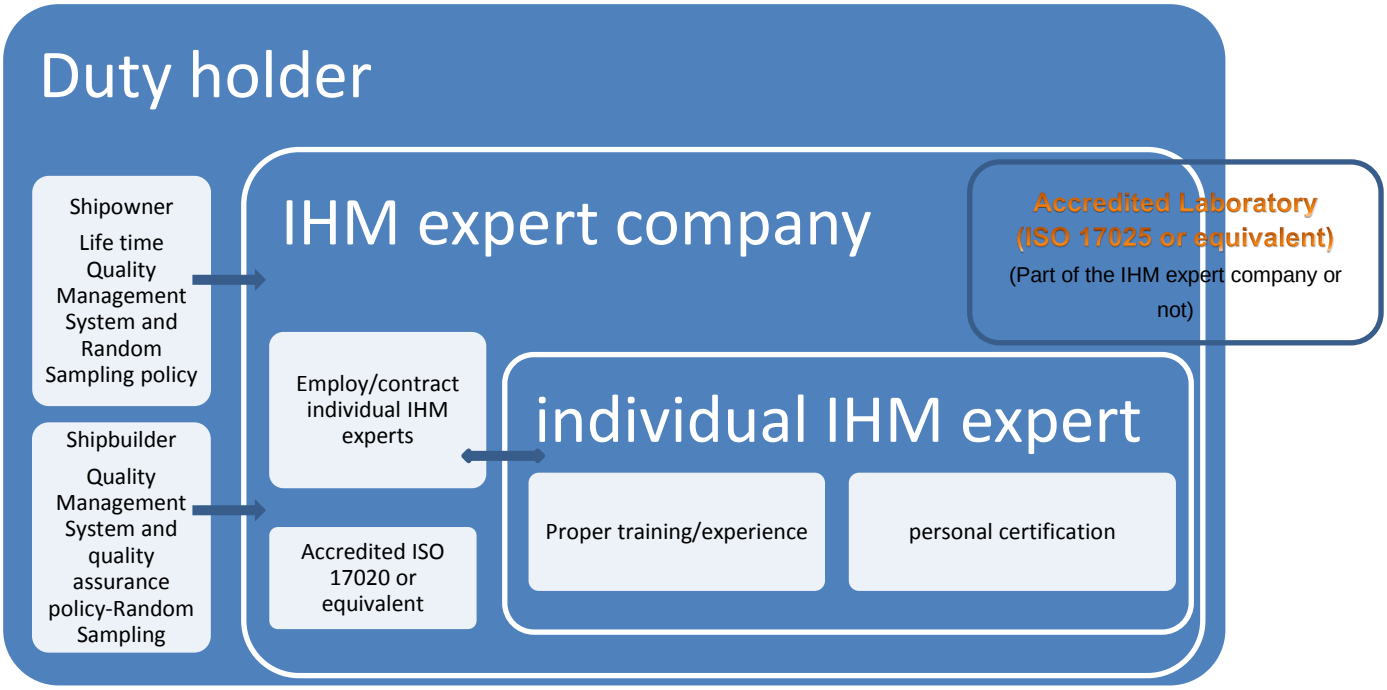
4.2 Accreditation and Certification

- ✓ The ***individual IHM expert*** should work within a general quality assurance framework provided by a management system in accordance with the overarching principles for the development and maintenance of the IHM. *Anyone using an individual IHM expert for compiling or updating an IHM is responsible to confirm that the IHM expert is competent to carry out the work required.*

- ✓ The ***IHM expert company*** should implement quality processes and procedures preferably in accordance with *ISO 17020* or any equivalent standard covering all the relevant activities of the company. Seeking accreditation against a standard from EU accreditation bodies or ILAC/MRA signatory bodies is the most effective way to demonstrate independence and necessary qualifications. *Anyone using an IHM expert company for compiling or updating an IHM is responsible to confirm that the IHM expert company is duly capable to implement quality processes and procedures.*

- ✓ The ***laboratory*** to carry out specific tests should be accredited in accordance with *ISO 17025* or an equivalent standard for the purpose of conducting specific tests for HMs included in the SRR. It should perform internal proficiency testing and evaluation of the personnel, it should implement quality control procedures and it should be capable of providing a written report that can be relied upon by all parties. Seeking accreditation against a standard from EU accreditation bodies or ILAC/MRA signatory bodies is the most effective way to demonstrate independence and necessary qualifications. *Anyone using a laboratory for the analysis of samples for HM included in the Annex II of the Regulation is responsible to confirm that the laboratory is suitably accredited*.

The **optimum** organisational framework for the IHM process is described in the following graph:



Graph 1 – Optimum organisational framework.

4.3 Training & Qualification

The persons involved in the IHM process should have appropriate training, qualifications, knowledge and experience to perform their respective duties.

An individual may obtain a 'personnel certification' for HM surveying from a Certification Body accredited in accordance with ISO 17024 or equivalent provided that the necessary training and experience are covered.

To become an IHM expert an individual should at least have training, on the following topics:

1. The SRR and the EU relevant legislation.
2. EMSA's best practice guidance on the development and maintenance of the IHM.

3. The basic principles of the HKC and the respective IMO guidelines particularly the 'guidelines for the development of the Inventory of Hazardous Materials[20]' in their up-to-date format.
4. Ship structure and equipment.
5. Properties of the HM mentioned in the Annex II of the SRR.
6. Requirements for the IHM preparation of New and Existing Ships.
7. Sampling Methodology.
8. How to prepare a risk assessment before conducting HM surveys/sampling on board ships
9. How to prepare a VSCP and a RCP.
10. HM survey on board a ship. Sampling on board ships, methods of sampling HM included in the Annex II of the SRR.
11. Health and Safety. Precautionary measures for safe sampling and use of personal protective equipment.
12. Reference standards for testing samples.
13. Calculation of the HM amounts based on the analysed results.
14. HM survey reports.
15. Preparation of an IHM in its standard format in accordance with the EMSA guidance and the IMO guidelines.

In addition, to become an IHM expert an individual should have experience on ship structure and on handling of HM and should be able to demonstrate supervised practical field experience.

The aforementioned training of individual IHM experts is without prejudice to any requirements set out in the EU legislation[21] or in any national legislation where he/she is based, for the employers to provide appropriate training for workers who are or likely to be, exposed to Hazardous Materials.

4.4 Supplier's Declaration of Conformity and Material Declarations.

Suppliers should identify and declare the presence of a HM included in the Annex II of the SRR if it exceeds the threshold value specified in Annex B of this guidance. However, this provision does not apply to chemicals which do not constitute a part of the finished product. Suppliers should provide their customers with *Supplier's Declarations of Conformity* and *Material Declarations* in any case even when no HM are contained above the applicable threshold values.

SDoC and MD should be prepared and signed in accordance with the IMO guidelines and they should be drawn in the format provided in the IMO guidelines. However, due regard should be given to include in the IMO/MD form a supplement with a reference to the presence (or absence) of the two additional HM (PFOS[22] and HBCDD) included only in Annexes I and II of the SRR. An example of the Supplement to the IMO form of Material Declaration is shown in ***Annex D*** of this guidance.

The supplier compiling the SDoC should establish a company policy and use a suitable quality management system for the management of the chemical substances in products which the supplier manufactures or sells.

4.5 Sampling and analysis

The overall objective of any sampling activity is to obtain a sample which can be used for the targeted purpose i.e. to identify the presence or absence of HM contained in the equipment, systems, and/or areas on board a ship by suitable and generally accepted methods such as laboratory analysis.

Sampling and analysis should comply with specific national legislation where it exists and with international standards. The whole process should be in accordance with the provisions of this guidance and the IMO guidelines.

Due diligence should be exercised when undertaking any work on sampling and analysis. The sampling activity involves certain risks to personnel involved or to other persons on board. Therefore, *sampling* should only be

[20] Resolution MEPC.269(68).
[21] i.e. Article 14 of the Directive 2009/148/EC 'on the protection of workers from the risks related to exposure to asbestos at work'.
[22] Not applicable for ships flying the flag of a third country.

undertaken by competent personnel i.e. IHM experts, with the proper use of suitable equipment. Furthermore, *analysis of the samples* should only be carried out by suitably accredited laboratories using qualified and trained personnel, suitable testing methods and the necessary equipment.

Sampling should be carried out in accordance with a pre-decided methodology and supported by an appropriate check plan.

4.5.1 Sampling methodology

Standard working procedures for sampling (sampling methodology) should be established and agreed upon before the start of the sampling campaign. The sampling methodology should include the following:

- ✓ Determine on a '***targeted'*** or '***random****'* sampling campaign or both. *Targeted sampling* should be applied where the presence of prohibited and restricted Hazardous Materials is assumed but cannot be recognized by analysis of the available documentation or visual checking. *Random sampling* may be applied where the presence of prohibited and restricted Hazardous Materials has been excluded by document analysis but either there are suspicions of existence of HM or there is a policy for performing random checks as a quality assurance procedure.

- ✓ ***Targeted sampling*** should take place during the preparation of the IHM of an existing ship in accordance with the relevant procedure of the IMO guidelines and should include any equipment, system and/or area which cannot be specified regarding the presence of HM[23] by document or visual analysis except those which shall be classed as '*Potentially Containing HM*' (PCHM).
  Random sampling may be used as a quality assurance process and may take place for new ships during the design and construction stage, on existing ships during the initial preparation of the IHM along with targeted sampling or on any ship after the initial preparation of the Inventory[24].

- ✓ Identity of the sampler/IHM expert.

- ✓ Preparation of a 'visual/sampling check plan' (VSCP) or of 'random checking plan' (RCP) as appropriate.

- ✓ The estimated number of samples to be taken, the types of samples to be chosen and a description of or reference to the sampling method. As a general rule, the samples should be representative of the materials being checked and in sufficient numbers. As guidance the rule of 10% may be established meaning that *roughly 10%* of the components of any system identified for a sampling check[25] should be sampled. However, taking of samples and the number of samples to be taken should always be determined according to the professional judgement of the entity carrying out the HM survey and proper/pragmatic ceilings in the number of samples should be established per each product or system. Materials of the same kind may be sampled in a representative manner.

- ✓ Selection of location (checkpoints), date of sample-taking and the overall duration of the sampling campaign. It should be noted that the sampling campaign may be adjusted and other sampling points may be identified during the survey according to the actual conditions on-board and in accordance with the professional judgement of the IHM expert.

- ✓ A risk assessment for the HM survey using all the information available before the sampling (MD, SDoC, certificates, plans, diagrams, manuals, other information etc). This assessment should determine the existing risks (e.g. chemical hazards, electrical hazards, working in closed spaces, at heights or on operable machinery, noise, disturbing sampling, necessary PPE, decontamination and disposal

[23] N.B.: Mostly HM referred to in Annex 1 of the SRR. For existing ships and 'ships going for recycling' the IHM should identify the HM included in the Annex 2 of the SRR as far as practicable.
[24] Either because there are suspicions of existence of non-recorded HM on board or in applying the 'precautionary principle'.
[25] Either according to a policy for performing random checking of materials on board ships or according to the results of a document or visual analysis specifying the presence of HM and providing for targeted sampling of any equipment, system or area which cannot be specified regarding the presence of HM except those which shall be classed as 'potentially containing HM'.

arrangements etc). The risk assessment should then identify the necessary precautions and safety procedures to be followed during the HM survey and sampling.

- ✓ Labelling which gives detailed information or a specific sample code that cannot be removed easily. The sampling position on board may also be labelled with the same identifier. Marked-up ship plans and photographic records should be kept showing the location and extent of the sample.

- ✓ Preservation of the integrity of samples during transport and storage (before analysis).

- ✓ Close cooperation between the sampler and the accredited laboratory and establishment of quality assurance and quality control (QA/QC) procedures (e.g. appropriate sampling containers, blank samples, blind Samples etc). It is essential to consult with the accredited laboratory before sampling to ensure that the measurement methods available can meet the defined sampling needs.

4.5.2 Visual/sampling check plan – Random checking plan

Before any visual/sampling check is conducted, a VSCP or a RCP should be prepared. The IMO guidelines provide an example for the development of a VSCP and a relevant check list which may be used[26]. Annex E.a of this guidance document provides an indicative example of a RCP/check list which may be used in case of random sampling. It should be noted that the sampling campaign may be adjusted further during the HM survey according to the actual conditions on-board and in accordance with the professional judgement of the IHM expert.

A. Random checking plan

If a decision is taken to conduct random sampling, the important element when preparing a RCP is that there should be no items categorized as 'unknown' in the column for the results of the document analysis. Therefore, the selection of any equipment, system and/or area for inclusion in the RCP and for sampling should be based on whether there are suspicions of non-credible documentation and/or on the experience of the IHM expert.

In this case, the selection should be done from the items identified by the document analysis as 'not contained'. A RCP may be used describing ***only*** the selected list of equipment, system and/or area for sampling check[27].

Compiling a RCP is not a prerequisite for conducting random sampling. However, it is recommended in order to support a more effective, rational and documented sampling campaign.

B. Visual and sampling check plan

The preparation of a VSCP for targeted sampling on an existing ship and on a ship flying the flag of a third country, when developing the IHM, is a legal requirement[28] and it should be done in accordance with the IMO guidelines. It should be based on three lists i.e. list of equipment, system and/or area for visual check, list of equipment, system and/or area for sampling check and the list of equipment, system and/or area classed as 'potentially containing hazardous material'. If random sampling is to be conducted along with targeted sampling the VSCP should reflect the items identified by the document analysis as 'not contained' (or PCHM) that may be checked by random sampling[29].

4.5.3 Laboratories

Laboratories should be accredited in accordance with ISO 17025 or an equivalent standard for the purpose of conducting specific tests for HMs included in the SRR. This includes applying procedures such as:

- ✓ Cleaned laboratory equipment, material, and chemicals to be used to avoid contamination.

[26] See Appendix 5 of the Resolution MEPC.269(68). See also Annex E.b of this guidance document for a practical indicative example of a VSCP.
[27] See Annex E.a for an example of a RCP/check list.
[28] See paragraph 4 of Article 5 and paragraph 3 of Article 12 of the SRR.
[29] See Annex E.b.

- ✓ Quality assurance and quality control procedures (e.g. a system ensuring that effectiveness of the measurements and procedures is continuously supervised through the analysis of procedural blank samples).

- ✓ Application of the analysis methods and, if applicable, combination of different specified methods according to HKC and this guidance document.

- ✓ Regular injection of solvent blanks and standard solutions.

- ✓ Tests to be carried out to evaluate the accuracy of the method, e.g. efficiency of the extraction methods, the recovery of the analytes, stability and loss of analytes in solution during storage, calibration using matrix matched standards or standard addition, and use of proper internal standards.

- ✓ Tests to be carried out to evaluate the precision (repeatability and reproducibility), the limits of detection (LODs) and quantification (LOQs), the robustness and the specificity of the whole method, from sampling to detection.

- ✓ Clearly defined criteria for identification and quantification need to be applied, and calibration curves to be used.

- ✓ Storage of analysed samples and data (including instrumental raw data) for a defined time of at least six months after analysis.

- ✓ Laboratory personnel should be trained on the analytical procedures and methodologies and also on quality assurance and quality control. Records of the training should be kept.

- ✓ Internal proficiency testing and evaluation of the personnel.

- ✓ The laboratory should be capable of providing a written report that can be relied upon by all parties. Essential prerequisites for obtaining high-quality results include specification of the analytical technique used, maintenance of the analytical equipment, validation of all methods used (including in-house methods) and proper training of laboratory staff.

4.5.4 Testing Methods

Samples may be tested by a variety of methods. Specific testing should be used in accordance with the IMO guidelines or any equivalent method which can demonstrate equivalent standards.

In ***Annex C*** of this guidance document some indicative specific test methods are provided on the two additional HM (PFOS and HBCDD) included only in Annexes I and II of the SRR.

4.5.5 Health & Safety

The sampling activity involves certain risks to personnel involved or to other persons on board. Therefore, all the work should be carried out according to the general safety procedures and those defined in the risk assessment. Entry of other people to any sampling area should be restricted or suitable warnings posted. Care should be taken to minimise disturbance to HM especially ACMs. Airborne emissions should normally be controlled by selection of appropriate tools for sampling, prewetting the material to be sampled with water and/or a suitable wetting agent.

All samples should be properly sealed, the sample area should be left clean and any sampling points should be sealed to prevent the release of HM (i.e. fibres). Various methods may be used to reseal the sampling point (e.g. tapes and fillers).

Sampling personnel should carry adequate PPE (e.g. glasses, coveralls, masks and gloves). Disposable coveralls, overshoes and gloves should be worn especially when there is a likelihood of asbestos contaminating the surveyor's clothing. The risk assessment should take into account the sampling conditions and determine if additional safety precautions and decontamination procedures will be needed.

5. Development and maintenance process of the IHM

The development procedure of the IHM Part I differs depending on whether the ship is a new or an existing one. The development procedure of the IHM Part II and Part III relates only to ships flying the flag of a Member State when going for recycling.

5.1 Development process of the IHM Part I for New Ships

Part I of the Inventory for new ships should be developed at the design and construction stage. Reference should be made to the relevant IMO guidelines which provide examples for the development process for Part I of the IHM for new ships[30]. The process should include three steps:

A. Collection of HM information

The shipbuilder is responsible for complying with the relevant international requirements on installing HM on board new-build ships. In this respect, the conformity of Part I of the Inventory at the design and construction stage should be ascertained by reference to the Supplier's Declaration of Conformity and the related Material Declarations collected from suppliers[31]. Therefore, the information provided by the suppliers should be adequate and to the satisfaction of the shipbuilder. MD and SDoC from suppliers should be requested and collected by the shipbuilder as it is described in the graph 2 diagram.

However, in practice, there were cases where random sampling checking proved that MDs were not accurate.

Therefore, the shipbuilder should establish a quality assurance policy for performing random checking of materials provided by the suppliers. This policy should take into account the type of the material, the location and the intended use on board the ship, the required life-time maintenance and the origin of the material. Additional information should also be taken into account e.g. historical data on products of a specific brand, information about HM on board sister ships already built etc.

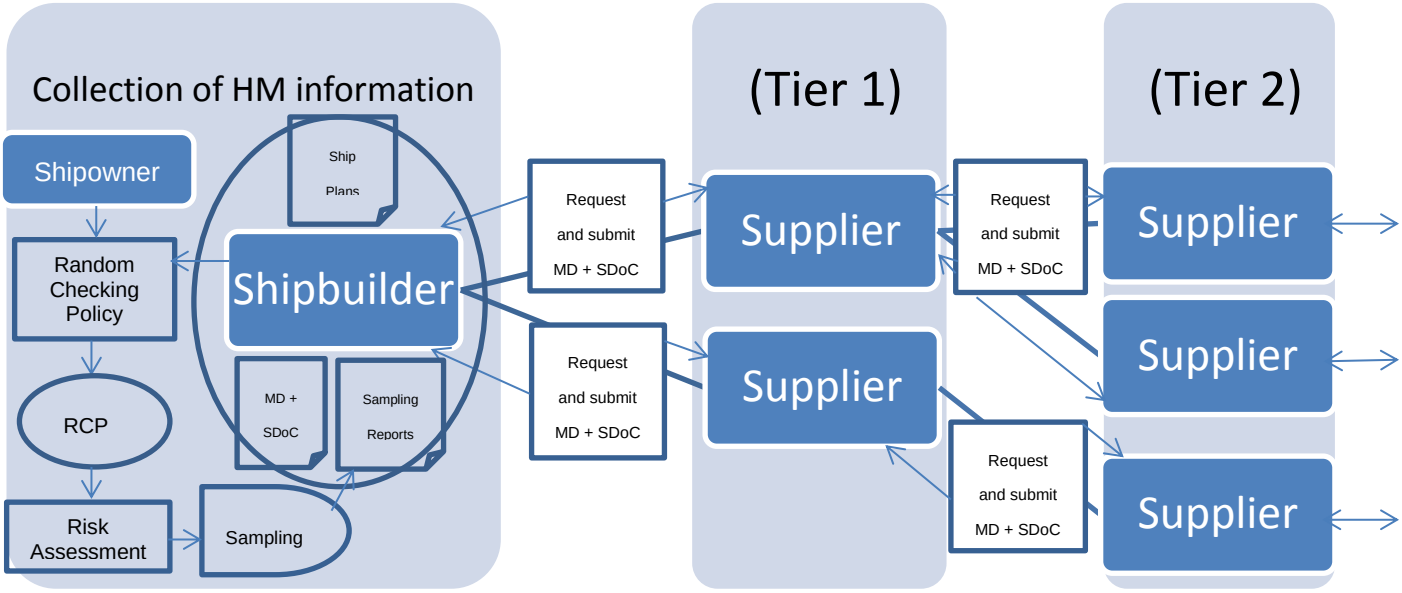
The checking of the materials may include visual checking and/or random samples which will be tested by indicative or field testing and/or random samples to be tested by specific testing. Random sampling may be carried out in accordance with a pre-decided sampling methodology as described in chapter 4.5.1 of this document.

The entity carrying out the HM survey and sampling should be an IHM expert as defined in this guidance document working under the conditions described in this guidance document.

The shipowner may also establish a policy for performing random checking of materials for new ships[32]. In this context, the same process as for carrying out random checking by the shipbuilder may be applied.

The collection of HM information during the development process of the IHM Part I for new ships may involve the entire shipbuilding supply chain as in the following graph:

[30] See Appendix 3 of the Resolution MEPC.269(68).
[31] As described in chapter 4.4 of this guidance document
[32] Before the delivery.



Graph 2 – collection of HM information.

B. Utilization of HM information

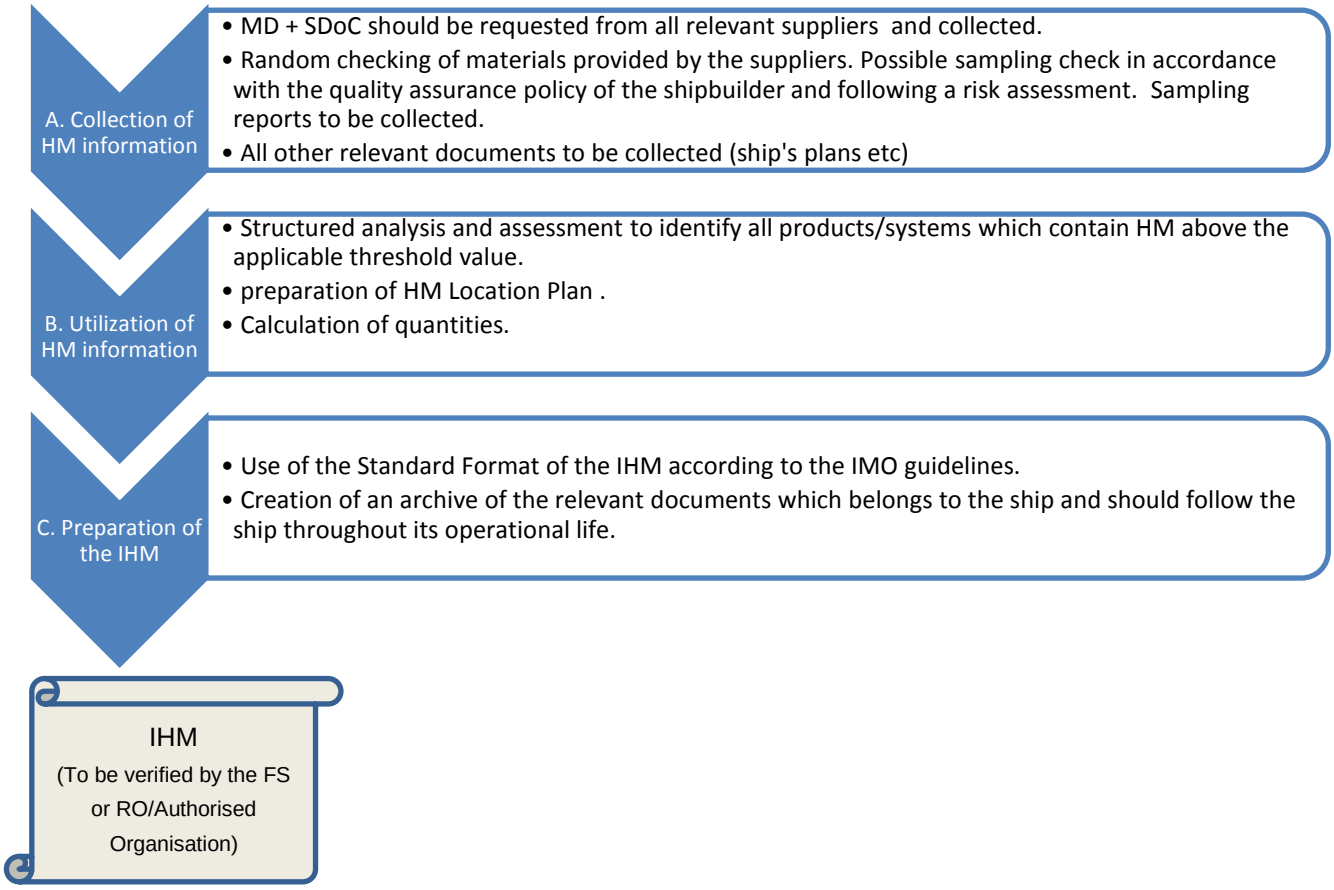
After the collection of all the HM information by the shipbuilder, there should be an assessment for identifying all products/systems which contain HM above the applicable threshold value[33]. Utilization of HM information should determine the location and calculate the quantities of the HM.

C. Preparation of the IHM

Finally, the IHM should be prepared by filling out the standard format set out in appendix 2 of the IMO guidelines[34]. The collected documents should be listed in an archive[35] which should follow the ship throughout its operational life.

The stages of the development process of the IHM Part I for new ships are described in the following graph:

[33] See for details chapter 3.2 of this guidance.
[34] See Chapter 3 of this guidance for the two additional HM (PFOS and HBCDD) and the reference to the SRR.
[35] It may be in electronic format.



Graph 3 – Development process of the IHM Part I for new ships.

5.2 Development process of the IHM Part I for Existing Ships

Part I of the Inventory for existing ships[36] should be developed by the shipowner. Reference should be made to the relevant IMO guidelines which provide examples for the development process for Part I of the IHM for existing ships[37]. The process should include five steps:

A. Collection of necessary information

It should be conducted in accordance with the IMO guidelines. The shipowner should make every possible effort to obtain all reasonably available documentation regarding the ship.

B. Assessment of collected information

The information collected should be assessed to cover all HM referred to in Annex I of the SRR[38]. HM included in the Annex II of the SRR should be assessed as far as practicable.

C. Preparation of visual/sampling check plan

A 'visual/sampling check plan' (VSCP) should be prepared in accordance with the IMO guidelines and the provisions of this guidance. Following the preparation of the VSCP a risk assessment should take place to determine the existing risks and to identify the necessary precautions and safety procedures to be followed during the HM survey and sampling[39].

[36] It covers also 'ships going for recycling' according to the second subparagraph of paragraph 2 of Article 5 of the SRR and ships flying the flag of a third country.
[37] See Appendices 4 and 5 of the Resolution MEPC.269(68). Due consideration should also be given to the relevant provisions of this guidance document.
[38] N.B.: PFOS is not applicable for ships flying the flag of a third country.
[39] See chapter 4.5.1 above.

D. On board visual/sampling check

Targeted sampling should be carried out in accordance with the IMO guidelines and with reference to a pre-decided sampling methodology as described in chapter 4.5.1 of this document.

Random sampling may also be carried out with reference to a pre-decided sampling methodology as described in chapter 4.5.1 of this document.

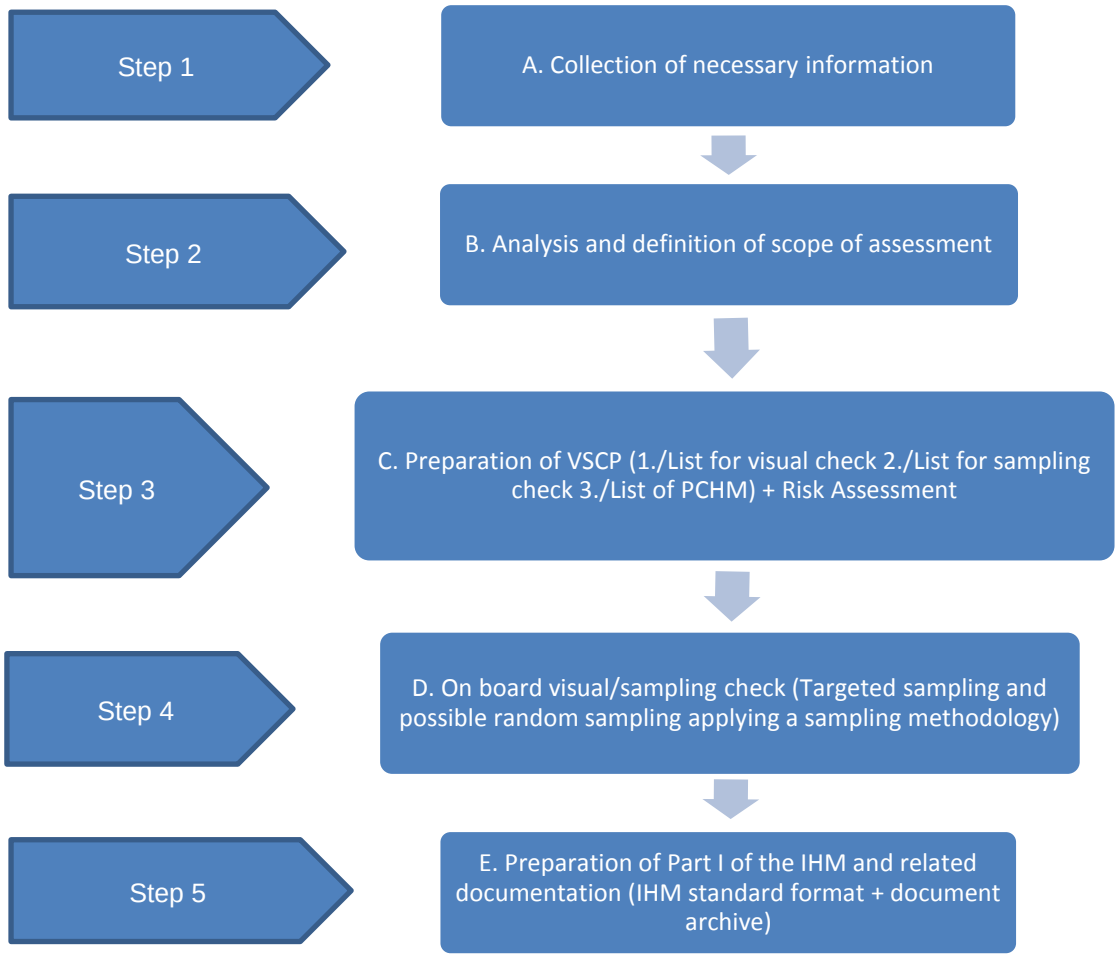
The entity carrying out the HM survey and sampling should be an IHM expert as defined in this guidance document working under the conditions described in this guidance document.

The shipowner may also establish a policy for performing random sampling of materials on board existing ships after the initial preparation of the Inventory (e.g. when purchasing a ship or after a repair or conversion of the ship). In this context, the same process as for carrying out random sampling on a new ship may be applied as far as practicable[40].

E. Preparation of Part I of the Inventory and related documentation

Finally, the IHM should be prepared by filling out the standard format set out in Appendix 2 of the IMO guidelines[41]. A diagram showing the location of the identified HMs should also be prepared. The collected documents should be listed in an archive which should follow the ship throughout its operational life[42].

The flow diagram for developing Part I of the IHM for existing ships is described in Appendix 4 of the IMO guidelines and should be consulted during the hereunder process for developing the IHM according to the EU SRR:



[40] See chapter 5.1A above.
[41] See Chapter 3 of this guidance for the two additional HM (PFOS and HBCDD) and the reference to the SRR.
[42] It may be in electronic format.

Graph 4 – Development process of the IHM Part I for existing ships.

5.3 Development process of the IHM Part II

Once the decision to recycle a ship flying the flag of a Member State 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 such a way as to minimise the amount of cargo residues, remaining fuel oil and ship generated waste remaining on board[43]. Due regard should be given to the provisions of the EU PRF Directive[44].

The IMO guidelines[45] provide a catalogue of potentially HM in table C of appendix 1 listing the materials either in Part II or in Part III of the Inventory.

The development of IHM Part II should be done in accordance with the IMO guidelines.

5.4 Development process of the IHM Part III

Once the decision to recycle a ship flying the flag of a Member State has been taken, Part III of the IHM should be developed before the final survey, taking into account the fact that a ship destined to be recycled shall minimise the wastes remaining on board.

The IMO guidelines provide a catalogue of potentially HM in table C of appendix 1 listing the materials either in Part II or in Part III of the Inventory.

The development of IHM Part III should be done in accordance with the IMO guidelines.

5.5 Life-cycle management

According to paragraph 6 of Article 5 of the SRR, Part I of the IHM of ships flying the flag of a Member State shall be properly maintained and updated throughout the operational life of the ship, reflecting new installations containing any HM referred to in Annex II of the Regulation and relevant changes in the structure and equipment of the ship.

According to paragraph 4 of Article 12 of the SRR, the IHM of ships flying the flag of a third country shall be properly maintained and updated throughout the operational life of the ship, reflecting new installations containing any hazardous materials referred to in Annex II of the Regulation and relevant changes in the structure and equipment of the ship, *taking into account the exemptions and transitional arrangements applicable to those materials under international law*.

Therefore, shipowners should establish the necessary procedures on board the ship and within their company to manage their long-term environmental responsibilities.

5.5.1 Procedure for the maintenance of Part I of the IHM

The shipowner is responsible for the maintenance of Part I of the IHM during the lifetime of the ship. Part I of the IHM 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.

In accordance with the IMO guidelines[46], shipowners should implement a series of measures to ensure the conformity of Part I of the Inventory. In this context, designating a person as responsible for maintaining and updating the Inventory is a crucial responsibility for the shipowner.

The main responsibility of the designated person is the maintenance and updating of the IHM in accordance with the IMO guidelines and this guidance. The duties of the designated person should be incorporated in the

[43] See paragraph 2(b) of Article 6 of the SRR.
[44] Directive 2000/59/EC on port reception facilities for ship-generated waste and cargo residues. OJ L 332, 28.12.2000, p. 81.
[45] Resolution MEPC.269(68).
[46] See Resolution MEPC.269(68), section 5.2.

shipowner's quality management system and should be clearly described in writing taking into account that keeping an updated IHM may be a simplified process but it might also become quite demanding e.g. if a major conversion or extensive repair works are undertaken[47].

It should be noted that the IHM should be updated according to the requirements for new ships as stipulated in the relevant provisions of the IMO guidelines and in chapter 5.1 of this guidance. The respective changes to the IHM should be made accordingly and all the relevant documentation (e.g. MD and SDoC in case of machinery or equipment is added or sampling reports in case of random sampling) should be collected and maintained in the ship's archive[48].

5.5.2 Lifetime quality management

Ships are high value assets of high mobility being capable of being transferred from one owner to another or from one registry to another very easily and quickly. It is standard international practice and a provision of IMO international instruments that the relevant certificates cease to be valid upon transfer of the ship to the flag of another State.

However, the IHM must be properly maintained and updated throughout the operational life of the ship and it will supplement any 'Inventory Certificate' or 'Statement of Compliance' issued by any Member State or third country (or by a RO or an authorised organisation respectively).

Therefore, it is particularly important that the continuity of the IHM is maintained if the flag, owner or operator of the ship changes. It is equally important that the quality of the IHM is secured and maintained throughout the operational life of the ship in order to remain a credible document when the decision to recycle a ship is taken.

In this respect, a lifetime quality management system should be established by the shipowners and should include specific provisions to safeguard the quality and continuity of the IHM when building, buying or selling a ship or changing ship's registry or ship's IHM designated person.

Moreover, the quality management system should identify the procedures to safeguard the proper updating of the IHM during scheduled or unscheduled works involving changes, replacements or repairs to the structure, equipment, systems, fittings, arrangements and material, which has an impact on the Inventory.

Proper maintenance of an archive of all the associated documentation should also be included in the lifetime quality management system of the shipowner and it should ensure that new installations of equipment, repairs and refittings are accompanied by a MD and the SDoC, as provided by the suppliers of parts and equipment delivered.

As part of the lifetime quality management system, there may be a random sampling policy for new or existing ships and there should be assurances that the IHM development and maintenance shall be undertaken by competent entities (i.e. IHM experts) in accordance with recommended guidance (i.e. the EMSA's best practice guidance document and the relevant IMO guidelines).

A software tool may be used to support the IHM development and maintenance process and the management of all the relevant documents, information and data.

6. Survey and Certification

All ships flying the flag of a Member State shall be subject to a survey regime in accordance with Article 8 of the Regulation[49]. They shall carry on board a ship-specific '*Inventory Certificate*' issued by the administration or a RO[50] authorised by it and supplemented by Part I of the IHM. Surveys shall be carried out by officers of the administration, or of the RO, taking into account the relevant IMO guidelines[51].

[47] Particularly in such cases the designated person (regardless if he/she is a crew member, employee of the shipping company or external contractor) may well be an individual IHM expert as defined in this guidance document.
[48] See chapter 5.1C and 5.2E above.
[49] See **Annex A** for the timeline of the application of the Regulation for EU ships.
[50] RO means an organisation recognised in accordance with Regulation (EC) No 391/2009 of the European Parliament and of the Council.
[51] Resolution MEPC.222(64) "2012 Guidelines for the survey and certification of ships under the HKC"

These ships shall be subject to the following surveys:

(a) an initial survey;

(b) a renewal survey;

(c) an additional survey;

(d) a final survey.

Initial and *renewal* surveys must verify that the IHM Part I complies with the requirements of the Regulation. *Additional* surveys must ensure that any change, replacement, or significant repair of the structure, equipment, systems, fittings, arrangements and material, which has an impact on the IHM, has been made in a manner that ensures that the ship continues to comply with the requirements of the Regulation, and that Part I of the IHM is amended as necessary. *Final* surveys must verify that the IHM (Parts I, II and III) and the ship recycling plan comply with the requirements of the Regulation and that the ship recycling facility where the ship is to be recycled is included in the European List.

The administrations or the ROs should monitor the whole IHM process as close as possible and should ensure the proper implementation of the overarching principles of independence, quality and accountability.

All ships flying the flag of a third country, when calling at a port or anchorage of a Member State, shall carry on board a ship-specific '*statement of compliance*' issued by the relevant authorities of the third country whose flag the ship is flying or an organisation authorised by them and supplemented by Part I of the IHM[52].

The SoC shall be issued after verification of the IHM by the relevant authorities of the third country whose flag the ship is flying or an organisation authorised by them, in accordance with the national requirements.

For all ships flying either a flag of a Member State or a flag of a third country, particular attention should be given when verifying the IHM *during an initial inspection or before the issuance of the SoC respectively*, to the address the requirements of the SRR.

The following table summarizes the *minimum*[53] initial control *and respective inclusion in the IHM* of the two additional HM on board ships either flying the flag of a Member State or a flag of a third country:

HM	EU SRR			IMO HKC
	Control measures			Control measures
	EU ships		Non-EU ships	
	New ships*	Existing ships*		
PFOS	✓	✓	-	-
HBCDD	✓	-	-**	-

* After the initial preparation of the IHM, it shall be properly maintained and updated reflecting new installations containing HM referred to in **Annex II** of the SRR (meaning that thereafter all the HM included in Annex I and Annex II of the SRR should be included in the IHM).

[52] See **Annex A** for the timeline of the application of the Regulation for non-EU ships.
[53] N.B.: For existing and non-EU ships **HM included only in Annex II** of the SRR should be identified in the IHM **as far as practicable**.

** After the initial preparation of the IHM, it shall be properly maintained and updated reflecting new installations containing HM referred to in **Annex II** of the SRR taking into account the exemptions and transitional arrangements applicable to those materials under international law.

Table A – EU SRR additional requirements for IHM initial verification.

7. Enforcement

The Regulation provides for the control of ships flying the flag of a Member State and ships flying the flag of a third country when calling at a port or anchorage of a Member State.

Reference can be made to ***Annex A*** for the timeline of the application of the Regulation as regards the application of port State control provisions[54]. It should be noted that for existing ships, an IHM should be on board after 31/12/2020[55]. For ships flying the flag of a third country, an IHM should also be on board after 31/12/2020[56]. Therefore, for existing ships and for ships flying the flag of a third country, an IC or a SoC respectively may not be controlled before 31/12/2020.

7.1 Port State Control in accordance with Directive 2009/16/EC

The Annex IV of Directive 2009/16/EC has been amended to include in the list of certificates and documents to be checked during a port State control inspection a 'certificate on the inventory of hazardous materials' or a 'statement of compliance' as applicable pursuant to the SRR. Therefore, any *port State control inspection in accordance with the Directive 2009/16/EC* either on board a ship flying the flag of a Member State or on a ship flying the flag of a third country shall include a verification of the IC or SoC respectively.

Any such inspection **should be limited to checking that either an IC[57] or a SoC is kept on board**, which, *if valid*, shall be considered sufficient for the inspection to be approved.

In applying port State control provisions, if no certificate[58] or if an invalid certificate is found on board, or any other clear ground revealed, then a PSCO should either undertake a detailed inspection in accordance with the SRR[59] or he/she should ask the relevant authority of the Member State to carry out a detailed inspection in accordance with the SRR, as appropriate.

An '*invalid certificate'* is a document issued not in accordance with the provisions of the SRR (e.g. issued from a non-competent organisation, no IHM provided, IHM has not been verified as appropriate, IHM does not include all HM as referred to in the SRR etc).

7.2 Port State Control in accordance with the SRR

Port State control in accordance with the Directive 2009/16/EC should not be confused with the application of *port State control, in accordance with the provisions of the SRR*[60], i.e. the capability of a Member State to ask for respective documentation and, if appropriate, **perform detailed inspections** on board a foreign flagged ship to verify compliance with the SRR as applicable.

In this regard, a Member State as a port State may apply control provisions for foreign flagged ships when calling at a port or anchorage of that Member State. The control provisions should either be limited to checking the relevant documents on board or may be expanded to performing detailed inspections foreseen by the SRR. The detailed inspections are triggered either by 'missing certificate' or 'invalid certificate' or by 'clear grounds' taking into account the relevant IMO guidelines[61].

[54] Either in accordance with the Directive 2009/16/EC or in accordance with the SRR (Regulation (EU) 1257/2013). See chapter 7.1 and 7.2 respectively.
[55] See Article 5.2 and Article 32.2(b) of the SRR.
[56] See Article 12.1 and Article 32.2(b) of the SRR.
[57] Or a 'ready for recycling certificate', as applicable, for EU ships.
[58] i.e. IC, SoC or RfRC as appropriate. RfRC is included in accordance with Article 11.1 of the SRR.
[59] Provided he/she is authorised to do so. **This procedure should not fall within the scope of the port State control Directive**.
[60] Although may be exercised by the same personnel.
[61] Resolution MEPC.223(64) "2012 Guidelines for the inspection of ships under the HKC"

An *invalid certificate* is a document issued not in accordance with the provisions of the SRR (e.g. issued from a non-competent organisation, no IHM provided, IHM has not been verified as appropriate, IHM does not include all HM as referred to in the SRR etc).

The SRR and the IMO guidelines provide a non-exhaustive list of '*clear grounds*' to trigger a detailed inspection.

When checking the relevant document on board, particular attention should be given to the proper development and maintenance of the IHM.

Annex B of this guidance provides the list of the HM to be identified in an IHM developed in accordance with the SRR. If the threshold value used for reporting a specific HM exceeds the respective applicable threshold value, that does not necessarily mean that this HM is contained in the ship's systems and equipment (where in the respective column there is a 'not contained' entry). However, it may trigger a detailed inspection to verify that the IHM fully complies with the EU legislative requirements. In this case, the control officer may ask for additional assurances of the proper completion of the IHM (e.g. MD and SDoC or sampling reports specifying the presence or not of the HM).

If a ship cannot provide evidence of compliance to the satisfaction of the control officer, control measures may be taken in accordance with each Member State's national control and inspection system (i.e. consult the flag State, ask for proper correction of the IHM e.g. change the relevant entries to specify either 'contained' or 'Potentially Containing Hazardous Materials' etc).

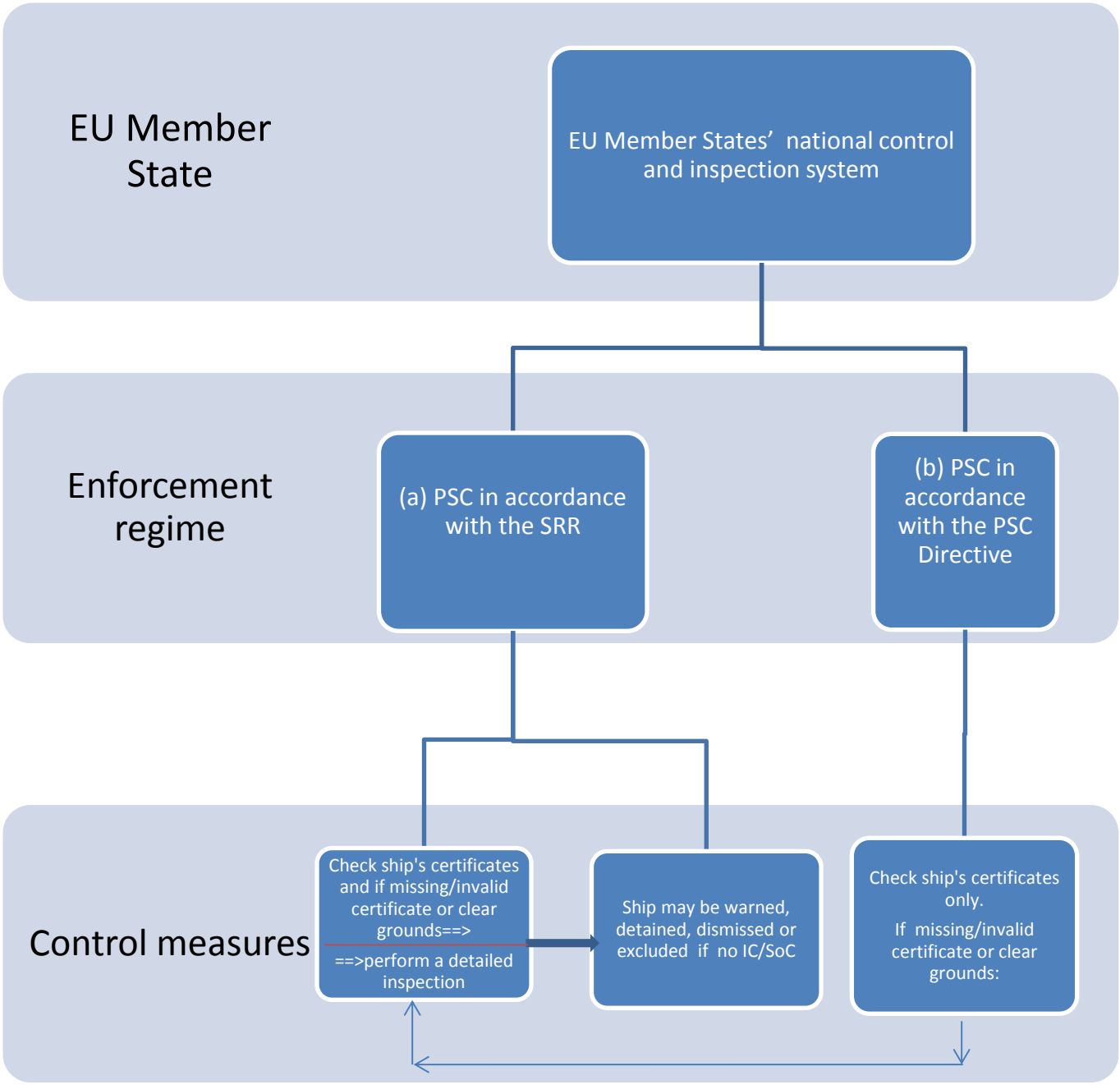
A ship may be *warned*, *detained*, *dismissed* or *excluded* from the ports or offshore terminals under the jurisdiction of a Member State in the event that it fails to submit to the relevant authorities of that Member State a copy of the relevant certificate[62] as appropriate and on request of those authorities.

A Member State taking such action shall immediately inform the administration of another Member State or the relevant authorities of the third country concerned. Failure to update the IHM should not constitute a detainable deficiency, but any inconsistencies in the IHM should be reported to the administration[63] or the relevant authority concerned.

Access to a specific port or anchorage may be permitted by the relevant authority of a Member State in the event of *force majeure* or *overriding safety considerations*, or to *reduce or minimise the risk of pollution* or to *have deficiencies rectified*, provided that adequate measures to the satisfaction of the relevant authority of that Member State have been implemented by the owner, the operator or the master of the ship to ensure safe entry.

The following flow diagram describes the enforcement regime established by the SRR as regards the development and maintenance of the IHM on board ships:

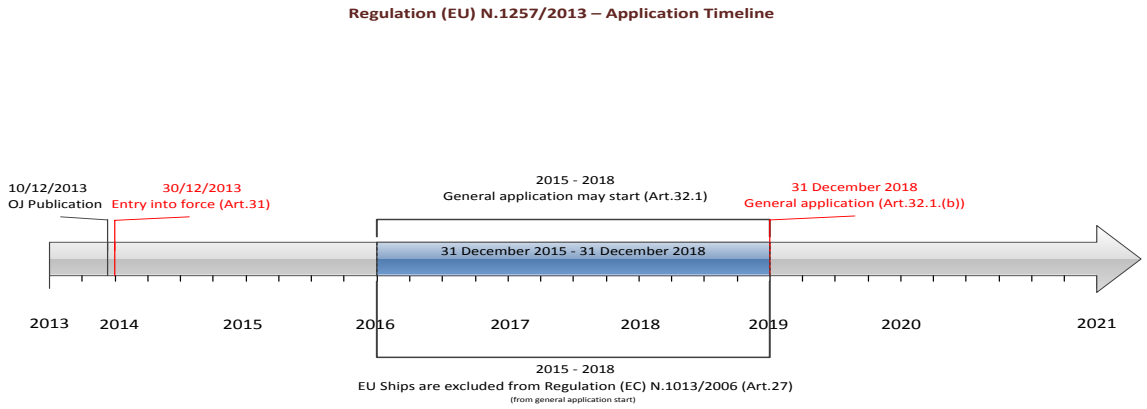
[62] i.e. IC, RfRC or SoC.
[63] In this case, the inconsistencies should be rectified at the time of the next survey.



Graph 5 – Enforcement mechanism

Annex A

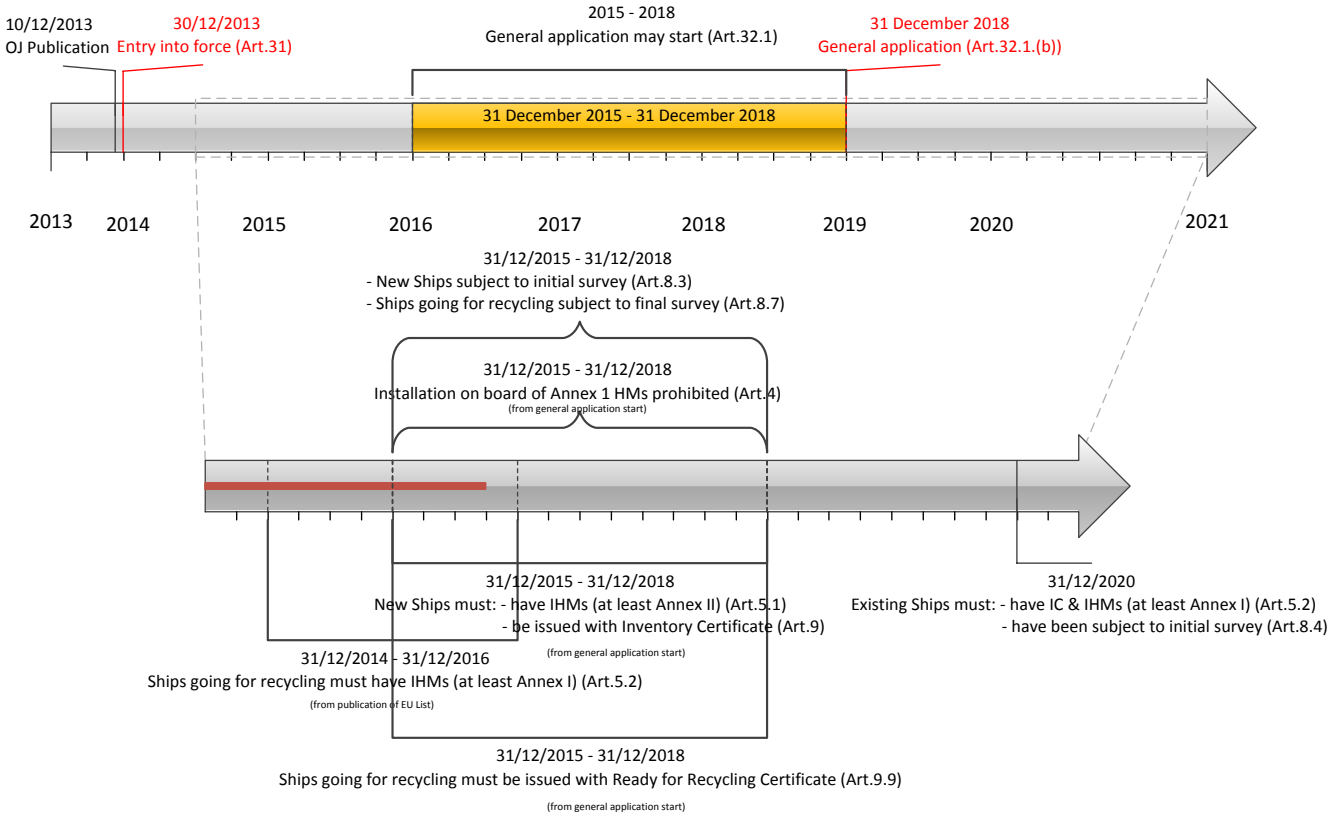
TIMELINE OF THE APPLICATION OF THE REGULATION



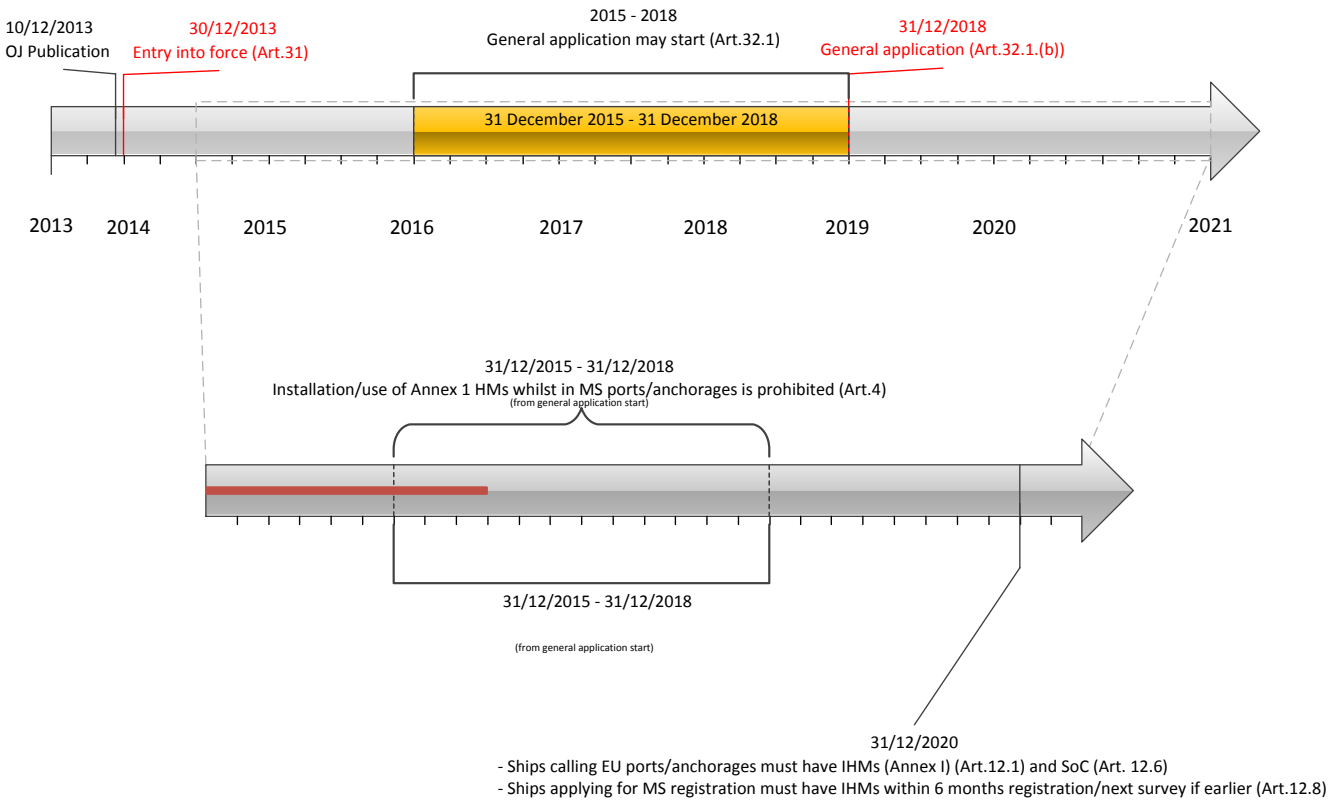
General application starts the earlier date of (not before 31/12/2015) (Art.32.1):

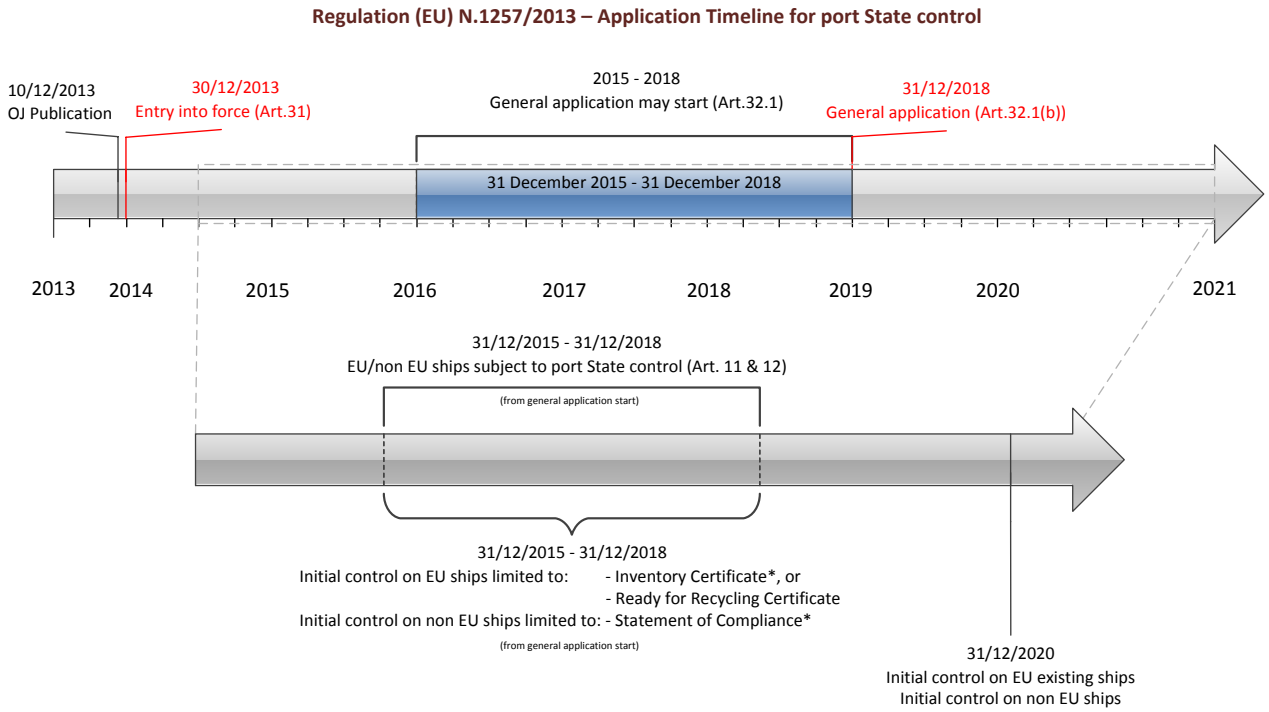
- 6 months after the combined output of the EU List SRFs is 2,5 million LDTs, or
- 31/12/2018

Regulation (EU) N.1257/2013 – Application Timeline for EU flagged Ships



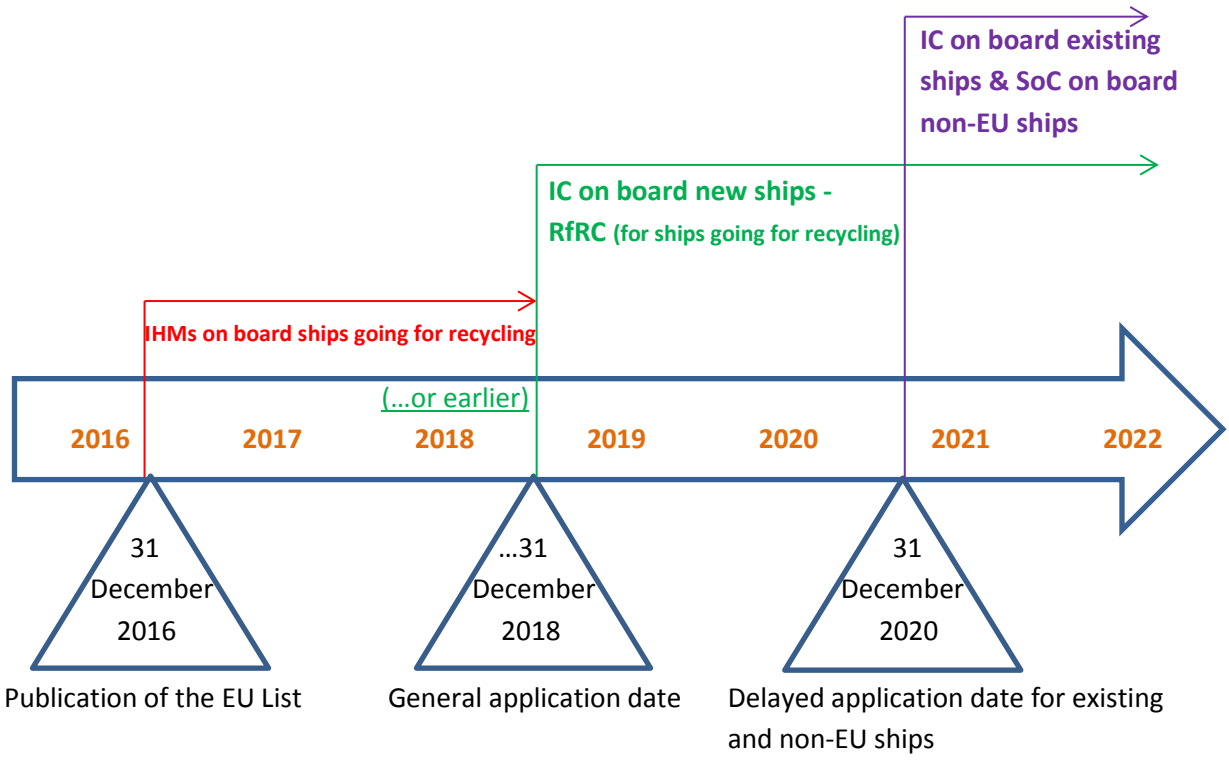
Regulation (EU) N.1257/2013 – Application Timeline for non-EU flagged Ships





*N.B.: For existing EU ships an IHM should be issued after 31/12/2020 (Art.5.2 & Art.32.2(b)). For non-EU ships an IHM should also be issued after 31/12/2020 (Art.12.1 & Art.32.2(b)). Therefore, for all these ships an IC or a SoC respectively may not be controlled before 31/12/2020.

MILESTONES FOR THE APPLICATION OF THE SRR IN RELATION TO THE IHM



Annex B

Materials to be listed in the IHM Part I

The following threshold values of reporting HM in the IHM should apply taking into account the IMO guidelines and the referenced EU legislation:

Hazardous Material	Threshold value	Referenced EU Legislation*
Asbestos[64]	0.1%	SRR/Annex I, Regulation (EC) 1907/2006 "Registration, Evaluation, Authorisation and Restriction of Chemicals" (REACH), Council Directive 76/769/EEC "on the approximation of the laws, regulations and administrative provisions of the MS relating to restrictions on the marketing and use of certain dangerous substances and preparations[65]", Directive 2009/148/EC "on the protection of workers from the risks related to exposure to asbestos at work[66]".
Ozone Depleting Substances[67] (ODS)	No threshold value	SRR/Annex I. Regulation No 1005/2009 on substances that deplete the ozone layer[68].
Polychlorinated biphenyls (PCB)	50 mg/kg	SRR/Annex I, Regulation (EC) 850/2004 "on persistent organic pollutants[69]".
Perfluorooctane sulfonic acid[70] (PFOS) and its derivatives (CAS No: 1763-23-1) $C_8F_{17}SO_2X$ (X = OH, Metal salt (O-M +), halide, amide, and other derivatives including polymers)	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	SRR/Annex I, Regulation (EC) 850/2004 "on persistent organic pollutants", Directive 2006/122/EC "relating to restrictions on the marketing and use of certain dangerous substances and preparations (perfluorooctane sulfonates)[71]".

* N.B.: The referenced legislation is an indicative list of EU legal instruments not necessarily applicable on ships.
[64] N.B.: The IMO guidelines (Resolution MEPC.269(68)) provide the following in a footnote : "In accordance with regulation 4 of the Convention, for all ships, new installation of materials which contain asbestos shall be prohibited. According to the UN 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"
[65] OJ L 262, 27-9-1976, p. 201.
[66] OJ L 330, 16-12-2009, p.28.
[67] According to the HKC new installations containing hydrochlorofluorocarbons (HCFCs) are permitted until 1 January 2020. However, this provision has not been incorporated in the SRR.
[68] OJ L 286, 31-10-2009, p.1.
[69] OJ L 158, 30-4-2004, p. 7.
[70] **Not applicable for ships flying the flag of a third country**.
[71] OJ L 372, 27-12-2006, p.32.

Examples of PFOS derivatives: Potassium perfluorooctane sulfonate (CAS no. 2795-39-3); lithium perfluorooctane sulfonate (CAS no. 29457-72-5); Ammonium perfluorooctanesulfonate (CAS no. 29081-56-9); diethanolammonium perfluorooctane sulfonate (CAS no. 70225-14-8); tetraethylammonium perfluorooctane sulfonate (CAS no. 56773-42-3); didecyldimethylammonium perfluorooctane sulfonate (CAS no. 251099-16-8).	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.	
Anti-fouling compounds and systems	2,500 mg total tin/kg	SRR/Annex I, Regulation (EC) 782/2003 "on the prohibition of Organotin Compounds on ships[72]", Council Directive 76/769/EEC "on the approximation of the laws, regulations and administrative provisions of the MS relating to restrictions on the marketing and use of certain dangerous substances and preparations[73]".
Cadmium and Cadmium Compounds	100 mg/kg	SRR/Annex II, RoHS Directive 2011/65/EU "on the restriction of the use of certain hazardous substances in electrical and electronic equipment[74]", Regulation (EC) 1907/2006 "Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)".
Hexavalent Chromium and Hexavalent Chromium Compounds	1,000 mg/kg	SRR/Annex II, RoHS Directive 2011/65/EU "on the restriction of the use of certain hazardous substances in electrical and electronic equipment, Regulation (EC) 1907/2006 "Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)".
Lead and Lead Compounds	1,000 mg/kg	SRR/Annex II, RoHS Directive 2011/65/EU "on the restriction of the use of certain hazardous substances in electrical and electronic equipment, Regulation (EC) 1907/2006 "Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)".
Mercury and Mercury Compounds	1,000 mg/kg	SRR/Annex II, RoHS Directive 2011/65/EU "on the restriction of the use of certain hazardous substances in electrical and electronic equipment, Regulation (EC) 1907/2006 "Registration, Evaluation, Authorisation and Restriction of

[72] OJ L 115, 9-5-2003, p.1.
[73] OJ L 262, 27-9-1976, p. 201.
[74] OJ L 174, 1-7-2011, p.88.

		Chemicals (REACH)".
Polybrominated Biphenyl (PBBs)	50 mg/kg	SRR/Annex II, Regulation (EC) 1907/2006 "Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)",
Polybrominated Diphenyl Ethers (PBDEs)	1,000 mg/kg	SRR/Annex II, RoHS Directive 2011/65/EU "on the restriction of the use of certain hazardous substances in electrical and electronic equipment".
Polychlorinated Naphthalenes (more than 3 chlorine atoms)	50 mg/kg	SRR/Annex II, Regulation (EC) 850/2004 "on persistent organic pollutants".
Radioactive Substances	No threshold value	SRR/Annex II, Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation[75].
Certain Shortchain Chlorinated Paraffins (Alkanes, C10-C13, chloro)	1%	SRR/Annex II, Regulation (EC) 1907/2006 "Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)", Regulation 519/2012, Regulation (EC) 850/2004 "on persistent organic pollutants".
Brominated Flame Retardant (HBCDD) EC No: 221-695-9, 247-148-4, CAS No: 3194-55-6 25637-99-4, alpha-hexabromocyclododecane CAS No: 134237-50-6, beta-hexabromocyclododecane CAS No: 134237-51-7, gamma-hexabromocyclododecane CAS No: 134237-52-8.	100 mg/Kg (0.01%)**	SRR/Annex II, Regulation (EC) 850/2004 "on persistent organic pollutants"[76], Regulation (EC) 1907/2006 "Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)", Directive 2011/65/EU "on the restriction of the use of certain hazardous substances in electrical and electronic equipment".

[75] OJ L 159, 29-6-1996, p.1.
** See below Annex C.b.3.
[76] OJ L 55, 02-03-2016, p.7.

Annex C

PFOS and HBCDD

a. Perfluorooctane sulfonic acid (PFOS)

PFOS has been used in a variety of industrial applications and consumer products since the 1950s, mainly due to its capability to create special surface properties. Applications range from textile and paper treatment and a variety of other areas within the coating industries, to chromium plating, hydraulic fluids (for aviation) and firefighting foam.

C.a.1 PFOS properties

PFOS can be formed by degradation from a large group of related substances, referred to as PFOS related substances, and is a member of a larger family of perflouroalkyl sulfonate (PFAS). In May 2009 PFOS was added to the Annex B of the Stockholm Convention and classified as a Persistent Organic Pollutant (POP).

PFOS is chronically toxic, injurious to reproduction, carcinogenic, toxic to aquatic organisms and widely distributed in the global environment. In the marine industry, it can be found in fire-fighting foams on vessels carrying inflammable fluids and those with helicopter decks, rubber and plastic materials (i.e.: cable sheaths, PVC flooring, gaskets and seals) and coatings (i.e.: paint).

C.a.2 Application on ships

The main application on board ships is considered to be firefighting foams of the type AFFF (Aqueous Film Forming Foams). PFOS-containing AFFF could be applied on board a range of ship types, but the larger volumes are usually installed on vessels carrying inflammable fluids, and on vessels with helicopter deck. Volumes normally range from some 100 litres to 10,000 litres, depending on the type and size of the vessel. The foam is typically stored in one tank serving a main system, potentially with additional smaller and separate devices (for example 20 litres), usually in the machinery room(s). Concentration of PFOS normally lay within 0.017-0.037 kg/litre foam.

A list of possible PFOS uses and those of related chemicals is given in Annex 1-A of the Draft Guidance on Sampling, Screening and Analysis of Persistent Organic Pollutants in Products and Articles (Secretariat of the Stockholm Convention 2013).

An indicative list of materials and components that may contain PFOS is the following:

- 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.

C.a.3 PFOS control

In accordance with Article 3 of the Regulation (EC) 850/2004 “on persistent organic pollutants ” the production, placing on the market and use of substances listed in Annex I of this Regulation, whether on their own, in preparations or as constituents of articles, shall be prohibited.

However, Article 3 shall not apply in the case of a substance occurring as an unintentional trace contaminant in substances, preparations or articles . In this case, in accordance with Annex I of the Regulation (EC) 850/2004, this exemption shall apply to concentrations of PFOS equal to or below 10 mg/kg (0,001% by weight) when it occurs in substances or in preparations. Furthermore, the exemption shall apply to concentrations of PFOS in semi-finished products or articles, or parts thereof, if the concentration of PFOS is lower 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 lower than 1 µg/m² of the coated material.

Use of articles already in use in the Union before 25 August 2010 containing PFOS as a constituent of such articles shall be allowed.

C.a.4 Sampling and analysis of PFOS

Once standards are adopted by the European Committee for Standardisation (CEN) they should be used as the analytical test methods for demonstrating the conformity of substances, preparations and articles to the requirements set out in the Regulation (EC) 850/2004. Any other analytical method for which the user can prove equivalent performance could be used as an alternative to the CEN standards.

Reference should be made to the Draft Guidance on Sampling, Screening and Analysis of Persistent Organic Pollutants in Products and Articles[77].

- ✓ Sampling

A sampling protocol should be used and should contain the type of sample, the location of sampling and any relevant information on the sample.

The sample should be wrapped in aluminium foil and transferred into a vessel or container (e.g.: glass or another inert material) with a cap or screw top. The vessel should be labelled (readable, persistent against solvents and water, with unique information e.g.: code related to sampling protocol, if the sample represents any hazard this should be noted and the sample labelled respectively). The collected samples should be stored adequately (e.g. appropriate temperature; possibly exclusion of light).

Specific care should be given to cross contamination of the samples during the sampling process or in the laboratory.

- ✓ Analysis

Analytical standard methods for quantification of PFOS are under development, and very few technical standards have been defined. Due to their relative low volatility, good solubility in water and lack of chromospheres the analysis of perfluorinated alkyl substances is a challenging task. When using the different available analytical methods for PFOS and its related substances caution should be given to follow the measures needed to assure that they provide reliable results.

Several methods may be utilized for example EPA 3550C:2007, EPA 3540C:1996, EPA 8321B:2007, ISO 25101-2009 often combined with laboratory in-house procedures.

The NPR-CEN/TS 15968 is a ‘standard’ for the determination of the extractable content of PFOS in solid items (e.g. textiles, leather, paper) and in chemical products (AFFF, cleaning agents, etc.) within the scope of supporting the Regulation (EC) 850/2004 on persistent organic pollutants (POP). A method has been developed here for “Determination of extractable perfluorooctanesulphonate (PFOS) in coated and impregnated solid articles, liquids and firefighting foams - Method for sampling, extraction and analysis by LCqMS or LC-tandem/MS”.

The method is currently a technical specification (TS) meaning it is not fully validated. In addition, it only addresses the extractable PFOS and a few PFOS precursor. The method does not address the chemically bound PFOS related substances and also does not describe a holistic analysis of PFOS related substances. It is applicable to concentrations of PFOS in the extract solution in the range between 0.5 µg/L and 50 µg/L.

An analytical detection method for PFOS is currently Liquid Chromatography Mass-Spectrometer[78] (LC-MS or LC-MS/MS) for the anionic compounds (including PFOS), whereas both LC-MS(MS) and Gas Chromatography Mass Spectrometry (GC-MS) can be used for the determination of the neutral per- and poly-fluorinated alkylated substances including several precursors of PFOS.

[77] “Draft guidance on Sampling, Screening and Analysis of Persistent Organic Pollutants in Products and Articles Relevant to the substances listed in Annexes A, B and C to the Stockholm Convention on Persistent Organic Pollutants in 2009 and 2011” (Secretariat of the Stockholm Convention 2013).
[78] Reportedly, detection of organic compounds can be at ultra-low levels up to 1 ppm.

b. Brominated Flame Retardant (HBCDD)

HBCDD is used as flame retardant additive, providing fire protection during the service life of vehicles, buildings or articles, as well as protection while stored. The main uses of HBCD globally are in expanded (EPS) and extruded (XPS) polystyrene foam insulation while the use in textile applications and electric and electronic appliances is smaller.

C.b.1 HBCDD properties

HBCDD is very toxic to aquatic organisms, persistent and may cause long-term adverse effects in the aquatic environment. HBCDD is a persistent, bioaccumulative and toxic (PBT) substance and has potential for long-range transport.

Extended Polystyrene (EPS) and Extruded Polystyrene (XPS) were the major uses of HBCD in the world market. Only *flame retarded* EPS contains HBCD. The use of HBCD in XPS and EPS depends on the application and on the region. E.g[79].: in Western Europe approximately 70 % of the EPS is flame retarded while in East Europe about 99%.

C.b.2 Application on ships

In the maritime industry, HBCDD can be found in expanded polystyrene (EPS) used for cryogenic insulation, such as for liquefied gas tanks (LGT), refrigerated areas, thermal insulation boards (i.e.: foam materials), rubber and plastic materials (i.e.: cable sheaths, PVC flooring, gaskets, seals) and coatings (i.e.: paint).

The main application of HBCDD on board ships is considered to be expanded polystyrene (EPS) used for cryogenic insulation, such as for liquefied gas tanks (LGT), but also for refrigerator areas and similar. On larger LGT carriers, volumes of EPS insulation could potentially range up to several thousand cubic metres, depending on type and size of the vessel.

An indicative list of materials and components that may contain HBCDD is the following:

- 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.

C.b.3 HBCDD control

In accordance with Article 56 and Annex XIV of the Regulation[80] (EC) 1907/2006 HBCDD had a sunset date[81] on 21/08/2015. In addition, in May 2013, the Conference of the Parties amended the Stockholm Convention on persistent organic pollutants (POPs) to add HBCDD to Annex A of the convention.

An overview on derivation of International occupational exposure limits (OELs) is provided by the European Agency for Health and Safety at work (EU-OSHA website). No OEL has been derived by the European Scientific Committee on Occupational Exposure Limits (SCOEL). No OELs and threshold limit values (TLVs) of HBCDD are given at the International Chemical Safety Card -ICSC database, which was prepared in the context of cooperation between the International Programme on Chemical Safety and the European Commission.

[79] See the draft (2015) guidance for the inventory, identification and substitution of Hexabromocyclododecane (HBCD) (Secretariat of the Stockholm Convention 2013).
[80] Regulation (EC) 1907/2006 "concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC" as amended. (OJ L 396, 30.12.2006, p. 1).
[81] As referred to in Article 58(1)(c)(i) of the REACH Regulation. In accordance with Article 58(1)(c)(i) placing on the market and the use of the substance shall be prohibited unless an authorisation is granted.

In accordance with the POP Regulation[82], Article 4(1)(b) of this Regulation (exemptions from control measures) shall apply to concentrations of hexabromocyclododecane equal to or below 100 mg/kg (0,01 % by weight) when it occurs in substances, preparations, articles or as constituents of the flame-retarded parts of articles, subject to review by the Commission by 22 March 2019.

C.b.4 Sampling and analysis of HBCDD

HBCDD has been the only flame retardant used in EPS and XPS until recently. Therefore, all EPS and XPS tested bromine positive which have been produced before 2014 contain most likely HBCDD.

- ✓ Sampling

A sampling protocol should be used and should contain the type of sample, the location of sampling and any relevant information on the sample.

The screening of bromine can be a simple, rapid and cost-effective method for pre-selection steps of samples to determine which samples to select for a more complex and expensive confirmation analysis.

Since HBCDD has been the only flame retardant used in EPS and XPS until recently, all EPS and XPS tested bromine positive which have been produced before 2014 contain most likely HBCDD. Therefore, bromine screening can be used for a screening of HBCDD in EPS and XPS. In textiles also PBDE and other brominated flame retardants are used in addition to HBCDD. Therefore, for textiles bromine positive samples need a further confirmation analysis to determine the used flame retardant. Since also PBDE are listed as POPs a bromine positive textile sample might indicate the presence of POPs.

A range of technologies can be used for screening bromine in materials like plastics, polystyrene (PS) or polyurethane (PUR) foams, textile or rubber. Technologies used include X-ray fluorescence (XRF), Sliding Spark Spectroscopy, X-ray transmission (XRT) or Laser-Induced Breakdown Spectrometry (LIBS).

Reference should be made to the draft (2015) guidance for the inventory, identification and substitution of Hexabromocyclododecane (HBCD) (Secretariat of the Stockholm Convention 2013). More details on screening of POPs in articles can be found in the Draft Guidance on Sampling, Screening and Analysis of Persistent Organic Pollutants in Products and Articles (Secretariat of the Stockholm Convention 2013).

- ✓ Analysis

Analysis refers to the extraction, purification, separation, identification, quantification and reporting of POP-PBDEs and/or HBCDD concentrations. In order to obtain meaningful and acceptable results, the analytical laboratory should have the necessary infrastructure (housing) and proven experience.

Extraction and clean-up is performed to isolate the HBCDD from the co-extracted interfering compounds. Extraction methods of HBCDD from polymers (such as EPS or XPS) have been developed and provide an appropriate base for the monitoring of HBCDD in articles and products.

Several methods may be utilized for example EPA8321B-2007, EPA3550C:2007, EPA 8270D:2007.

Current analytical methods allow the chromatographic separation and determination of all HBCDD stereoisomers (α- to ε-HBCD). These methods are based on reversed phase liquid chromatography (LC). LC based separation methods of chiral compounds allow analysis of HBCDD enantiomers. HBCDD can also be determined by gas chromatography (GC), but the separation of stereoisomers is not possible by this approach. Also HBCDD can degrade on the GC column if too high temperatures are applied in the analysis (e.g. injector block) or if long GC columns are used.

Reference should be made to the draft (2015) guidance for the inventory, identification and substitution of Hexabromocyclododecane (HBCD) (Secretariat of the Stockholm Convention 2013). More details on the analysis of POPs in articles can be found in the Draft Guidance on Sampling, Screening and Analysis of Persistent Organic Pollutants in Products and Articles (Secretariat of the Stockholm Convention 2013).

[82] See Commission Regulation (EU) 2016/293 on amending Regulation (EC) No 850/2004 of the European Parliament and of the Council on persistent organic pollutants as regards Annex I, OJ L 55, 02-03-2016, p.7.

Annex D

Supplement to the IMO form of Material Declaration

<**SUPPLEMENT attached to MD-ID-No**:>

MD-ID-No.	
Date	

<Materials information>

This materials information shows the amount of hazardous materials contained in

	Unit
1	

(unit: piece, 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*)				
Annex II (materials listed in annex II of the EU SRR)	Brominated Flame Retardant (HBCDD)	100 mg/Kg (0.01% by weight)				

*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.

Annex E:

Examples of RCP - VSCP

a. Random Checking Plan (only random sampling, indicative & optional)

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10		Column 11
Location: Zone, Compartment, System	Equipment	Object to check (Component, Material), Parts of use	Hazardous Material	Document Analysis Result (IHM+Documentation)	Check procedure	Sample No.	Pic. No.	Check Result	Quantity		Remarks
									Approx. Quantity of the Component/Material/Parts of use containing the HM	Approx. Quantity of the Hazardous Material (calculated)	
Bridge	Ceiling	Ceiling Panel	Asbestos	Not contained	Sampling check	P44-01	1	Contained	3000 kg	50 Kg	--
Accommodation area		Paint	Lead	Not contained	Sampling check	P44-02	2	Contained	30 Kg	0.2 Kg	--
Accommodation area	Fire doors in accommodation area	Sealing	Asbestos	Not contained	Sampling check	P44-03	3	Not contained	--	--	--
Engine room	Exhaust gas system	Lagging for exhaust gas pipe	Asbestos	Not contained	Sampling check	P44-04	4	Contained	5000 Kg	200 Kg	IHM to be amended accordingly
Engine room	Auxiliary boiler	Insulation	Asbestos	Not contained	Sampling check	P44-05	5	Not contained	--	--	--
Engine room	Refrigeration plant	Refrigerant	CFCs	Not contained	Visual check	--	6	Not contained	--	--	--
Poop deck	Mooring winch	Brake lining	Asbestos	Not contained	Sampling check	P44-06	7	Contained	10 kg	0.1 Kg	IHM to be amended accordingly

Stern tube	Propeller shafting	Packing with hydraulic piping	Asbestos	PCHM	Sampling check	P44-07	8	Contained	200 kg		Checked during dry dock-repair works. IHM to be amended accordingly

b. VSCP (Developing an IHM for existing ship - targeted sampling only or combined with random sampling)

Column 1	**Column 2**	**Column 3**	**Column 4**	**Column 5**	**Column 6**	**Column 7**	**Colu mn 8**	**Column 9**	**Column 10**		**Column 11**
Location: Zone, Compartment, System	Equipment	Object to check (Component, Material), Parts of use	Hazardous Material	Document Analysis Result	Check procedure	Sample No.	Pic. No.	Check Result	Quantity		Remarks
									Approx. Quantity of the Component/Material/Parts of use containing the HM	Approx. Quantity of the Hazardous Material (calculated)	
Bridge	Ceiling	Ceiling Panel	Asbestos	Contained	Visual check	--	1	Contained	3000 kg	50 Kg	--
Accommodation area		Paint	Lead	Contained	Visual check	P44-01	2	Contained	110 kg	1 Kg	--
Accommodation area	Fire doors in accommodation area (15 pieces)	Sealing (1kg)	Asbestos	Unknown	Sampling check	P44-02	3	Contained	15 x 1 = 15 kg	3 Kg	--
Engine room	Exhaust gas system	Lagging for exhaust gas pipe	Asbestos	unknown	Sampling check	P44-03	4	Contained	5000 Kg	200 Kg	--
Engine room	Main engine	Piston pin bush (10 pieces)	Lead	Unknown	Assumption	--	5	PCHM	1 x 10 = 10 kg	10 Kg	No access, relevant for ship operation
		Thermometers charge air temperature	Mercury	Contained	Visual check	--	6	Contained	0.04 kg	0.04 Kg	--

Engine room	Diesel generator (x3)	Thermometers	Mercury	Contained	Visual check	--	7	Contained	0.03 kg	0.03 Kg	--
Engine room	Auxiliary boiler	Insulation	Asbestos	Not contained	Sampling check	P44-04	8	Contained	500 kg	100 Kg	Assumption Asbestos containing (experience). Random sampling
		Thermometers	Mercury	Contained	Visual check	--	9	Contained	0.01 kg	0.001 Kg	--
Engine room	Refrigeration plant	Refrigerant	CFCs	Not contained	Visual check	--	10	Not contained	--	--	--
Throughout the ship	FC valve (*100)	Insulation and gaskets (2 Kg each)	Asbestos	Unknown	Sampling check	P44-05	11	Contained	100 x 2 = 200 kg	30 Kg	--
Stern tube	Propeller shafting	Packing with hydraulic piping	Asbestos	Unknown	Assumption	--	12	PCHM	--	--	No access relevant for ship operation
Poop deck	Mooring winch (x 6)	Brake lining (3 Kg each)	Asbestos	Not contained	Sampling check	P44-06	13	Contained	6 x 3 = 18 kg	5.4 Kg	Assumption Asbestos containing (experience). Random sampling

Annex F

References:

1. Regulation (EC) 1907/2006 “Registration, Evaluation, Authorisation and Restriction of Chemicals” (REACH)
2. RoHS Directive 2011/65/EU “on the restriction of the use of certain hazardous substances in electrical and electronic equipment”
3. Regulation (EC) 850/2004 “on persistent organic pollutants”
4. Directive 2006/122/EC “relating to restrictions on the marketing and use of certain dangerous substances and preparations (perfluorooctane sulfonates)”
5. Directive 2009/148/EC “on the protection of workers from the risks related to exposure to asbestos at work”
6. Regulation (EC) 782/2003 “on the prohibition of Organotin Compounds on ships”
7. Council Directive 76/769/EEC “on the approximation of the laws, regulations and administrative provisions of the MS relating to restrictions on the marketing and use of certain dangerous substances and preparations”
8. Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation
9. Practical Guidelines for the information and training of workers involved with Asbestos removal or maintenance work (European Commission, October 2011)
10. Joint Industry Guide (JIG) JIG-101 Ed 4.1 (Revision of JIG-101 Ed. 4.0, March 2011) May 21, 2012 (Material Composition Declaration for Electrotechnical Products)
11. MEPC 57/3/19 8 February 2008 “proposal to include three Hazardous Materials in the draft Convention submitted by Norway”.
12. MSC.1/Circ.1426 “Unified Interpretation of SOLAS Regulation II-1/3-5 (June 2012)”
13. MSC.1/Circ.1374 “Information on Prohibiting the Use of Asbestos On board Ships (December 2010)”
14. MSC.1/Circ.1379 “Unified Interpretation of SOLAS Regulation II-1/3-5 (December 2010)”
15. MSC/Circ.1045 “Guidelines for maintenance and monitoring of on-board materials containing asbestos” (May 2002)
16. Resolution MEPC.196(62) “2011 Guidelines for the development of the ship recycling plan”
17. Resolution MEPC.222(64) “2012 Guidelines for the survey and certification of ships under the HKC”
18. Resolution MEPC.210(63) “2012 Guidelines for safe and environmentally sound ship recycling”
19. Resolution MEPC.211(63) “2012 Guidelines for the authorisation of ship recycling facilities”
20. Resolution MEPC.222(64) “2012 Guidelines for the survey and certification of ships under the HKC”
21. Resolution MEPC.223(64) “2012 Guidelines for the inspection of ships under the HKC”
22. SC-4/17 “Listing of perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride”
23. UNEP/POPS/COP.7/INF/21 “Revised draft guidance on best available techniques and best environmental practices for the use of perfluorooctane sulfonic acid and related chemicals listed under the Stockholm Convention”
24. UNEP/POPS/COP.7/INF/26 “Revised draft guidance for the inventory of perfluorooctane sulfonic acid and related chemicals listed under the Stockholm Convention”
25. “Guidance on best available techniques and best environmental practices for the use of perfluorooctane sulfonic acid (PFOS) and related chemicals listed under the Stockholm Convention on Persistent Organic Pollutants” Draft July 2012
26. “Draft guidance on Sampling, Screening and Analysis of Persistent Organic Pollutants in Products and Articles Relevant to the substances listed in Annexes A, B and C to the Stockholm Convention on Persistent Organic Pollutants in 2009 and 2011” Draft February 2013
27. “Guidance for the inventory, identification and substitution of Hexabromocyclododecane (HBCD)” Draft April 2015

European Maritime Safety Agency
Praça Europa 4
1249-206 Lisbon, Portugal
Tel +351 21 1209 200
Fax +351 21 1209 210
emsa.europa.eu

指导性文件
GUIDANCE NOTES
GD 19-2016

中　国　船　级　社

船舶有害物质清单编制及检验指南
GUIDELINES FOR DEVELOPMENT AND SURVEY OF THE INVENTORY OF HAZARDOUS MATERIALS OF SHIPS

2016

2016 年 11 月 1 日生效
Effective from November 1, 2016

北　京
Beijing

CONTENTS

Chapter 1 GENERAL

1.1 Objective and application

1.1.1 The Guidelines are intended to assist relevant parties such as shipowners, shipyards and suppliers in understanding correctly and implementing the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (hereinafter referred to as "the Convention") and provide guidance for the uniform implementation of the requirements for survey and certification of ships by surveyors of China Classification Society (referred to as "CCS") and the assignment of the class notation "Green passport".

1.1.2 Ships① to which the Convention applies or ships applying for CCS class notation "Green passport" are to comply with the requirements of the Guidelines.

1.1.3 Ships to which Regulation (EU) No 1257/2013 applies or ships applying for CCS class notation "Green passport" GPR (EU) are to comply with relevant requirements of Regulation (EU) No 1257/2013 (see Appendix 1 to references of the Guidelines for details) in addition to the requirements of the Guidelines.

1.2 Definitions

1.2.1 "*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.

1.2.2 "*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" is to 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.

1.2.3 "*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. Figure 1 shows an example of four homogeneous materials which constitute a cable. In this case, sheath, intervention, insulator and conductor are all individual homogeneous materials.

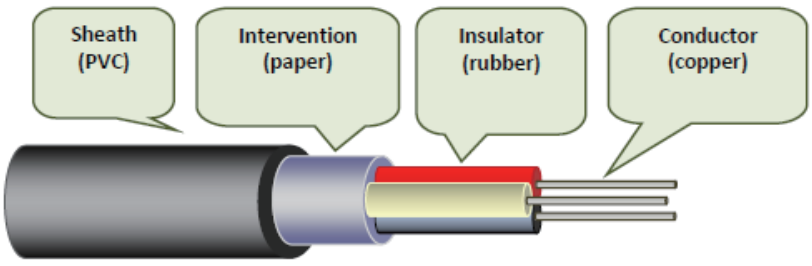


Figure 1 – Example of Homogeneous Materials (cable)

① These are ships of 500 gross tonnage (GT) and above engaged in international voyages, excluding warships, naval auxiliary, or other ships used on government non-commercial service.

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

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

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

1.2.7 "*Threshold value*" is defined as the concentration value in homogeneous materials. Revised threshold values in tables A and B of Annex 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.

1.2.8 "*Safe-for-entry*" means a space that meets the following criteria:

(1) the oxygen content of the atmosphere and the concentration of flammable vapours are within safe limits;

(2) any toxic materials in the atmosphere are within permissible concentrations; and

(3) any residues or materials associated with the work authorized by the Competent person will not produce uncontrolled release of toxic materials or an unsafe concentration of flammable vapours under existing atmospheric conditions while maintained as directed.

1.2.9 *Safe-for-hot work* means a space that meets the following criteria:

(1) a safe, non-explosive condition, including gas-free status, exists for the use of electric arc or gas welding equipment, cutting or burning equipment or other forms of naked flame, as well as heating, grinding, or spark generating operations;

(2) Safe-for-entry requirements of regulation 1.2.8 are met;

(3) existing atmospheric conditions will not change as a result of the hot work; and

(4) all adjacent spaces have been cleaned, or inerted, or treated sufficiently to prevent the start or spread of fire.

1.2.10 "*Hazardous Material*" means any material or substance which is liable to create hazards to human health and/or the environment. For the purposes of the Guidelines, it means the hazardous material listed in Annex 1.

1.2.11 "*New ship*" means a ship:

(1) for which the building contract is placed on or after the entry into force of the Convention; 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 entry into force of the Convention; or

(3) the delivery of which is on or after 30 months after the entry into force of the Convention.

It is recommended by CCS that requirements specified in the Guidelines for new ship may be taken into account and applied to the ship for which the building contract is placed on or after the entry into force of the Guidelines or 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 entry into force of the Guidelines or the delivery of which is on or after 30 months after the entry into force of the Guidelines.

1.2.12 "*Existing ship*" means a ship which is not a new ship.

1.2.13 "*Ship Recycling Facility*" means a defined area that is a site, yard or facility used for the recycling of ships.

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

1.2.15 "*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.

1.2.16 "*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.

1.3 Controls of ships' Hazardous Materials

1.3.1 The new installation of materials listed in Table A of Annex 1 on ships is to be prohibited. However, the use of such hazardous materials may be permitted provided they are present in concentrations not above the threshold values specified for each "homogeneous material" and such hazardous materials are to be listed in the Inventory of Hazardous Materials (IHM). The use of new installations containing hydrochlorofluorocarbons (HCFCs) may be permitted before 1 January 2020, except ships flying the flag of EU members, ships applying for CCS class notation "GPR (EU)" or ships applying for the issuance of Document of Compliance of the Inventory of Hazardous Materials in compliance with Regulation (EU) No 1257/2013.

1.3.2 The use of materials listed in Table B of Annex 1 may be permitted, however, such materials are to be identified and listed in IHM if they are present in concentration above the threshold values specified for each "homogeneous material".

1.4 Inventory of Hazardous Materials

1.4.1 The Inventory of Hazardous Materials is developed in order to provide information on hazardous materials actually present on ships so as to facilitate the use of information by Ship Recycling Facility during recycling and to decide how to manage the hazardous materials in a safe and environmentally sound manner.

1.4.2 The Inventory of Hazardous Materials is to be developed on the basis of the IHM standard format shown in Appendix 1 of Annex 2 to the Guidelines, including the following three parts:

(1) Part I: Materials contained in ship structure or equipment (including three categorization);

I-1: Paints and coating systems;
I-2: Equipment and machinery;
I-3: Structure and hull;

(2) Part II: Operationally generated wastes;

(3) Part III: Stores.

1.4.3 For new ships, the compliance with regulation 1.3 of materials listed in Table A and Table B of Annex 1 contained in ship structure or equipment is to be checked and confirmed and their location and approximate quantity are to be listed in Part I of the Inventory. For existing ships, materials listed in Table A of Annex 1 contained in ship structure or equipment together with their location and approximate quantity are at least to be listed in Part I of the Inventory, materials listed in Table B of Annex 1 are to be identified and listed as far as possible. Part II and Part III of IHM are to be listed prior to recycling. Any spare parts containing materials listed in Table A or Table B of Annex 1 are to be listed in Part I of the Inventory if such materials are used in compliance with regulation 1.3.

1.4.4 Materials listed in the Inventory of Hazardous Materials

(1) Annex 1 to the Guidelines provides items to be listed in the Inventory of Hazardous Materials classified with Tables:

Table A comprises the materials listed in appendix 1 to the Convention;

Table B comprises the materials listed in appendix 2 to the Convention;

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

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

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

(2) 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) 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.

1.4.5 Filling out the standard format of Inventory of Hazardous Materials

(1) “Name of equipment and machinery” column

The name of each equipment or machinery is to 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 is to 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 are to be entered in the column. An example is given in Table 1; For similar materials, identical or common items that contain hazardous materials that potentially exceed the threshold value, such as bolts, nuts and valves, these can be listed together (no need to list each item individually) on the IHM with their general location and approximate amount specified there (i.e., "bulk listing"). Example of how to list those aforementioned materials and items are shown in row 1, row 2 and row 3 of table 1 respectively.

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

No.	Name of equipment and machinery	Location	Materials (classification in Annex 1)	Parts where used	Approx. 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 (× 3)	Engine-room	Mercury	Thermometer	0.03	kg	
3	FC valve (× 100)	Throughout the ship	Lead and lead compounds		20.5	kg	

(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, are to be described using the name of the system concerned (such as ballast water system, power cable). A reference to the compartments where these systems are located is not necessary as long as the system is clearly identified and properly named.

(3) "Approximate quantity" column

The standard unit for approximate quantity of solid Hazardous Materials is to be kg. If the Hazardous Materials are liquids or gases, the standard unit is to be either m^3 or kg. The unit "m^2" may be used for materials used in decks or bulkheads if considered more appropriate. The standard unit is to be metric unit. An approximate quantity is to be rounded up to at least two significant figures. If the Hazardous Material is less than 10 g, the description of the quantity is to read "< 0.01 kg". An example is given in Table 2.

Example of "approximate quantity" column **Table 2**

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

(4) "Location" column

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 is to be based on a location such as a deck or room to enable easy identification. The name of the location is to correspond to the ship's plans so as to ensure consistency between the Inventory and the ship's plans. Examples of names of locations are given in Table 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 the Table 3 below.

Examples of location names **Table 3**

(A) Primary classification	(B) Secondary classification	(C) Name of location
All over the ship		
Hull part	Fore part	Bosun store
		…
	Cargo part	No.1 Cargo Hold/Tank
		No.1 Garage deck
		…
	Tank part	Fore Peak Tank
		No.1 WBT
		No.1 FOT
		…
		Aft Peak Tank
	Aft part	Steering Gear Room
		Emergency Fire Pump Space
		…
	Superstructure	Accommodation
		Compass deck
		Nav. Bridge deck
		…
		Wheel House
		Engine Control Room
		Cargo Control Room
		…
	Deck house	Deck House
		…
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) 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, are to be described for each system concerned. If they are situated in a number of compartments, the most practical of the following two options is to 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 3.

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

Example of description of a pipe system **Table 4**

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

Chapter 2 GENERAL INTRODUCTION OF SURVEY AND CERTIFICATION

2.1 General requirements

2.1.1 Surveys specified in the Guidelines include initial survey, renewal survey, additional survey and final survey.

(1) **Initial survey**: An initial survey is to be conducted before the ship is put in service or when applying for the first time the issuance of the International Certificate on Inventory of Hazardous Materials/Document of Compliance of the Inventory of Hazardous Materials or when applying the assignment of CCS class notation "Green Passport" GPR or GPR (EU).

(2) **Renewal survey**: In order to remain the validity of International Certificate on Inventory of Hazardous Materials/IHM Document of Compliance or CCS class notation "GPR" and "GPR (EU)", a renewal survey is to be conducted before the date of expiry.

(3) **Additional survey**: An additional survey, either general or partial according to the circumstances, may be conducted at the request of the shipowner after change, replacement or significant repair of the structure, equipment, systems, fittings, arrangements and material. The additional survey is voluntary and may be conducted together with other statutory surveys such as annual survey.

(4) **Final survey**: A final survey is to be conducted before a ship is taken out of service and before the recycling of the ship has started.

2.1.2 IMO "Survey Guidelines under the Harmonized System of Survey and Certification (HSSC)" is to be taken into account during the initial survey, additional survey and renewal survey and these surveys are to be harmonized with the statutory surveys required by IMO or the Administration.

2.1.3 The compliance of the ship with the relevant requirements of the Convention and/or CCS rules is to be confirmed during the survey. In addition, CCS is also to confirm that the ship complies with other relevant requirements of flag State Administration (if any) at the same time.

2.2 Issuance and endorsement of certificates

2.2.1 CCS is to conduct the survey according to the Guidelines and issue the International Certificate on Inventory of Hazardous Materials/IHM Document of Compliance to ships satisfactorily inspected by initial survey with the authorization of flag State Administration or upon application. The International Certificate on Inventory of Hazardous Materials/IHM Document of Compliance is to be reissued to ships satisfactorily inspected by renewal survey.

2.2.2 For ships applying for the additional survey, CCS is to endorse the International Certificate on Inventory of Hazardous Materials/IHM Document of Compliance on the endorsement page upon satisfactory completion of the survey.

2.2.3 CCS is to conduct the final survey according to the Guidelines with the authorization of flag State Administration and issue the International Ready for Recycling Certificate/ Ready for Recycling Document of Compliance to ships satisfactorily surveyed. For existing ships for which both an initial survey and a final survey are conducted at the same time, only the International Ready for Recycling Certificate/ Ready for Recycling Document of Compliance is issued.

2.2.4 Ships holding the IHM Document of Compliance prior to the entry into force of the Convention may directly apply for the issuance of the International Certificate on Inventory of Hazardous Materials after entry into force of the Convention without preparing the visual/sampling check plan, subject to any additional requirements (if any) by the Administration.

2.2.5 Format of certificate/document of compliance

(1) For ships applying for the issuance of certificate or document of compliance in compliance with the Hong Kong Convention, the certificate/document of compliance is to be issued respectively based on the format specified in the Appendix of the Hong Kong Convention/Appendix 2 of Annex 2 to the Guidelines.

(2) For ships applying for the issuance of certificate or document of compliance in compliance with Regulation (EU) No 1257/2013, the certificate/document of compliance is to be issued based on the format specified in Regulation (EU) No 1257/2013/Appendix 3 of Annex 2 to the Guidelines.

2.3 Validity of certificate/document of compliance

2.3.1 An International Certificate on Inventory of Hazardous Materials/IHM Document of Compliance is to be issued for a period specified by the Administration or CCS, which is not to exceed five years.

2.3.2 If the condition of the ship does not correspond substantially with the particulars of the International Certificate on Inventory of Hazardous Materials/IHM Document of Compliance, including where Part I of the Inventory of Hazardous Materials is not properly maintained and updated, the shipowner is to make amendments during next survey or the certificate/document of compliance will cease to be valid.

2.3.3 The International Certificate on Inventory of Hazardous Materials/IHM Document of Compliance will cease to be valid upon transfer of the ship to the flag of another State.

2.3.4 If the renewal survey is not completed or the International Certificate on Inventory of Hazardous Materials/IHM Document of Compliance is not endorsed as required, the certificate/document of compliance will cease to be valid.

2.3.5 An International Ready for Recycling Certificate/Ready for Recycling Document of Compliance is to be issued for a period not exceeding three months.

2.4 Assignment of class notation "GPR" and surveys

2.4.1 CCS is to conduct the surveys taking into account the requirements for initial survey for new ships or existing ships as specified in the Guidelines at the request of shipowner and to assign class notation "Green Passport (GPR)" to ships satisfactorily surveyed and complying with the relevant requirements of Chapter 8, PART EIGHT of CCS Rules for Classification of Sea-going Steel Ships.

2.4.2 Ships with class notation "GPR" are to be surveyed according to the relevant requirements of Chapter 6, PART ONE of CCS Rules for Classification of Sea-going Steel Ships so as to remain the validity of the class notation.

2.5 Assignment of class notation “GPR (EU)” and surveys

2.5.1 Paragraph 2.4 also applies to the assignment of class notation “GPR (EU)” and surveys.

2.5.2 While verifying the Inventory of Hazardous Materials of Ships, it is to be confirmed that the use of perfluorooctane sulfonic acid and brominated flame retardant has been identified by the ship, complying with relevant requirements of Regulation (EU) No 1257/2013 (see Appendix 1 of references of the Guidelines for details).

2.6 Disclaimer

The assignment of class notation “GPR” or “GPR (EU)”, the issuance and/or endorsement of certificate/document of compliance undertaken by CCS is carried out on the basis that the designer, shipyard, supplier and shipowner fulfill their respective responsibilities. The party who makes any information available to CCS is to be responsible for the truthfulness, timeliness and completeness of such information. The services provided by CCS do not mean to diminish any liability of any party mentioned above or absolve it therefrom.

Chapter 3 DEVELOPMENT OF THE INVENTORY OF HAZARDOUS MATERIALS FOR NEW SHIPS AND SURVEYS

3.1 General requirements

3.1.1 Part I of the Inventory of Hazardous Materials for new ships is to be developed at the design and construction stage.

3.1.2 During the development of the Inventory (Part I), the presence of materials or the presence of materials above the threshold values listed in Table A of Annex 1 is to be checked and confirmed (new installations containing hydrochlorofluorocarbons (HCFCs) may be permitted before 1 January 2020), except ships flying the flag of EU members, ships applying for CCS class notation "GPR (EU)" or ships applying for the issuance of Document of Compliance of the Inventory of Hazardous Materials in compliance with Regulation (EU) No 1257/2013). If such materials are used not above the threshold values, their quantity and location are to be listed in Part I of the Inventory.

3.1.3 During the development of the Inventory (Part I), the presence of materials listed in Table B of Annex 1 is to be checked and confirmed. 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 are to be listed in Part I of the Inventory.

3.1.4 The checking of materials as provided in Table A and Table B of Annex 1 is to be based on the"Material Declaration (MD)" and "Supplier's Declaration of Conformity (SDoC)" furnished by the suppliers in the shipbuilding supply chain or other supporting documents such as the copy of CCS "Approval Certificate of Products in compliance with the Hong Kong Convention and/or Regulation (EU) No 1257/2013"① or the testing report issued by the testing organization② recognized or accepted③ by CCS.

3.2 Material Declaration

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

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

(1) date of declaration (the preparation date of MD);

(2) Material Declaration identification number (prepared by the supplier itself according to the management system document of the company);

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① Refer to Annex 7: CCS "Approval Requirements for Products in compliance with the Hong Kong Convention and/or Regulation (EU) No 1257/2013".

② Refer to Annex 8: "Approval Requirements for Hazardous Materials Testing Organizations".

③ For the purposes of the Guidelines, organizations or products not recognized by CCS meeting the equivalent approval requirements may be considered as "accepted" with the permission of CCS.

(3) supplier's name;

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

(5) product number (for identification by manufacturer, such as product series number or batch number);

(6) declaration of whether or not the materials listed in Table A and Table B of Annex 1 of the Guidelines are present in the product above the threshold value stipulated in Annex 1 of the Guidelines;

(7) mass of each constituent material listed in Table A and/or Table B of Annex 1 of the Guidelines if present above threshold value;

(8) corresponding Supplier's Declaration of Conformity (SDoC) identification number; and

(9) other information, such as quantity and physical unit (e.g. international standard unit such as "m", "kg"), contact details of supplier, Asbestos-free Declaration, Asbestos-free Testing Report (if any) (see Annex 3 for format of Material Declaration).

3.3 Supplier's Declaration of Conformity

3.3.1 The purpose of the Supplier's Declaration of Conformity is to provide assurance of the conformity of the related Material Declaration, and to identify the responsible entity. The Supplier's Declaration of Conformity remains valid as long as the products are present on board.

3.3.2 The supplier is to establish a company policy on the management of the chemical substances in products which the supplier manufactures or sells, covering the obtaining of information on chemical substance content and that the regulations and requirements governing the management of chemical substances in products are in compliance with law. In procuring raw materials for components and products, sub-suppliers are to be selected following an evaluation and the authenticity and validity of the information on the chemical substances they supply are to be ensured. This policy may be incorporated into the quality management system recognized / accepted by CCS.

3.3.3 The Supplier's Declaration of Conformity is to contain the following:

(1) unique identification number (prepared by the supplier itself according to the management system document of the company);

(2) name and contact address of the issuer (namely the subject of legal responsibility, which may be a manufacturer, trader or agency from the supplier party);

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

(4) statement of conformity (the listed detailed documents with which the "subject of the Declaration of Conformity" conforms, such as documents of company management system involving the specifications of SDoC, company standards of products, other standards and version number, date of issue etc.);

(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.

The format of the Supplier's Declaration of Conformity is given in Annex 4.

3.4 Development of the Inventory of Hazardous Materials for new ships

3.4.1 The Inventory may be developed by shipyards using the following steps:

(1) collection of Hazardous Materials information;

(2) utilization and analyses of Hazardous Materials information; and

(3) preparation of the Inventory by filling out standard format (see Annex 2).

3.4.2 The "Ordering list or details of products for new ships" (structure and hull, equipment and machinery, paints and coating systems not included in 1.4.4(2), including products ordered by the shipowner or those purchased by the shipyard itself) are to be developed by the shipyard and submitted to CCS. The document may be developed taking into account the "List of Certification Requirements for Marine Products" and the consistency between the document and ship's plans (e.g., General Arrangement, Fire Control, Life-saving Appliances Arrangement, Engine-room Arrangement, Accommodation and Tank Plan), drawings or certificates is to be ensured. The shipyard is to request all suppliers to provide MD and SDoC and other supporting documents (if any) such as the copy of CCS "Approval Certificate of the Hong Kong Convention-compliant Products" or the testing report issued by the testing organization recognized or accepted by CCS while the products are provided. For products ordered by the shipowner, the shipowner is to assist the shipbuilder in collecting the information of products. The product supplier is to provide MD and SDoC based on the standard format specified in Annex 3 and Annex 4. For products of multi-tier suppliers, tier 1 suppliers may request from their suppliers (tier 2 suppliers) the MD and SDoC for the development of the final MD and SDoC and report to the shipyard. Thus the collection of data on Hazardous Materials may involve the entire shipbuilding supply chain. Tier 1 supplier is to provide the shipyard or shipowner with the final MD and SDoC together with the products and keep the copy (electronic data documents may also be kept). Sub supplier is to provide the supplier of a higher tier with the MD and SDoC together with the products and keep the copy (electronic data documents may also be kept). Figure 2 shows the process of MD (and SDoC) collection.

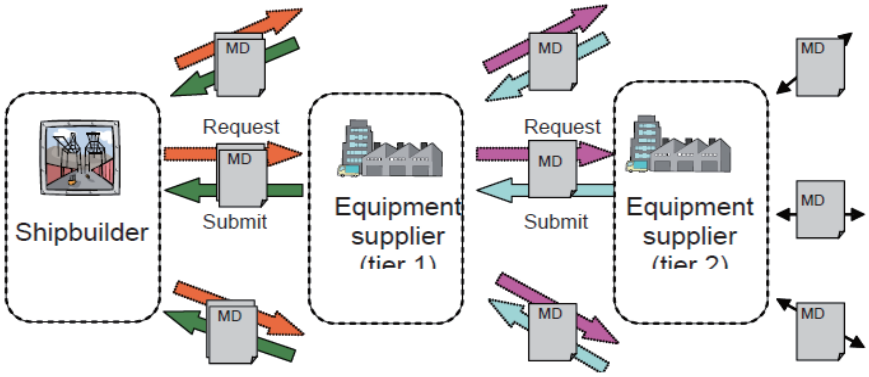

Figure 2 – Process of MD (and SDoC) collection showing involvement of supply chain

3.4.3 The shipyard is also to request the supplier to provide further supporting documents (such as the document evidence and testing report for the development of MD/SDoC) and the supplier is to be checked and verified so as to ensure the availability of effective management of the chemical substances in products provided by the supplier and the consistency between the actual situation of the product and the MD provided. The conformity of IHM developed is to be confirmed by the shipyard according to the collected MD and SDoC. In general, the shipyard is to request the supplier to provide the MD and SDoC together with the products. For products finally provided to the shipyard and not included in the "Ordering list or details of products for new ships" or products not consistent with MD and SDoC, the shipyard is to collect the corresponding MD and SDoC and verify the conformity as required in this paragraph. Meanwhile, the "Ordering list or details of products for new ships" is to be amended or a written description is to be issued.

3.4.4 If one or more materials listed in Table A of Annex 1 are found in concentrations above the specified threshold value according to the MD provided by the supplier, the shipyard is to refuse the use of the product and inform the supplier to replace it with the one complies with the specifications and provide the updated MD and SDoC. However, if the materials are used in a product in accordance with an exemption specified by the Convention (e.g., new installations containing hydrochlorofluorocarbons (HCFCs) before 1 January 2020), the quantity and location of the product on the ship are to be listed in the Inventory. This paragraph does not apply to regular consumable goods to be listed during the final survey (the survey conducted before a ship is taken out of service and before the recycling of the ship has started).

3.4.5 If materials listed in Table B of Annex 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 are to be listed in the Inventory. This paragraph does not apply to regular consumable goods to be listed during the final survey (the survey conducted before a ship is taken out of service and before the recycling of the ship has started).

3.4.6 For products not supplied with MD and SDoC, the shipyard is to request the supplier to provide them before the product is fitted on the ship. In the cases that no MD and SDoC are provided during fitting, or the shipyard/shipowner suspects the authenticity of the information provided by the supplier, the supplier may be requested to provide further supporting documents (the document evidence and testing report for the development of MD/SDoC) or a visual/sampling check specialist organization recognized or accepted by CCS may be required to carry out the sampling according to Annex 5 "Distribution of Common Hazardous Materials on Ships" and the testing organization recognized or accepted by CCS is to carry out the testing and fill out MD and SDoC according to the testing report. If one or more materials listed in Table A are found in concentrations above the specified threshold value (excluding the exception specified in 3.4.4) according to the testing result, the shipyard is to inform the supplier to replace the products with those complying with the requirements and provide the corresponding MD and SDoC.

3.4.7 The shipyard is to establish written procedures for purchasing and controlling the supply of asbestos free material, equipment and components, which contain:

(1) supplier evaluation and selection methods,

(2) asbestos free verification practices for supplied products, and

(3) issuance of an asbestos-free declaration by the manufacturer as supporting documentation.

For part of the high risk products listed in Annex 5 “Distribution of Common Hazardous Materials on Ships”, such as fire division materials, valves, cables, paints, cable penetrations and other products which contain or use sealing, insulating and antifriction materials, the shipyard is to request the supplier to provide Asbestos-free Declaration (refer to Annex 6 “Format of Asbestos-free Declaration (manufacturer)”), CCS Asbestos-free Approval Certificate (copy) or the asbestos-free testing report (The testing is to cover all batches of products purchased by the shipyard.) issued by the testing organization recognized or accepted by CCS and submit it to CCS for examination so as to ensure that the asbestos listed in Table A of Annex 1 is not contained. For products specified in this paragraph cannot be provided with Asbestos-free Declaration and Asbestos-free Approval Certificate or Asbestos-free Testing Report, the shipyard is to arrange a specialized organization for the visual/sampling check recognized or accepted by CCS to carry out the sampling witnessed by the surveyor of CCS prior to fitting and the testing organization recognized or accepted by CCS is to carry out the testing (The sampling is to cover all batches of products mentioned above not provided with asbestos-free supporting documents.) The shipyard is to issue an overall declaration of the ship with legal effect to CCS based on the Asbestos-free Declaration and Asbestos-free Approval Certificate or Asbestos-free Testing Report before completion of construction of the ship (refer to Annex 6 “Format of Asbestos-free Declaration (shipyard)”). All Asbestos-free Approval Certificate (copy), Asbestos-free Testing Report (original) and Asbestos-free Declaration (original) are to be kept onboard ships and CCS is to keep the copies for filing (electronic data documents may also be kept).

3.4.8 The shipyard is to establish the requirements for the management and control of the supply chain and to monitor the processes of design, contracting, purchase, construction, collection of MD and SDoC, development of IHM so as to ensure the compliance with regulation 3.4 of the Guidelines. The shipyard is to complete the development of Part I of the Inventory based on the information provided by the supplier or other supporting documents collected according to the following categorization:

(1) Paints and coating systems;

(2) Equipment and machinery; and

(3) Structure and hull.

3.4.9 After the development of IHM, the shipyard is to determine the identification/verification number of Part I of IHM of the new ship according to its own management system documents. The shipyard and supplier may complete the summary of MD and SDoC and development of IHM by means of the IHM development software developed by CCS.

3.4.10 If liquids and gases listed in Table C of Annex 1 are integral in machinery and equipment on board a ship (Small amounts of lubricating oil, anti-seize compounds and grease which are applied to or injected into machinery and equipment to maintain normal performance do not fall within the scope of this provision.), the shipyard is to request the supplier to provide the information on the quantity of these sealed liquids and/or gases when the products are delivered. The quantity of liquids and gases listed in Table C of Annex 1 required for normal operation, including the related pipe system volumes, is to be prepared and documented at the design and construction stage. This information is to be kept onboard the ship for shipowner’s completion of Part III of the Inventory prior to the application for final survey. The continuity of this information is to be maintained if the flag, owner or operator of the ship changes.

3.4.11 The development of Part I of the Inventory is limited to the fixed equipment only (including those batteries containing lead acid or other hazardous materials that are fixed in place). For loosely fitted equipment (including those loosely fitted batteries, such as consumer batteries and batteries in stores), the continuity of information is to be maintained for shipowner’s completion of Part III of the Inventory prior to the application for final survey.

3.5 Application for survey

3.5.1 Prior to the initial survey for a new ship, a written application for the initial survey is to be submitted by the shipowner or shipyard to CCS, or indication is to be made in the Plan Approval/ Survey Application for Newbuildings, along with the ship data, as follows:

(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.

3.5.2 The request for an initial survey for a new ship is to be supplemented by Part I of the Inventory of Hazardous Materials, MD and SDoC for ship structure and equipment and other supporting documents (if any) used to develop the Inventory of Hazardous Materials e.g., the testing report issued by the testing organization recognized or accepted by CCS.

3.6 Initial survey for new ships

3.6.1 The consistency between documents such as MD and SDoC and "Ordering list or details of products for new ships" is to be confirmed and the location and approximate quantities of materials listed in Part I of the Inventory of Hazardous Materials are to be verified by checking MD and SDoC and other supporting documents (if any), and the compliance with Chapter 1 of the Guidelines is to be confirmed.

3.6.2 The survey is to verify that the product name and location in the Inventory of Hazardous Materials are consistent with ship's actual structure, equipment and ship's plans (e.g., General Arrangement, Fire Control, Life-saving Appliances Arrangement, Engine-room Arrangement, Accommodation and Tank Plan) or other documents through onboard visual inspection.

3.6.3 For products of which the MD and SDoC or supporting documents (such as the document evidence for development of MD/SDoC, testing report, if applicable) cannot be provided by the supplier, the shipyard is required to arrange the testing carried out by the testing organization recognized by CCS prior to fitting of the products and fill in the information of MD/SDoC based on the testing report after the completion of testing.

3.6.4 For fitted products which are not consistent with the "Ordering list or details of products for new ships", the shipyard is required to resubmit the MD and SDoC and other supporting documents and make amendments to "Ordering list or details of products for new ships" and issue a written description.

3.6.5 If the surveyor suspects the authenticity of MD and SDoC provided by the shipyard, the shipyard may be required to provide further supporting documents or the testing report issued by the testing organization recognized or accepted by CCS.

3.6.6 Requirements for asbestos-free survey are to be implemented according to regulation 3.4.7.

3.6.7 The survey is to verify that the ship is in compliance with the requirements of flag State (if any), e.g., EU Directive: 2011/65/EU.

3.6.8 Supplementary requirements for the assignment of CCS class notation "GPR" or "GPR (EU)" to new ships

For ships applying for the assignment of class notation "GPR" or "GPR (EU)", the surveyor may request the shipyard to carry out random testing and verification on the ship for products with the declaration that no hazardous material is contained or the concentration of hazardous materials is lower than the threshold value, taking into consideration the hazardous materials listed in Table A and Table B in addition to the surveys specified above.

Sampling check organization/hazardous materials testing organization is to be the organization recognized or accepted by CCS. The sampling check organization is to develop visual and sampling check plan which covers the hazardous materials listed in Table A and Table B of Annex 1. Sampling checkpoints are to cover the whole ship according to Annex 5 "Distribution of Common Hazardous Materials on Ships" and may be adjusted taking into account the complexity of the specific type of ship. In general, the total amount of samples selected for check is not to be less than 100 except that the shipyard or supplier can provide the testing report issued by the testing organization recognized or accepted by CCS for the products (or the same batch of products) to be sampling checked within the scope of visual and sampling check plan.

The visual and sampling check is to be carried out within three months prior to the sea trial of the ship, the surveyor is to review and approve the visual and sampling check plan and confirm the final check report with the reference to Annex 5 "Distribution of Common Hazardous Materials on Ships", taking into account the examination of documents and field survey.

If any non-compliant hazardous materials listed in Table A are found, the inspection organization is to cooperate with the shipyard in the development of the scope and plan for the replacement of products. After the shipyard replace the products thoroughly and the completion of the replacement is confirmed by the inspection organization, the checking declaration clarifying that the replacement is completed in compliance with the requirements. The surveyor is to review and confirm the declaration.

If any non-compliant hazardous materials listed in Table B are found, the inspection organization is to coordinate with the shipyard in the update of the Inventory of Hazardous Materials for the review and confirmation of the surveyor.

Chapter 4 DEVELOPMENT OF THE INVENTORY OF HAZARDOUS MATERIALS FOR EXISTING SHIPS AND SURVEYS

4.1 Development of Part I of the Inventory of Hazardous Materials for existing ships

4.1.1 Part I of the Inventory of Hazardous Materials is to be developed by the shipowner, who may draw upon expert assistance. The visual/sampling check plan is to be developed by a visual/sampling check specialist organization① recognized or accepted by CCS during the initial survey. The specialist organization engaged in visual/sampling check is not to be the same as the person or organization authorized by the Administration to approve the Inventory. The compilation of Part I of the Inventory of Hazardous Material for existing ships is based on the following steps:

(1) collection of necessary information;

(2) assessment of collected information;

(3) preparation of visual/sampling check plan;

(4) onboard visual/sampling check; and

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

Notwithstanding the above mentioned steps, the determination of Hazardous Materials present on board existing ships is to, as far as practicable, be conducted as prescribed for new ships, for example the provision of MD and SDoC is required (if any). For existing ships already holding IHM, the above mentioned steps are not to be used for any new installation resulting from the conversion or repair of existing ships after the initial preparation of the Inventory, however, reference is to be made to regulations 4.5 and 4.6.

The example of a 28,000 gross tonnage bulk carrier constructed in 1985 is used to describe the steps in detail for the reference of relevant parties.

4.1.2 Step 1: Collection of necessary information

The shipowner is to collect all documentation regarding the ship, including maintenance, conversion, and repair documents; certificates, manuals, ship's plans, drawings, and technical specifications; product information data sheets (such as MD and SDoC②); and hazardous material inventories or recycling information from sister ships from all sources of information such as shipyard, classification society, previous shipowner and Ship Recycling Facility. The reasonably available documentation and information include but not limited to:

(1) ship's specification;

(2) General Arrangement;

(3) spare parts and tools list;

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① Refer to Annex 9 "Approval requirements for specialist organization engaged in visual/sampling check of hazardous materials".

② Refer to regulations 3.2 and 3.3 of the Guidelines.

(4) piping arrangement;

(5) Accommodation Plan;

(6) Fire Control Plan;

(7) Fire Protection Plan;

(8) Insulation Plan (hull and machinery);

(9) International Anti-Fouling System Certificate;

(10) related manuals and drawings;

(11) information from other inventories and/or sister or similar ships, machinery, equipment, materials and coatings;

(12) results of previous visual/sampling checks and other analysis.

Since the total number of parts on board is quite large, it is impossible to check all equipment, systems, and/or areas on board the ship. An "Indicative list" is to be prepared that identifies the equipment, system, and/or area on board that is presumed to contain Hazardous Materials with reference to Annex 5 "Distribution of Common Hazardous Materials on Ships". Field interviews with the shipyard and suppliers may be necessary for shipowner to prepare such lists.

4.1.3 Step 2: Assessment of collected information

The information collected in Step 1 above is to be assessed. The assessment is to cover all materials listed in Table A of Annex 1. The assessment of the materials listed in Table B of Annex 1 is not mandatory, but they are to be listed as far as practicable. Preparation of a checklist is an efficient method for developing the Inventory for existing ships in order to clarify the results of each step. Based on collected information including the "Indicative list" mentioned in Step 1, all equipment, systems, and/or areas onboard assumed to contain Hazardous Materials listed in Tables A and B are to be included in the checklist. Each listed equipment, system, and/or area on board is to 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 Maker's drawings. The existence of asbestos contained in floors, ceilings and walls may be identified from Fire Protection Plans, while the existence of TBT in coatings can be identified from the International Anti-Fouling System Certificate, Coating scheme and the History of Paint.

Example of weight calculation **Table 5**

No.	Hazardous Materials	Location/Equipment/Component	Reference	Calculation
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	Maker's drawings	20 kg × 1 cylinder = 20 kg

When a component or coating is determined to contain Hazardous Materials, a "Y" is to 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" is to be made in the column to denote "Not contained". When a determination cannot be made as to the Hazardous Materials content, the column is to be completed with the entry "Unknown".

Checklist (Step 2)

Analysis and definition of scope of assessment for "Sample Ship" **Table 6**

No.	Tbl A/B	Hazardous Materials *1	Location	Name of equipment	Component	Quantity			Manufacturer/brand name	Result of DOC *2	Procedure of check *3	Result of check *4	Reference DWG No.
						Unit (kg)	No.	Total (kg)					
Inventory Part I-1													
1	A	TBT	Top side	Painting and coating	A/F paints			NIL	Paints Co./marine P1000	N			On Aug. 200X, sealer coat applied to all over submerged area before tin free coating
2	A	TBT	Flat bottom				3,000m^2		Unknown AF	Unknown			
Inventory Part I-2													
1	A	Asbestos	Lower deck	Main engine	Exh. pipe packing	0.25	14		Diesel Co.	Y			M-100
2	A	Asbestos	3rd deck	Aux.boiler	Lagging		12		Unknown lagging	Unknown			M-300
3	A	Asbestos	Engine room	Piping/flange	Packing					PCHM			
4	A	HCFC	2nd deck	Ref. provision plant	Refrigerant (R22)	20.00	1		Reito Co.	Y			Maker's dwg
Inventory Part I-3													
1	A	Asbestos	Upper deck	Back deck ceilings	Engine room ceiling		20m^2		Unknown ceiling	Unknown			O-25

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

4.1.4 Step 3: Preparation of visual/sampling check plan

Each item classified as “Contained” or “Not contained” in Step 2 is to be subjected to a visual check on board, and the entry “V” is to be made in the “Check procedure” column to denote “Visual check”. For each item categorized as “unknown”, a decision is to be made as to whether to apply a sampling check. However, any item categorized as “unknown” may be classed as “potentially containing Hazardous Material” provided comprehensive justification is given, or if it can be assumed that there will be little or no effect on disassembly as a unit and later ship recycling and disposal operations. For example, in the following checklist, in order to carry out a sampling check for “Packing with aux. boiler” the shipowner needs to disassemble the auxiliary boiler in a repair yard. The costs of this check are significantly higher than the later disposal costs at a Ship Recycling Facility. In this case, therefore, the classification as “potentially containing Hazardous Material” is justifiable.

Checklist (Step 3)

Analysis and definition of scope of assessment for "Sample Ship" **Table 7**

No.	Tbl A/B	Hazardous Materials *1	Location	Name of equipment	Component	Quantity			Manufacturer/brand name	Result of DOC *2	Procedure of check *3	Result of check *4	Reference DWG No.
						Unit (kg)	No.	Total (kg)					
Inventory Part I-1													
1	A	TBT	Top side	Painting and coating	A/F paints			NIL	Paints Co./marine P1000	N	V		On Aug. 200X, sealer coat applied to all over submerged area before tin free coating
2	A	TBT	Flat bottom				3,000m^2		Unknown AF	Unknown	S		
Inventory Part I-2													
1	A	Asbestos	Lower deck	Main engine	Exh. pipe packing	0.25	14		Diesel Co.	Y	V		M-100
2	A	Asbestos	3rd deck	Aux.boiler	Lagging		12		Unknown lagging	Unknown	S		M-300
3	A	Asbestos	Engine room	Piping/flange	Packing					PCHM	V		
4	A	HCFC	2nd deck	Ref. provision plant	Refrigerant (R22)	20.00	1		Reito Co.	Y	V		Maker's dwg
Inventory Part I-3													
1	A	Asbestos	Upper deck	Back deck ceilings	Engine room ceiling		20m^2		Unknown ceiling	Unknown	S		O-25

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

Before any visual/sampling check on board is conducted, the visual/sampling check specialist organization recognized or accepted by CCS is to develop the visual/sampling check plan 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 Annex 1 by document analysis are to 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 Annex 1 by document or visual analysis are to 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 Annex 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).

To prevent any incidents during the visual/sampling check, a schedule is to 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 are to be in place on board. For example, sampling of potential asbestos containing materials could release fibres into the atmosphere. Therefore, appropriate personnel safety and containment procedures are to be implemented prior to sampling.

For example of "visual/sampling check plan", refer to Annex 10.

4.1.5 Onboard visual/sampling check (Step 4)

The onboard visual/sampling check is to be carried out in accordance with the visual/sampling check plan. When a sampling check is carried out, samples are to be taken and the sample points are to be clearly marked on the ship plan and the sample results referenced. Materials of the same kind may be sampled in a representative manner. The sampling check is to be carried out drawing upon assistance of visual/sampling check specialist organization recognized or accepted by CCS. Any uncertainty regarding the presence of Hazardous Materials is to be clarified by a visual/sampling check. The results of visual/sampling checks are to be recorded in the checklist. Checkpoints are to be documented in the ship's plan and may be supported by photographs. Any equipment, systems and/or areas of the ship that cannot be accessed for checks are to be classified as "potentially containing Hazardous Material". In this case, the entry in the "Result of check" column is to be "PCHM". 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).

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

4.1.6 Testing methods

Samples may be tested by a variety of methods when it is suspected that one or more hazardous materials listed in Table A of Annex 1 are present in the product. “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. 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”. In all other cases, and in order to avoid dispute, “specific testing” is to 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. Specific tests are to be carried out by a testing organization accepted by CCS, which will provide a written report that can be relied upon by all parties. Specific test methods for Table A materials are provided in Annex 11 of the Guidelines.

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

If any equipment, system and/or area is classed as either “containing Hazardous Material” or “potentially containing Hazardous Material”, their approximate quantity and location are to be listed in Part I of the Inventory. These two categories are to be indicated separately in the remarks column of the Inventory of Hazardous Materials. The results of the onboard visual/sampling check are to be recorded on the checklist. Part I of the Inventory is to be developed with reference to the checklist. After the development of IHM, the shipowner is to determine the identification / verification number for Part I of IHM of the ship according to its own management system documents.

The development of a location diagram of materials listed in Table A of Annex 1 is recommended in order to help the Ship Recycling Facility gain a visual understanding of the Inventory. For Inventory of Hazardous Materials and example of Location Diagram of Hazardous Materials for existing ships, refer to Annex 12.

Checklist (Step 4 and Step 5)

Analysis and definition of scope of assessment for "Sample Ship" **Table 8**

No.	Tbl A/B	Hazardous Materials *1	Location	Name of equipment	Component	Quantity			Manufacturer/ brand name	Result of DOC *2	Procedure of check *3	Result of check *4	Reference DWG No.
						Unit (kg)	No.	Total (kg)					
Inventory Part I-1													
1	A	TBT	Top side	Painting and coating	A/F paints			NIL	Paints Co./marine P1000	N	V	N	On Aug. 200X, sealer coat applied to all over submerged area before tin free coating
2	A	TBT	Flat bottom			0.02	3,000m^2	60.00	Unknown AF	Unknown	S	Y	
Inventory Part I-2													
1	A	Asbestos	Lower deck	Main engine	Exh. pipe packing	0.25	14	3.50	Diesel Co.	Y	V	Y	M-100
2	A	Asbestos	3rd deck	Aux.boiler	Lagging		12		Unknown lagging	Unknown	S	N	M-300
3	A	Asbestos	Engine room	Piping/flange	Packing					PCHM	V	PCHM	
4	A	HCFC	2nd deck	Ref. provision plant	Refrigerant (R22)	20.00	1	20.00	Reito Co.	Y	V	Y	Maker's dwg
Inventory Part I-3													
1	A	Asbestos	Upper deck	Back deck ceilings	Engine room ceiling	0.19	20m^2	3.80	Unknown ceiling	Unknown	S	Y	O-25

Notes: *1 Hazardous Materials: Material classification

*2 Result of documents analysis: Y=Contained, N=Not contained, Unknown, PCHM=potentially containing Hazardous Material

*3 Procedure of check: V=Visual check, S=Sampling check

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

4.2 Maintaining Part I of the Inventory of Hazardous Materials for existing ships

4.2.1 Part I of the Inventory of Hazardous Materials during operations is to be appropriately maintained and updated by a person designated by the shipowner, especially after any repair or conversion or sale of a ship. The shipowner is also to maintain the Inventory including dates of changes or new deleted entries and the signature of the designated person.

4.2.2 If any machinery or equipment is added to, removed or replaced or the hull coating is renewed, Part I of the Inventory is to be updated according to the requirements for new ships as stipulated in Chapter 3 of the Guidelines. Updating is not required if identical parts or coatings are installed or applied. The designated person is to establish and supervise a system to ensure the necessary updating of Part I of the Inventory in the event of new installation.

4.2.3 The shipowner or management company is to establish written procedures for purchasing and controlling the supply of asbestos free material and components for repairs, modifications and maintenance. The procedures may be part of the Safety Management System (SMS) Manual and are to require asbestos free verification methods for supplied products. In addition, the shipowner is also to provide related documents as required for the survey or sale of the ship in order to prove the compliance of the Inventory of Hazardous Materials with the requirements of the Convention.

4.3 Development of Part II and Part III of the Inventory of Hazardous Materials

4.3.1 Once the decision to recycle a ship has been taken, Part II and Part III of the Inventory are to be developed before the final survey, taking into account that a ship destined to be recycled is to 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.

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

4.3.3 If the stores to be listed in Part III of the Inventory provided in Table C of Annex 1 are to be delivered with the ship to a Ship Recycling Facility, the unit (e.g., capacity of cans and cylinders), quantity and location of the stores are to be listed in Part III of the Inventory. If any liquids and gases listed in Table C of Annex 1 are integral in machinery and equipment onboard a ship, their approximate quantity and location are to be listed in Part III of the Inventory. However, small amounts of lubricating oil, anti-seize compounds and grease which are applied to or injected into machinery and equipment to maintain normal performance do not fall within the scope of this provision.

4.4 Initial survey for existing ships

4.4.1 Request for survey

(1) Prior to the initial survey for an existing ship, a request for the initial survey is to be submitted by the shipowner to CCS along with the ship data listed in paragraph 3.5.1 above.

(2) The request for an initial survey for an existing ship is to be supplemented by Part I of the Inventory of Hazardous Materials and the visual/sampling check plan.

(3) The shipowner is also to provide statement of qualification of personnel who develops the visual/sampling check plan and supporting documents (if any) for the development of Part I of the Inventory, such as MD/SDoC, the report of the visual/sampling check, Asbestos-free Declaration, testing report of Hazardous Materials and other documents which may be required by CCS.

4.4.2 The survey is to verify that the visual/sampling check plan is prepared by personnel with the requisite knowledge and experience in ship structure, equipment and material (especially the check of hazardous materials covered by the Hong Kong Convention) through the statement of qualification of personnel developing the visual/sampling check plan. It is also to be confirmed that the onboard visual/sampling check is conducted by a specialist organization (refer to Annex 9) recognized or accepted by CCS for visual/sampling check of hazardous materials by checking the appropriately endorsed report of the visual/sampling check. The visual/sampling check plan is to be audited by a trained and qualified surveyor who may witness the visual/sampling check of hazardous materials on site, where necessary.

4.4.3 The survey is to verify that the result of visual/sampling check is recorded clearly, completely and precisely.

4.4.4 The survey is to verify that Part I of the Inventory of Hazardous Materials identifies the Hazardous Materials contained and/or potentially contained in the ship structure and equipment, their location and approximate quantities, by checking supporting information such as the report of the visual check and/or sampling check, MD/SDoC (if any) and hazardous materials testing report. Classification as "potentially containing hazardous materials" is to be noted in the remarks column of the Inventory of Hazardous Materials. For classification as "potentially containing hazardous materials", the survey is to verify that comprehensive justification is given by the shipowner according to paragraph 4.1.4.

4.4.5 The survey is to verify through field check that Part I of the Inventory of Hazardous Materials and visual/sampling check plan are consistent with the arrangements, structure and equipment of the ship, the materials listed in Table A of Annex 1 are identified and recorded and materials listed in Table B of Annex 1 are identified and recorded as far as possible with the existing conditions.

4.4.6 For equipment, system and/or area classed as "potentially containing Hazardous Material" (PCHM) in Part I of the Inventory, it is to be confirmed on site whether it is convenient to conduct sampling check. Any equipment, system and/or area confirmed to be classed as "potentially containing Hazardous Material" are required to be investigated or subjected to a sampling check in any possible situations (e.g., during repair, refit or conversion) and the request for survey is to be submitted as appropriate (the survey may be conducted in combination with other surveys).

4.4.7 If the surveyor finds that the Inventory of Hazardous Materials is not consistent with the actual structure, equipment and arrangement of the ship or suspects the authenticity of MD and SDoC provided by the shipowner, the shipowner may be requested to provide further supporting documents or the report issued by the testing organization recognized or accepted by CCS.

4.4.8 The survey is to verify that no new installation of materials containing asbestos on the ship since 1 January 2011 by checking the valid statutory certificates (such as Cargo Ship Safety Construction Certificate) and repairing record of the ship. In addition, the Asbestos-free Declaration issued by the shipowner or ship management company (refer to the company defined in SOLAS Chapter IX) based on the format specified in (3) of Annex 6 and the Asbestos-free Declaration (see Annex 6 for the format) for the new installation of materials, equipment and components since the surveys of Passenger Ship Safety Certificate or Cargo Ship Safety Construction Certificate/Cargo Ship Safety Equipment Certificate are to be checked.

4.4.9 The survey is to verify that the ship is in compliance with the applicable other requirements of the flag State (if any), e.g., EU Directive: 2011/65/EU.

4.5 Additional survey for existing ships

4.5.1 An additional survey, either general or partial according to the circumstances, may be conducted at the voluntary request of the shipowner after change, replacement or significant repair of the structure, equipment, systems, fittings, arrangements and material, which has an impact on Part I of the Inventory of Hazardous Materials.

4.5.2 Prior to the additional survey, a request for the additional survey is to be submitted by the shipowner to CCS along with the ship data listed in paragraph 3.5.1 above, the latest version of part I of the Inventory of Hazardous Materials, MD/SDoC, Asbestos-free Declaration and other supporting documentation (if any) regarding any change, replacement or significant repair of structure, equipment, systems, fittings, arrangements and material since the last survey. In addition, the shipowner or management company is also to provide an overall Asbestos-free Declaration of the ship, clarifying that no asbestos is contained in materials newly installed on the ship since the last annual/periodical survey according to SOLAS regulation II-1/3-5.

4.5.3 The survey is to verify that Part I of the Inventory of Hazardous Materials is properly maintained and updated to reflect changes in ship structure and equipment, by checking documents and information, and is to clarify that the ship complies with requirements of regulation 1.3 of the Guidelines on the control of hazardous materials.

4.5.4 The survey is also to verify that the Inventory of Hazardous Materials, especially the location of Hazardous Materials, is consistent with the arrangements, structure and equipment of the ship, through on-board visual inspection. The survey is to further verify that any decision by the owner to delete equipment, system and/or area previously classed as "potentially containing hazardous materials" from Part I of the Inventory of Hazardous Materials is based on clear grounds for believing that the equipment, system and/or area in question contain no Hazardous Materials.

4.5.5 If the surveyor finds that the Inventory of Hazardous Materials is not consistent with the actual structure, equipment and arrangement of the ship or suspects the authenticity of MD and SDoC provided by the shipowner, the shipowner may be requested to provide further supporting documents or the report issued by the testing organization recognized or accepted by CCS.

4.6 Renewal survey for existing ships

4.6.1 Prior to the additional survey, a request for the additional survey is to be submitted by the shipowner to CCS along with the ship data listed in paragraph 3.5.1 above, the latest version of part I of the Inventory of Hazardous Materials, MD/SDoC, Asbestos-free Declaration and other supporting documents (if any) regarding any change, replacement or significant repair of structure, equipment, systems, fittings, arrangements and material since the last survey. In addition, the shipowner or management company is also to provide an overall Asbestos-free Declaration of the ship, clarifying that no asbestos is contained in materials newly installed on the ship since the last annual/periodical survey according to SOLAS regulation II-1/3-5.

4.6.2 Checking of documentation and onboard field verification are to be conducted with reference to 4.5.3 to 4.5.5.

4.6.3 The survey is to verify that the ship is in compliance with the applicable other requirements of the flag State (if any), e.g., EU Directive: 2011/65/EU.

4.7 Final survey for existing ships

4.7.1 Before a ship is taken out of service and before the recycling of the ship has started, a request for the final survey is to be submitted by the shipowner to CCS along with the ship data listed in paragraph 3.5.1 above and the Ship Recycling Facility data required for the International Ready for Recycling Certificate as follows:

(1) name of the Ship Recycling Facility(ies);

(2) distinctive Recycling Company identity number (as listed on the Document of Authorization to conduct Ship Recycling (DASR));

(3) full address; and

(4) date of expiry of DASR.

In cases where multiple Ship Recycling Facilities are involved, the appropriate information for all the facilities is to be provided.

4.7.2 The request for a final survey is to be supplemented by:

(1) the International Certificate on Inventory of Hazardous Materials[①]/ Document of Compliance of the Inventory of Hazardous Materials, the Inventory of Hazardous Materials, MD/SDoC, Asbestos-free Declaration and other supporting documents (if any) regarding any change, replacement or significant repair of the structure, equipment, systems, fittings, arrangements and/or material since the last survey;

(2) the approved Ship Recycling Plan; and

(3) a copy of the DASR.

4.7.3 The survey is to verify that part I of the Inventory of Hazardous Materials is properly maintained and updated to reflect changes in ship structure and equipment since the last survey, Part II for operationally generated wastes and Part III for stores are correctly filled and operations during the period between the final survey and the arrival at the Ship Recycling Facility are to be taken into consideration.

4.7.4 The survey is to verify that all Ship Recycling Facilities involved in the recycling of the ship are to be authorized by the local competent authority.

4.7.5 The survey is to verify that the Ship Recycling Plan is to be either explicitly or tacitly approved by the competent authority authorizing the Ship Recycling Facility. In the case of tacit approval of the Ship Recycling Plan, the written acknowledgement of receipt of the Ship Recycling Plan sent by the competent authority and the end date of the 14-day review period are also to be verified. The survey is also to verify that the Ship Recycling Plan properly reflects the information contained in the Inventory of Hazardous Materials and contains information concerning the establishment, maintenance and monitoring of Safe-for-entry and Safe-for-hot-work conditions.

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① If the initial survey and final survey are conducted simultaneously, the International Certificate on Inventory of Hazardous Materials may not be required for the ship.

4.7.6 The survey is also to verify that the Inventory of Hazardous Materials, especially the location of Hazardous Materials, is consistent with the arrangements, structure and equipment of the ship, through on-board visual inspection. The survey is to further verify that any decision by the owner to delete equipment, system and/or area previously classed as "potentially containing hazardous materials" from Part I of the Inventory of Hazardous Materials is based on clear grounds for believing that the equipment, system and/or area in question contain no Hazardous Materials.

4.7.7 If the surveyor finds that the Inventory of Hazardous Materials is not consistent with the actual structure, equipment and arrangement of the ship or suspects the authenticity of MD and SDoC provided by the shipowner, the shipowner may be requested to provide further supporting documents or the report issued by the testing organization recognized or accepted by CCS.

4.7.8 The survey is to verify that the ship is in compliance with other requirements of the flag State (where applicable).

Annex 1 Items to be Listed in the Inventory of Hazardous Materials

Hazardous materials to be prohibited **Table A**

No.	Materials		Inventory			Threshold value
			Part I	Part II	Part III	
A-1	Asbestos		×			0.1%①
A-2	Polychlorinated biphenyls (PCBs)		×			50 mg/kg②
A-3	Ozone Depleting Substances	CFC	×			no threshold value③
		Halons	×			
		Other fully halogenated CFCs	×			
		Carbon tetrachloride	×			
		1,1,1-Trichloroethane (Methyl chloroform)	×			
		Hydrochlorofluorocarbons	×			
		Hydrobromofluorocarbons	×			
		Methyl bromide	×			
		Bromochloromethane	×			
A-4	Anti-fouling systems containing organotin compounds as a biocide		×			2,500 mg total tin/kg④
A-5	Perfluorooctane sulfonic acid (PFOS)⑤ and its derivatives (CAS No: 1763-23-1)		×			10 mg/kg (0.001% m/m)⑥

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 UN 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 In accordance with regulation 4 of the Convention, for all ships, new installation of materials which contain PCBs shall be prohibited. Setting 50 mg/kg as the threshold value referring to the concentration level at which wastes, substances and articles containing, consisting of or contaminated with PCB are characterized as hazardous under the Basel Convention

③ "No threshold value" is in accordance with the Montreal Protocol for reporting ODS. Unintentional trace contaminants should not be listed in the Material Declarations and in the Inventory.

④ This threshold value is based on the Guidelines for brief sampling of anti-fouling systems on ships (resolution MEPC.104(49)).

⑤ For ships flying the flag of EU members, ships applying for CCS class notation "GPR (EU)" or ships applying for the issuance of Document of Compliance of the Inventory of Hazardous Materials in compliance with Regulation (EU) No 1257/2013 only, for more details of the standards, please refer to the (EU)757/2010 regulation .

⑥ 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 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 the amount of PFOS is equal to or above than 1 μg/m² of the textiles or other coated material.

Hazardous materials to be controlled **Table B**

No.	Materials	Inventory			Threshold value
		Part I	Part II	Part III	
B-1	Cadmium and cadmium compounds	×			100 mg/kg①
B-2	Hexavalent chromium and hexavalent chromium compounds	×			1,000 mg/kg①
B-3	Lead and lead compounds	×			1,000 mg/kg①
B-4	Mercury and mercury compounds	×			1,000 mg/kg①
B-5	Polybrominated biphenyl (PBBs)	×			50 mg/kg②
B-6	Polybrominated diphenyl ethers (PBDEs)	×			1,000 mg/kg①
B-7	Polychlorinated naphthalenes (more than 3 chlorine atoms)	×			50 mg/kg③
B-8	Radioactive substances	×			no threshold value④
B-9	Certain shortchain chlorinated paraffins (Alkanes, C10-C13, chloro)	×			1%⑤
B-10	Brominated flame retardant (HBCDD)⑥	×			100 mg/kg

① Setting this as the threshold value referring to the Restriction of Hazardous Substances (RoHS Directive 2011/65/EU, Annex II).

② Setting 50 mg/kg as the threshold value referring to the concentration level at which wastes, substances and articles containing, consisting of or contaminated with PBB are characterized as hazardous under the Basel Convention.

③ Setting 50 mg/kg as the threshold value referring to the concentration level at which wastes, substances and articles containing, consisting of or contaminated with PCN are characterized as hazardous under the Basel Convention.

④ All radioactive sources should be included in the Material Declaration and in the Inventory. 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 consumer products and industrial gauges with radioactive materials. Examples are listed in Annex 13.

⑤ Setting 1% as the threshold value referring to the EU legislation that restricts Chlorinated Paraffins from being placed on the market for use as substances or as constituents of other substances or preparations in concentrations higher than 1% (EU Regulation 1907/2006, Annex XVII Entry 42 and Regulation 519/2012).

⑥ For ships flying the flag of EU members, ships applying for CCS class notation "GPR (EU)" or ships applying for the issuance of Document of Compliance of the Inventory of Hazardous Materials in compliance with Regulation (EU) No 1257/2013 only, for more details of the standards, please refer to the (EC)850/2004 regulation, as amended by (EU) 2016/293.

Potentially hazardous items **Table C**

No.	Properties		Goods	Inventory		
				Part I	Part II	Part III
C-1	Liquid	Oiliness	Kerosene			×
C-2			White spirit			×
C-3			Lubricating oil			×
C-4			Hydraulic oil			×
C-5			Anti-seize compounds			×
C-6			Fuel additive			×
C-7			Engine coolant additives			×
C-8			Antifreeze fluids			×
C-9			Boiler and feed water treatment and test re-agents			×
C-10			De-ioniser regenerating chemicals			×
C-11			Evaporator dosing and descaling acids			×
C-12			Paint stabilizers/rust stabilizers			×
C-13			Solvents/thinners			×
C-14			Paints			×
C-15			Chemical refrigerants			×
C-16			Battery electrolyte			×
C-17			Alcohol, methylated spirits			×
C-18	Gas	Explosives/ inflammables	Acetylene			×
C-19			Propane			×
C-20			Butane			×
C-21			Oxygen			×
C-22		Green House Gases	CO_2			×
C-23			Perfluorocarbons (PFCs)			×
C-24			Methane			×
C-25			Hydrofluorocarbon (HFCs)			×
C-27			Nitrous oxide(N_2O)			×
C-28			Sulfur hexafluoride (SF_6)			×

No.	Properties		Goods	Inventory		
				Part I	Part II	Part III
C-29	Liquid	Oiliness	Bunkers: fuel oil			×
C-30			Grease			×
C-31			Waste oil (sludge)		×	
C-32			Bilge and/or waste water generated by the aftertreatment systems fitted on machineries		×	
C-33			Oily liquid cargo tank residues		×	
C-34			Ballast water		×	
C-35			Raw sewage		×	
C-36			Treated sewage		×	
C-37			Non-oily liquid cargo residues		×	
C-38	Gas	Explosibility/ inflammability	Fuel gas			×
C-39	Solid		Dry cargo residues		×	
C-40			Medical waste/infectious waste		×	
C-41			Incinerator ash*		×	
C-42			Garbage*		×	
C-43			Fuel tank residues		×	
C-45			Oily solid cargo tank residues		×	
C-45			Oily or chemical contaminated rags		×	
C-46			Batteries (incl. lead acid batteries)			×
C-47			Pesticides/insecticide sprays			×
C-48			Extinguishers			×
C-49			Chemical cleaner (incl. electrical equipment cleaner, carbon remover)			×
C-50			Detergent/bleacher (could be a liquid)			×
C-51			Miscellaneous medicines			×
C-52			Fire-fighting clothing and Personal protective equipment			×
C-53			Dry tank residues		×	
C-54			Cargo residues		×	
C-55			Spare parts which contain materials listed in Table A or Table B			×

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

Regular consumable goods potentially containing Hazardous Materials Table D①

No.	Properties	Example	Inventory		
			Part I	Part II	Part III
D-1	Electrical and electronic equipment	Computers, refrigerators, printers, scanners, television sets, radio sets, video cameras, video recorders, telephones, consumer batteries, fluorescent lamps, filament bulbs, lamps			×
D-2	Lighting equipment	Fluorescent lamps, filament bulbs, lamps			×
D-3	Non ship-specific furniture, interior and similar equipment	Chairs, sofas, tables, beds, curtains, carpets, garbage bins, bed-linen, pillows, towels, mattresses, storage racks, decoration, bathroom installations, toys, not structurally relevant or integrated artwork			×

① This Table does not include ship-specific equipment integral to ship operations, which has to be listed in Part I of the Inventory.

Annex 2 Standard Format of the Inventory of Hazardous Materials and Format of Document of Compliance of the Inventory of Hazardous Materials

This annex contains three appendixes:

Appendix 1 Standard Format of the Inventory of Hazardous Materials

Appendix 2 Format of Document of Compliance of the Inventory of Hazardous Materials in Compliance with the Hong Kong Convention

Appendix 3 Format of Document of Compliance of the Inventory of Hazardous Materials in Compliance with Regulation (EU) No 1257/2013

Appendix 1 Standard Format of the Inventory of Hazardous Materials

The Inventory of Hazardous Materials of "_____"
(name of ship)

Identification/verification number of Part I of the Inventory of Hazardous Materials:_____

Particulars of the Ship

Distinctive number or letters	
Port of Registry	
Type of ship	
Gross tonnage	
IMO number	
Name of shipyard	
Name of shipowner	
Date of delivery	

This inventory was developed in accordance with IMO "Guidelines for the development of the Inventory of Hazardous Materials".

Attachments:

1 Inventory of Hazardous Materials

2 Location diagram of Hazardous Materials

Prepared by:_____

Address:_____

Date:_____

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

I-1 Paints and coating systems containing materials listed in Table A and Table B of Annex 1 to the Guidelines

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

I-2 Equipment and machinery containing materials listed in Table A and Table B of Annex 1 to the Guidelines

No.	Name of equipment and machinery	Location	Materials (classification in Annex 1)	Parts where used	Approx. quantity		Remarks
1	Switch board	Engine control room	Cadmium	Housing coating	0.02	kg	
			Mercury	Heat gauge	<0.01	kg	less than 0.01kg
2	~~Diesel engine, xx Co., xx #150~~	~~Engine room~~	~~Lead~~	~~BearingStarter for blower~~	~~0.02~~	~~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 (x 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

I-3 Structure and hull containing materials listed in Table A and Table B of Annex 1 to the Guidelines

No.	Name of structural element	Location	Materials (classification in Annex 1)	Parts where used	Approx. quantity		Remarks
1	Wall panel	Accommodation	Asbestos	Insulation	2,500.00	kg	
2	Wall insulation	Engine control room	Lead	Perforated plate	0.01	kg	cover for insulation material
			Asbestos	Insulation	25.00	kg	under perforated plates

Part II OPERATIONALLY GENERATED WASTE

No.	Location[1)]	Name of item (classification in Annex 1) and detail (if any) of the item	Approx. quantity		Remarks
1	Garbage locker	Garbage (food waste)	35.00	kg	
2	Bilge tank	Bilgewater	15.00	m^3	
3	No.1 cargo hold	Dry cargo residues (iron ore)	110.00	kg	
4	No.2 cargo hold	Waste oil (sludge) (crude)	120.00	kg	
5	No.1 ballast tank	Ballast water	2,500.00	m^3	
		Sediments	250.00	kg	

Part III STORES

III-1 Stores

No.	Location[1)]	Name of item (classification in Annex 1)	Unit quantity		Figure		Approx. quantity		Remarks [2)]
1	No.1 fuel oil tank	Fuel oil (heavy fuel oil)	-		-		100.00	m^3	
2	CO_2 room	CO_2	100.00	kg	50	bottles	5,000.00	kg	
3	Workshop	Propane	20.00	kg	10	pcs	200.00	kg	
4	Medicine locker	Miscellaneous medicines	-		-		-		Details are shown in the attached list
5	Paint stores	Paint, xx Co., #600	20.00	kg	5	pcs	100.00	kg	Cadmium containing

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

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

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

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

III-4 Regular consumable goods potentially containing Hazardous Materials

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

1) The location of a Part II or Part III item is to be entered in order based on its location, from a lower level to an upper level and from a fore part to an aft part. The location of Part I items is recommended to be described similarly, as far as practicable.

2) In column "Remarks" for Part III items, if Hazardous Materials are integrated in products, the approximate amount of the contents is to be shown as far as possible.

Appendix 2 Format of Document of Compliance of the Inventory of Hazardous Materials

Form SHK

China Classification Society

No.

Document of Compliance of the Inventory of Hazardous Materials

(Note: This Document of Compliance is to be supplemented by Part I of the Inventory of Hazardous Materials)

Issued by CCS under the provisions of the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (hereinafter referred to as "the Convention").

Particulars of the Ship

Name of Ship	
Distinctive number or letters	
Port of Registry	
Gross tonnage	
IMO number	
Name and address of shipowner	
IMO registered owner identification number	
IMO company identification number	
Date of Construction	

Appendix 2 Format of Document of Compliance of the Inventory of Hazardous Materials Form SHK

China Classification Society

Particulars of Part I of the Inventory of Hazardous Materials

Identification/verification number of Part I of the Inventory of Hazardous Materials:_____

Note: Part I of the Inventory of Hazardous Materials, as required by regulation 5 of the Annex to the Convention, is an essential part of the Document of Compliance of Inventory of Hazardous Materials and must always accompany the Document of Compliance of Inventory of Hazardous Materials. Part I of the Inventory of Hazardous Materials is to be compiled on the basis of the standard format shown in the guidelines developed by IMO.

THIS IS TO CERTIFY:

1. that the ship has been surveyed in accordance with regulation 10 of the Annex to the Convention; and

2. that the survey shows that Part I of the Inventory of Hazardous Materials fully complies with the applicable requirements of the Convention.

Completion date of survey on which this certificate is based: ..... (dd/mm/yyyy)

This certificate is valid until ..... (dd/mm/yyyy)

Issued at .....

Date of issue..... (dd/mm/yyyy) China Classification Society

Appendix 2 Format of Document of Compliance of the Inventory of Hazardous Materials Form SHK

China Classification Society

ENDORSEMENT TO EXTEND THE DOCUMENT OF COMPLIANCE IF VALID FOR LESS THAN FIVE YEARS WHERE REGULATION 11.6 APPLIES①

The ship complies with the relevant provisions of the Convention, and this document of compliance is to, in accordance with regulation 11.6 of the Annex to the Convention, be accepted as valid until (dd/mm/yyyy): .....

Place: .....

Date: (dd/mm/yyyy) ..... Surveyor of China Classification Society.....

ENDORSEMENT WHERE THE RENEWAL SURVEY HAS BEEN COMPLETED AND REGULATION 11.7 APPLIES①

The ship complies with the relevant provisions of the Convention, and this document of compliance is to, in accordance with regulation 11.7 of the Annex to the Convention, be accepted as valid until (dd/mm/yyyy): .....

Place: .....

Date: (dd/mm/yyyy) ..... Surveyor of China Classification Society.....

① This page of the endorsement at survey shall be reproduced and added to the document of compliance as considered necessary by CCS.

Appendix 2 Format of Document of Compliance of the Inventory of Hazardous Materials Form SHK

China Classification Society

ENDORSEMENT TO EXTEND THE VALIDITY OF THE DOCUMENT OF COMPLIANCE UNTIL REACHING THE PORT OF SURVEY OR FOR A PERIOD OF GRACE WHERE REGULATION 11.8 OR 11.9 APPLIES①

This document of compliance is to, in accordance with regulation 11.8 or 11.9② of the Annex to the Convention, be accepted as valid until (dd/mm/yyyy): .....

Place: .....

Date: (dd/mm/yyyy) ..... Surveyor of China Classification Society.....

ENDORSEMENT FOR ADDITIONAL SURVEY①

At an additional survey in accordance with regulation 10 of the Annex to the Convention, the ship was found to comply with the relevant provisions of the Convention.

Place: .....

Date: (dd/mm/yyyy) ..... Surveyor of China Classification Society.....

ENDORSEMENT FOR ADDITIONAL SURVEY

At an additional survey in accordance with regulation 10 of the Annex to the Convention, the ship was found to comply with the relevant provisions of the Convention.

Place: .....

Date: (dd/mm/yyyy) ..... Surveyor of China Classification Society.....

① This page of the endorsement at survey shall be reproduced and added to the document of compliance as considered necessary by CCS.
② Delete as appropriate.

Appendix 3 Format of Document of Compliance of the Inventory of Hazardous Materials

Form SHK(EU)

China Classification Society

No._____

Document of Compliance of the Inventory of Hazardous Materials

(Note: This Document of Compliance is to be supplemented by Part I of the Inventory of Hazardous Materials)

Issued by CCS under the provisions of Regulation (EU) No 1257/2013.

Particulars of the Ship:

Name of Ship	
Distinctive number or letters	
Port of Registry	
Gross tonnage	
IMO number	
Name and address of shipowner	
IMO registered owner identification number	
IMO company identification number	
Date of Construction	

Appendix 3 Format of Document of Compliance of the Inventory of Hazardous Materials Form SHK(EU)

China Classification Society

Particulars of Part I of the Inventory of Hazardous Materials

Identification/verification number of Part I of the Inventory of Hazardous Materials:_____

Note: Part I of the Inventory of Hazardous Materials, as required by regulation 5 of Regulation (EU) No 1257/2013, is an essential part of the Document of Compliance of Inventory of Hazardous Materials and must always accompany the Document of Compliance of Inventory of Hazardous Materials. Part I of the Inventory of Hazardous Materials is to be compiled on the basis of the standard format shown in the guidelines developed by IMO.

THIS IS TO CERTIFY:

1. that the ship has been surveyed in accordance with regulation 8 of Regulation (EU) No 1257/2013; and

2. that the survey shows that Part I of the Inventory of Hazardous Materials fully complies with the applicable requirements of Regulation (EU) No 1257/2013.

Completion date of survey on which this certificate is based: ..... (dd/mm/yyyy)

This certificate is valid until ..... (dd/mm/yyyy)

Issued at .....

Date of issue..... (dd/mm/yyyy) China Classification Society

Appendix 3 Format of Document of Compliance of the Inventory of Hazardous Materials

Form SHK(EU)

China Classification Society

ENDORSEMENT TO EXTEND THE DOCUMENT OF COMPLIANCE IF VALID FOR LESS THAN FIVE YEARS WHERE REGULATION 9.5 APPLIES①

The ship complies with the relevant provisions of Regulation (EU) No 1257/2013, and this document of compliance is to, in accordance with regulation 9.5 of Regulation (EU) No 1257/2013, be accepted as valid until (dd/mm/yyyy): .....

Place: .....

Date: (dd/mm/yyyy) ..... Surveyor of China Classification Society.....

ENDORSEMENT WHERE THE RENEWAL SURVEY HAS BEEN COMPLETED AND REGULATION 9.4 APPLIES①

The ship complies with the relevant provisions of Regulation (EU) No 1257/2013, and this document of compliance is to, in accordance with regulation 9.4 of Regulation (EU) No 1257/2013, be accepted as valid until (dd/mm/yyyy): .....

Place: .....

Date: (dd/mm/yyyy) ..... Surveyor of China Classification Society.....

① This page of the endorsement at survey shall be reproduced and added to the document of compliance as considered necessary by CCS.

Appendix 3 Format of Document of Compliance of the Inventory of Hazardous Materials Form SHK(EU)

China Classification Society

ENDORSEMENT TO EXTEND THE VALIDITY OF THE DOCUMENT OF COMPLIANCE UNTIL REACHING THE PORT OF SURVEY OR FOR A PERIOD OF GRACE WHERE REGULATION 9.7 OR 9.8 APPLIES①

This document of compliance is to, in accordance with regulation 9.7 or 9.8② of Regulation (EU) No 1257/2013, be accepted as valid until (dd/mm/yyyy): .....

Place: .....

Date: (dd/mm/yyyy) ..... Surveyor of China Classification Society.....

ENDORSEMENT FOR ADDITIONAL SURVEY①

At an additional survey in accordance with regulation 8 of the Annex to Regulation (EU) No 1257/2013, the ship was found to comply with the relevant provisions of the Convention.

Place: .....

Date: (dd/mm/yyyy) ..... Surveyor of China Classification Society.....

ENDORSEMENT FOR ADDITIONAL SURVEY①

At an additional survey in accordance with regulation 8 of the Annex to Regulation (EU) No 1257/2013, the ship was found to comply with the relevant provisions of the Convention.

Place: .....

Date: (dd/mm/yyyy) ..... Surveyor of China Classification Society.....

① This page of the endorsement at survey shall be reproduced and added to the document of compliance as considered necessary by CCS.
② Delete as appropriate.

Annex 3 Form of Material Declaration

<Date of declaration>

Date	

<MD ID number>

MD- ID- No.	

<Other information>

Remark 1	
Remark 2	
Remark 3	

<Supplier (respondent) information>

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

<Product information>

Product name	Product number	Delivered unit			Product information
		Amount	Unit		

<Materials information>

This materials information shows the amount of hazardous materials contained in m, m^2, m^3, etc.) of the product.

Unit	(unit: piece, kg,
1	

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 A	Asbestos	Asbestos	0.1%①				
	Polychlorinated biphenyls (PCBs)	Polychlorina ted biphenyls (PCBs)	50 mg/kg				
	Ozone depleting substance	Chlorofluor ocaobons (CFCs)	no threshold value				
		Halons					
		Other fully halogenated CFCs					
		Carbon tetrachloride					
		1,1,1-Trichlor oethane					
		Hydrochloro fluorocaobons					
		Hydrobrom ofluorocaobons					
		Methyl bromide					
		Bromochlor omethane					
	Anti-fouling systems containing organotin compounds as a iocide		2,500 mg total tin/kg				
	Perfluorooctane sulfonic acid (PFOS)* and its derivatives		10 mg/kg (0.001% m/m)②				

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 UN 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 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 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 the amount of PFOS is equal to or above than 1 μg/m² of the textiles or other coated material.

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 B	Cadmium and cadmium compounds	100 mg/kg				
	Hexavalent chromium and hexavalent chromium compounds	1,000 mg/kg				
	Lead and lead compounds	1,000 mg/kg				
	Mercury and mercury compounds	1,000 mg/kg				
	Polybrominated biphenyl (PBBs)	50 mg/kg				
	Polybrominated dephenyl ethers (PBDEs)	1,000 mg/kg				
	Polychloronaphthalenes (Cl >= 3)	50 mg/kg				
	Radioactive substances	no threshold value				
	Certain shortchain chlorinated paraffins	1%				
	Brominated flame retardant (HBCDD)*	100 mg/kg				

*Note: For ships flying the flag of EU members, ships applying for class notation “GPR (EU)” or ships applying for the issuance of Document of Compliance of the Inventory of Hazardous Materials in compliance with Regulation (EU) No 1257/2013.

Annex 4 Form of Supplier's Declaration of Conformity

Supplier's Declaration of Conformity for Material Declaration management

1) Identification number: _____

2) Issuer's name:_____

Issuer's address:_____

3) Object(s) of the declaration:_____

_____

_____

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

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

6) Additional information: _____

_____

Signed for and on behalf of:

_____

_____

(Place and date of issue)

7) _____ _____

(Name, function) (Signature)

Annex 5 Distribution of Common Hazardous Materials on Ships

This appendix is developed on the basis of resolution MEPC. 269 (68) "Guidelines for the Development of the Inventory of Hazardous Materials" and the existing experience of CCS. CCS is to keep the periodical updating of this appendix according to the further experience gained.

1 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/ Exh. pipe packing
	Lagging material turbocharger
Turbine engine / steam turbine	Lagging material for casing
	Packing with flange of piping and valve for steam line, exhaust line and drain line
	Lagging material for piping and valve of steam line, exhaust line and drain line
Boiler	Insulation in combustion chamber
	Boiler claddings casings and insulation
	Packing for casing door
	Lagging material for exhaust pipe
	Fire bricks and furnace linings
	Gasket for manhole
	Gasket for hand hole
	Gas shield packing for soot blower and other hole
	Packing with flange of piping and valve for steam line, exhaust line, fuel line and drain line
	Lagging material for piping and valve of steam line, exhaust line, fuel line and drain line
Exhaust gas economizer	Packing for casing door
	Packing with manhole
	Packing with hand hole
	Gas shield packing for soot blower
	Packing with flange of piping and valve for steam line, exhaust line, fuel line and drain line
	Lagging material for piping and valve of steam line, exhaust line, fuel line and drain line
Incinerator	Packing for casing door
	Packing with manhole
	Packing with hand hole
	Lagging material for exhaust pipe
Auxiliary machinery (pump, compressor, oil purifier, crane, windlass, steering gear, winch, shaft brake, cargo gear, separators, hydraulic systems)	Packing for casing door and valve
	Gland packing
	Friction material for brakes (brake lining)

Structure and/or equipment	Component
Heat exchanger	Packing with casing
	Gland packing for valve
	Lagging material and insulation
Valve	Valve packing/gland packing with valve, sheet packing with piping flange, bonnet
	Gasket with flange of high pressure and/or high temperature
Pipe, duct	Lagging material and insulation, gland packing for piping
Tank (fuel tank, hot water, tank, condenser), other equipment (fuel strainer, lubricant oil strainer)	Lagging material and insulation
Electric equipment	Thermal insulating materials, circuit breaker and fuse, circuit breaker arc chutes，electric cable materials/insulation (particularly cables with cloth like sheathes)
Ceiling, floor and wall in accommodation area, galleys and messes	Ceiling, ceiling covering, floor, wall
Fire insulation (accommodation, engine room, funnel and uptakes, auxiliary and service spaces. Stores, control spaces such as fire control spaces/cargo control spaces, navigation spaces, lockers etc.)	Door (packing, construction and insulation of the fire door), boards, penetrations (particularly cables and pipes in fire bulkheads), bulkheads, fire shields and fireproofing, rope door sealants, sprayed on insulation
Inert gas system	Packing for casing, etc.
Air-conditioning system	Sheet packing, lagging material for piping and flexible joint, HVAC ducts (Ducts are used in heating, ventilation, and air conditioning)
Miscellaneous	Thermal insulating materials, i.e. Class “A-60” insulation materials Deck covering Ropes/cords Fire shields/fire proofing Space/duct insulation Galley equipment Electrical bulkhead penetration packing Brake linings Steam/water/vent flange gaskets Thermal laggings and insulation for high temperature applications, special pipes and high temperature conduits uptakes, exhausts, service spaces steam pipes, high temp fuel/oil/water/other fluid laggings, gaskets, glands Paints (temperature insulation intention, i.e. paints for M.E. casing) Adhesives/glues/mastics/sealant/packing (filler) Tiles/floor tiles/deck underlay Sound damping/sound insulation Plaster (including decorative mouldings) Plastics (moulded plastic products) Putty (sealing putty) Shaft, seal of propeller shaft，propeller shaft bearing Underlays Hangars Inserts Pipe hanger inserts Padding Joints Surfacing materials Welding curtain Welding equipment (weld shop protectors/burn covers) Firefighting equipment (fire-fighting blankets/clothing/gloves, overalls, heat protective blankets) Concrete ballast Concrete laid for passive fire protection Shielding Textiles

2 Polychlorinated biphenyl (PCBs)

Worldwide restriction of PCBs began on 17 May 2004 as a result of the implementation of the Stockholm Convention, which aims to eliminate or restrict the production and use of persistent organic pollutants.

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

3 Ozone depleting substances (ODS)

Ozone depleting substances have been controlled according to the Montreal Protocol and Annex VI to MARPOL Convention. Although almost all substances have been banned since 1996, HCFC can still be used until 2020.

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

4 Anti-fouling systems containing organotin compounds as a biocide

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 are not to apply or re-apply organotin compounds after 1 January 2003, and that, after 1 January 2008, all ships are either not to bear such compounds on their hulls or to 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 Perfluorooctane sulfonic acid (PFOS)

Common materials or equipment which contain PFOS are as follows:

Materials/ Equipment	Component of equipment
AFFF，Aqueous Film Forming Foams	Fire extinguishing agent
FFFP，Film-forming Fluor-protein Foams	The possibility of usage in ships is low
AR-AFFF，Alcohol-resistant Aqueous Film-forming Foams	The possibility of usage in ships is low
AR-FFFP，Alcohol-resistant Film-forming Flour-protein Foams	The possibility of usage in ships is low
Hydraulic Oil	
Cable sheath	
Electrical and electronic components	Printers, scanners, satellite communication instruments, radar systems, etc.
Metal plating (hard chrome plating)	
Surface coatings, paint and varnish	
Adhesive	

6 Materials listed in Table B

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

Materials	Component 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 biphenyls (PBBs)	Non-flammable plastics
Polybrominated diphenyl ethers (PBDE)	Non-flammable plastics
Polychlorinated naphthalenes	Paint, lubricating oil
Radioactive substances	Refer to Annex 13
Certain shortchain chlorinated paraffins	Non-flammable plastics
HBCDD	Additive flame retardant, such as: switch plug cover, switch board, polymer made fire resistance insulation, fire sensor/alarm cover, light cover, cable sheath, coatings, flooring material

Annex 6 Format of Asbestos-free Declaration (manufacturer/supplier, shipyard and shipowner/ship management company)

(1) Format of Asbestos-free Declaration (manufacturer/supplier*)

Asbestos-free Declaration

1 Document No.:

2 Manufacturer/supplier* Information:

Company Name	
Company Address	
Contact person	
Telephone Number	
FAX Number	
E-mail Address	

3 Product Information

Product Name	
Type	
Serial/batch Number (If applicable)	
Product Quantity(If applicable)	
Other Information, i.e. name of ship, hull construction number if specific ship is known	

4 This company declares the product(s) described above are asbestos-free and in conformity with the procedures and relevant regulation(s) of the following document(s) as listed under 5.

5 Applicable Regulation(s) or other stipulated Requirement(s):

Document No.	Title	Edition
MSC.282(86)	Amendments to the International Convention for the Safety of Life at Sea,1974, as Amended	
IMO MSC.1/Circ.1379	Unified Interpretation of SOLAS Regulation II-1/3-5	
ISO 9001 (If applicable)	Quality management systems	
IMO MSC.1/Circ.1426	Unified Interpretation of SOLAS Regulation II-1/3-5	
Manufactures' /supplier'* other relevant internal procedures (to be listed)		

Place and date: Manufacturer's/supplier'* representative (Name, position, title):

*: Delete if not applicable.

(2) Format of Asbestos-free Declaration (shipyard)

Asbestos-free Declaration

This is to declare that:

_____

Shipyard

has constructed the following ship in accordance with SOLAS Regulation II-1/3-5 and that therefore the ship does not contain asbestos (applicable for newbuildings) *:
Has major conversed the following ship in accordance with SOLAS Regulation II-1/3-5 and that therefore the major conversion portion of ship does not contain asbestos (applicable for existing ships under major conversion) *:

Name of Ship:

Distinctive number or letters:

Port of Registry:

IMO Number:

Hull Construction Number:

Date on which keel was laid or ship was at a similar stage of construction (applicable for newbuildings) *:

Date of commencement of major conversions (applicable for existing ships under major conversion) *:

Date of completion of major conversions (applicable for existing ships under major conversion) *:

Date of delivery:

This Declaration is based upon the following Requirements and procedures of the shipyard:

SOLAS Regulation II-I/3-5, New Installation of Asbestos

IMO MSC.1/Circ.1379

ISO 9001

IMO MSC.1/Circ.1426/ISO 9001

Shipyard's other relevant internal procedures (to be listed):

Place and date:

Shipyard's representative (Name, position, title):

_____

* Delete if not applicable.

(3) Format of Asbestos-free Declaration (shipowner or ship management company)

Asbestos-free Declaration

_____

Company (as defined in SOLAS Chapter IX - ISM Code*)

declares that the new installations since the last annual/periodical survey on the following ship are asbestos-free is accordance with SOLAS Regulation II-1/3-5:

Name of Ship:

Distinctive number or letters:

Port of Registry:

IMO Number:

This Declaration is based upon the following Requirements and procedures of the Company:

SOLAS Regulation II-I/3-5, New Installation of Asbestos
IMO MSC.1/Circ.1379
ISO 9001
IMO MSC.1/Circ.1426
Company other relevant internal procedures (to be listed):

Place and date:

Company representative (Name, position, title):

* Delete if not applicable.

Annex 7 Approval Requirements for Products in Compliance with the Hong Kong Convention and/or Regulation (EU) No 1257/2013

1.1 Application

1.1.1 The approval requirements specified in this Annex only apply to the products in compliance with Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 and/or Regulation (EU) No 1257/2013, and such requirements may not supersede the list of certification requirements as specified in CCS Rules for Classification of Sea-going Steel Ships.

1.1.2 The approval requirements specified in this Annex are not to take the place of the responsibilities to be taken by the applicant as the subject of liability and the applicant is to make production according to the approved supplier's list and provide the user with Materials Declaration (MD) and Supplier's Declaration of Conformity (SDoC) at the same time.

1.2 Approval basis

1.2.1 IMO Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009

1.2.2 IMO resolution MEPC.269(68) 2015 Guidelines for the Development of the Inventory of Hazardous Materials

1.2.3 CCS Rules for Classification of Sea-going Steel Ships

1.2.4 CCS Rules for Green Ships

1.2.5 Restriction for the Use of Certain Hazardous Materials in Electronic and Electric Equipment;

(Special note: the requirements in the Restriction is higher than those of the Convention, certain materials specified in RoHS may not be used if the threshold value is reached, however, the use of such materials is allowed in the Hong Kong Convention provided the records are made.)

1.2.6 Regulation (EU) No 1257/2013

1.3 Definitions and abbreviations

1.3.1 The Rules: CCS Rules for Classification of Sea-going Steel Ships

1.3.2 The Hong Kong Convention: IMO Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009

1.3.3 The Guidelines: IMO resolution MEPC.269(68) 2015 Guidelines for the Development of the Inventory of Hazardous Materials

1.3.4 Definitions specified in the Rules, the Hong Kong Convention and the Guidelines are applicable to this Chapter.

1.4 Documents and lists to be submitted for approval of products

1.4.1 Application for Approval (see appendix 1 for the format)

1.4.2 Supplier's List for all raw materials and components which may contain Hazardous Materials (see appendix 2 for the format)

1.4.3 Sampling Schedule for the testing of the product (see appendix 3 for the format)

1.4.4 Assembly Diagram indicating the locations of the raw materials and components which may contain Hazardous Materials or the List of Composition for components of the product (if any)

1.4.5 Documents for the exemption from the sampling check for materials and components

(1) recognized manufacturing standards which may verify the chemical contents of the materials and components;

(2) manufacturer's MD and SDoC, together with a testing report verifying the compliance of raw materials and components with the Hong Kong Convention and/or Regulation (EU) No 1257/2013 issued by the third party laboratory recognized by CCS;

(3) an Approval Certificate verifying the compliance of raw materials and components with the Hong Kong Convention.

1.4.6 CCS Type/Works Approval Certificate (for products subject to the approval requirements as specified in the list of certification requirements of CCS Rules)

1.4.7 The quality control plan maintaining the compliance of product with the Hong Kong Convention and/or Regulation (EU) No 1257/2013 is to manage the chemical substances in products which the supplier manufactures or sells and to cover the obtaining of information on chemical substance content and that the regulations and requirements governing the management of chemical substances in products are in compliance with law. In procuring raw materials for components and products, sub-suppliers are to be selected following an evaluation and the authenticity and validity of the information on the chemical substances they supply are to be ensured. The quality control plan may be incorporated into the quality management system recognized/accepted by CCS.

1.4.8 The Materials Declaration (MD) and Supplier's Declaration of Conformity (SDoC) verifying that the product is in compliance with the requirements of the Hong Kong Convention and/or Regulation (EU) No 1257/2013. The supplier is to regulate the development and management of MD and SDoC in documented form so as to ensure that the MD corresponds to SDoC. The MD of one or more product provided by the same supplier may correspond to the same SDoC at the same time, however, several SDoC may not correspond to the same MD at the same time.

1.5 Requirements for the manufacturer

(1) The applicant is to fill in the application for approval and to submit the application to the local survey unit of CCS. The applicant is also to submit the relevant documents in duplicate according to regulation 4 of the Guidelines to CCS for examination.

(2) The manufacturer has the obligation to ensure that the product is in compliance with the requirements of the Hong Kong Convention and/or Regulation (EU) No 1257/2013.

(3) The manufacturer is to establish an effective supplier management system for the products within the approval scope and to manufacture according to the lists of suppliers approved by CCS so as to ensure that each batch of products are in compliance with the requirements of the Hong Kong Convention and/or Regulation (EU) No 1257/2013.

(4) The manufacturer is to facilitate the examination, subject to the necessary check from CCS in the process of approval so as to verify that the manufacturing of the product is in compliance with the requirements of documents approved by CCS. The manufacturer is to be subject to an additional audit if CCS suspects the validity and consistency of the certificate after approval.

(5) Where any change is made to the parts used in the product after approval, such changes are to be approved by the survey unit. The relevant tests are to be witnessed and checked by the surveyor of CCS if deemed necessary by the survey unit and the results of the tests are to verify that the compliance with the conditions for approval is remained.

(6) If the product is subject to the requirements for approval as specified in CCS Rules for Classification of Sea-going Steel Ships, the Approval Certificate of Products in compliance with the Hong Kong Convention and/or Regulation (EU) No 1257/2013 is to be issued after the requirements for approval are met. The applicant may apply for the approval directly if no requirements for approval are specified in the Rules for Classification of Sea-going Steel Ships.

1.6 Development of Materials Declaration (MD) and Supplier's Declaration of Conformity (SDoC)

1.6.1 The manufacturer may complete the development of MD and SDoC with the software developed by CCS. A declaration is to be made in MD whether or not the hazardous materials listed in Table A and Table B of Annex 1 to the Guidelines are present above the threshold value specified for the "Homogeneous Materials" of the product. For complex product, tier 1 suppliers may request from their suppliers (tier 2 suppliers, namely the supplier of components or raw materials) the MD and SDoC for the development of their own MD and SDoC and so on, until the original supplier of raw materials. The product is to be decomposed into homogeneous materials. Suppliers of the supply chain may carry out checks and verifications for the suppliers of a lower level to ensure the availability of effective management of the chemical substances in products provided by the supplier and the consistency between the actual situation of the product and the MD provided.

1.6.2 If one or more hazardous materials listed in Table A are found in concentrations above the specified threshold value, the manufacturer is to refuse the use of the product and inform the supplier to replace it with the one complies with the specifications. Products containing such hazardous materials are not to be provided to the supplier of a higher level except those may be exempted under the specifications and clear indications are to be made in the MD.

1.6.3 If one or more materials listed in Table B are present in products above the threshold values specified in MD, clear indications are to be made in MD. If the units which cannot be directly used in IHM are used by the quality data of the hazardous materials declared in MD, the approximate quantity of the hazardous materials is to be calculated and recorded in MD.

1.7 Field approval

1.7.1 Selecting of typical sample

(1) All parts and components are to be decomposed into homogeneous materials according to the requirements of examples in the Guidelines. Raw materials and components which may contain hazardous materials are to be identified and sampling checked.

(2) The samples selected may be a product, raw material or component. The typical samples selected are to cover every type of raw materials or components which may contain hazardous materials and different suppliers of materials and components. For example, if different origins of nonmetallic raw materials (e.g. ore) will affect the containing of the asbestos, the sampling is to cover different origins of raw material from the same supplier.

(3) Requirements for sampling are to comply with the recognized standards.

(4) A sufficient number of samples are to be taken to ensure the need for tests of every homogeneous material and the samples are to be kept by the works and third party testing organization separately with a period of four years.

(5) All raw materials and components which may contain hazardous materials are to be listed in the Sampling Schedule. The materials and components may be exempted from the sampling check, provided the requirements of regulation 1.4.5 are met and the surveyor is only to carry out field confirmation.

(6) The developed sampling schedule is to be submitted to CCS for approval and the works is to be informed to prepare the samples after approval.

1.7.2 Report review and field audit (if necessary)

After being sealed up, the samples are to be submitted to a third party testing organization recognized by CCS for tests and the results are to be documented and submitted to CCS for audit. The surveyor is to endorse the test report after the review with an indication of "report review".

CCS is to send its surveyor to confirm the compliance of the product and the supplier's list on site and to seal up and keep the samples on site according to the sampling schedule, and then the sampling record is to be filled in and endorsed. If differences are found between the product and the description of the submitted documents, the sampling schedule may be adjusted appropriately based on the situations on site.

1.8 Verification for the suppliers of the manufacturer

1.8.1 When applying for products approval by CCS in compliance with the Hong Kong Convention and/or Regulation (EU) No 1257/2013, the suppliers are to be examined and verified by CCS according to regulations 1.6 and 1.7, if deemed necessary, so as to ensure that effective management and monitoring for the entire supply chain of the product are implemented by the manufacturer. If there are evidences that the MD and SDoC provided by the supplier are inconsistent with the product (such as the threshold of one or more hazardous materials listed in Table A/Table B of MD) or the authenticity of the information submitted is suspected, the samples may be requested to be submitted to the testing organization accepted by CCS for testing according to the sampling and decomposing principles as specified in 1.7.1 and verified according to 1.7.2 and the MD is to be confirmed according to the testing report. If one or more materials listed in Table A contained in the product which are found in concentrations above the specified threshold value according to the testing results (exceptions excluded), the approval may be carried out after relevant corrective measures are taken by the manufacturer.

1.8.2 For supplier of the parts and components not providing MD and SDoC, the manufacturer is to request the supplier to provide MD and SDoC or supporting documents (such as the documents used for the development of MD/SDoC, the testing report recognized or accepted by CCS, where applicable). If the supplier cannot provide the information or the authenticity of the information provided is suspected, the samples may be requested to be submitted to the testing organization accepted by CCS for testing according to the sampling and decomposing principles as specified in 1.7.1 and verified according to 1.7.2 and the MD is to be filled in according to the testing report. If one or more materials listed in Table A contained in the product which are found in concentrations above the specified threshold value according to the testing results (exceptions excluded), the approval may be carried out after relevant corrective measures are taken by the manufacturer.

1.9 Issue, audit, change, renewal and validity of the approval certificate

1.9.1 Issue of the approval certificate

The composition of raw materials/components of the product which may contain hazardous materials are to be identified and sampling checked according to the documents and information submitted by the manufacturer (such as asbestos-free certificate, third party testing report or manufacturing standards of the product). Approval Certificate of Products in compliance with the Hong Kong Convention and/or Regulation (EU) No 1257/2013 may be issued according to the relevant requirements of CCS once the product is confirmed to be in compliance with the Hong Kong Convention and/or Regulation (EU) No 1257/2013. The validity of the approval certificate is four years (If the approval and survey requirements for the product are specified in CCS Rules and the relevant certificates are issued, the validity of the approval certificate is consistent with that of the existing approval certificate).

1.9.2 Periodical audit

Within the period of validity of the approval certificate, a periodical audit may be requested by the approval unit according to the procedural requirements of CCS. The periodical audit is to be carried out within 3 months before or after the second anniversary date of the certificate. If the application for the periodical audit is not provided by the manufacturer within 3 months of the due date of the periodical audit, the approval certificate is to be suspended by the approval unit according to regulation 1.9.6. If the application for periodical audit is still not submitted to CCS by the manufacturer within 3 months after the suspension of the approval certificate, the approval certificate is to be canceled by the approval unit according to regulation 1.9.7.

1.9.3 Change of approval certificate

If the applicant is to change the scope of approval, the design of the product, manufacturing process, the quality control plan, approval basis or the supplier of raw materials and components, CCS is to be informed and the application for the change of approval certificate is to be submitted. The new approval certificate is to be issued by CCS when approved after audit or verified by tests (if necessary).

1.9.4 Renewal of approval certificate

An application for the renewal of approval certificate is to be submitted by the manufacturer to CCS within 3 months before the due date of the certificate, CCS is to examine the manufacturing, testing records, management of raw materials and components for the approved products and to check the compliance and consistency of the approved product and carry out sampling check if necessary.

1.9.5 Invalidation of approval certificate

The approval certificate will be automatically invalidated within the period of its validity in one of the following conditions:

(1) any unauthorized alteration has been made to the certificate by its holder;

(2) any convention, rule or standard applicable to the existing approved products has been changed (change of detailed requirements);

(3) any unauthorized change of supplier of raw materials and components within the period of validity of approval certificate without approval by CCS.

1.9.6 Suspension of approval certificate

CCS will suspend the certificate within the period of its validity when CCS identifies that one of the following conditions exists at the manufacturer:

(1) application for a periodical audit by CCS has not been submitted within the specified period;

(2) any serious nonconformity of the approved products is found during a periodical audit or any nonconformity found during a periodical audit has not been rectified as required;

(3) no remedial action has been promptly taken to quality problems of products or no assistance given to investigation by CCS.

1.9.7 Cancellation of approval certificate

CCS will cancel the certificate within the period of its validity when CCS identifies that one of the following conditions exists at the manufacturer:

(1) the date of periodical audit is pasted and the application for periodical audit is not submitted by the manufacturer to CCS within 3 months after the suspension of certificate;

(2) any major change has been made to the testing/test conditions, control of equipment or quality and management system of manufacturer and the existing approval conditions of CCS are not maintained;

(3) the holder is to accept the audit for the consistency of the product by CCS within the period of validity of approval certificate, if there are sufficient evidence indicating that the approved product is inconsistent with the approval certificate, CCS has the power to cancel the approval certificate;

(4) relevant fees have not been paid to CCS.

Appendix 1 Application for Approval of Products in Compliance with the Hong Kong Convention and/or Regulation (EU) No 1257/2013;

Appendix 2 Reference Format of the Supplier's List of Raw Materials and Components which may Contain Hazardous Materials

Appendix 3 Reference Format of Sampling Schedule;

Appendix 4 Requirements of Quality Control Plan.

Appendix 1 Application for Approval of Products in Compliance with the Hong Kong Convention and/or Regulation (EU) No 1257/2013

CHINA CLASSIFICATION SOCIETY

Application for Approval of Products in Compliance with the Hong Kong Convention and/or Regulation (EU) No 1257/2013

Approval Work Control No._____
(To be completed by CCS)

The applicant has known that this application is to be the proof of the contract between the applicant and CCS once endorsed, stamped and accepted by CCS. Unless agreed, relevant regulations in the latest CCS Rules for Classification of Sea-going Steel Ships include but not limited to those in the General part of the Rules, and will comprise the contents of the contract signed between the applicant and CCS and are to adjust all services in relation to this application.

The applicant is to ensure that all the information filled in the tables of this application and documents and drawings provided are true and the ownership of the submitted drawings is lawful. The applicant is to bear a legal liability and take all the consequences of the false statements.

The applicant is to ensure the provision of approval conditions and required to pay the approval fees and necessary travel expenses and other costs for the approval work carried out by the surveyor. The applicant agrees to pay CCS the above mentioned fees even if the approval is not completed by CCS because of the applicant.

Name of product	
Type/specification	
Drawing/technical documents, information submitted for approval:	

Type and items for approval:

Approval of products in compliance with the Hong Kong Convention and/or Regulation (EU) No 1257/2013

Initial approval □ renewal of approval certificate □ change of approval certificate □

Number of the previous approval certificate (if previously approved):

Expiry date of certificate:

Note: for □: "X" means "Yes" or "applicable", "-"means "No" or "not applicable"

China Classification Society
Application for Approval of Products in Compliance with the Hong Kong Convention and/or Regulation (EU) No 1257/2013
(continued)

<table>
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<tr><td>Manufacturer</td><td colspan="3"></td><td>Contact person</td><td></td></tr>
<tr><td rowspan="3">Address</td><td colspan="5"></td></tr>
<tr><td>Code</td><td colspan="4"></td></tr>
<tr><td>Telephone No.</td><td></td><td>Fax</td><td colspan="2"></td></tr>
</table>

Signature/official seal of representative of the applicant _____Date_____

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Appendix 2 Reference Format of the Supplier's List of Raw Materials and Components which may Contain Hazardous Materials

List of Raw Materials and Components

Name	Specification/model	Supplier	Approval certificate/testing report No.	Applicable standards	Remarks
Component A					
Component B					
Material C					

Appendix 3 Reference Format of Sampling Schedule

Sampling Schedule

Work control No.				
Name of the company				
Name of the product				
Model				
Place of sampling				
Raw materials or components	Location	Supplier (manufacturer)	Number of sampling	Sampling No.
Material A1		Supplier a1		
		Supplier a2		
Material A2		Supplier a3		
Component A3		Supplier a4		

Specifications for other cases:

Sampling surveyor_____ Date of sampling_____

Appendix 4 Requirements of Quality Control Plan

The Quality Control Plan is to represent the requirements for professional quality system, describing the methods for the control of raw materials and components which may contain hazardous materials , especially to reflect the requirements of the Convention, CCS Rules and circulars, including:

(1) The manufacturer is to designate a responsible person and make regulations for the raw materials and components which may contain hazardous materials in the processes of selection of suppliers, purchasing, acceptance of purchases, management of storage and management of manufacturing.

(2) Requirements for the retrospective processing and timely informing of CCS of disqualified raw materials, components and products not in compliance with the Hong Kong Convention and/or Regulation (EU) No 1257/2013 found during the testing or quality feedback are to be specified.

(3) Methods are to be specified for the management and control of the auxiliary additive materials and equipment containing hazardous materials products used in the process of manufacturing so as to prevent the marine products being polluted.

(4) The supplier is at least to provide MD and SDoC for raw materials and components which may contain hazardous materials.

(5) Supplier's list of raw materials and components used in marine products possibly containing hazardous materials is to be approved by CCS. Periodical reassessment is to be carried out for qualified suppliers, and the records of assessment are to be maintained. Any change of the qualified suppliers approved by CCS is to be submitted to CCS for approval and the changes of high risk materials or components are to be submitted with the relevant testing reports.

(6) The following documents are to be kept and filed for irregular audit by CCS:

A) records of the delivery of relevant requirements for hazardous materials of the Hong Kong Convention and/or Regulation (EU) No 1257/2013 to all suppliers (such as fax, e-mail, meeting record);

B) Material Declaration (MD) and Supplier's Declaration of Conformity (SDoC), Asbestos-free Report or Asbestos-free Approval Certificate, Supplier's Commitment to Ensuring the Consistency between Source and Composition of Materials and the Tested Samples, Declaration of Same Material;

C) Records for the Change of Raw materials and Components.

(7) All people engaged in the development, purchasing, manufacturing, survey and management of the product are to be trained through the quality control plan.

Annex 8 Approval Requirements for Hazardous Materials Testing Organizations

Chapter 1 General

1.1 Purposes

This Annex specifies detailed requirements of China Classification Society (hereinafter referred to as "CCS") for the approval and certification of Hazardous Materials testing organizations and provides the testing organizations with the general methods and guidance for the application for the approval of testing of Hazardous Materials by CCS.

1.2 Application

The requirements of this Annex apply to the approval of qualification of Hazardous Materials testing organizations by CCS.

1.3 Definitions and abbreviations

1.3.1 Hazardous Materials refer to the hazardous materials listed in Appendixes 1 and 2 to the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (hereinafter referred to as "the Hong Kong Convention").

1.3.2 The four types of hazardous materials listed in Appendix 1 of the Hong Kong Convention

The four types of hazardous materials listed in Appendix 1 of the Hong Kong Convention

Table 1.3.2

No.	Hazardous Materials	Threshold value
A-1	Asbestos	0.1%
A-2	Ozone-depleting substances	no threshold value
A-3	Polychlorinated biphenyls (PCB)	50 mg/kg
A-4	Anti-fouling systems containing organotin compounds as a biocide (Tributyl tins (TBT), Triphenyl tins (TPT) and Tributyl tin oxide (TBTO)	2,500 mg total tin/kg in dry film

1.3.3 The nine types of hazardous materials listed in Appendix 2 of the Hong Kong Convention

The nine types of hazardous materials listed in Appendix 2 of the Hong Kong Convention

Table 1.3.3

No.	Hazardous Materials	Threshold value
B-1	Cadmium and cadmium 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
B-9	Certain shortchain chlorinated paraffins (Alkanes, C10-C13, chloro)	1%

1.3.4 The two types of hazardous materials added in Regulation (EU) No 1257/2013

Types of hazardous materials controlled in Regulation (EU) No 1257/2013 include the following two types of hazardous materials, in addition to all of the hazardous materials listed in appendix 1 and appendix 2 of the Hong Kong Convention:

The two types of hazardous materials added in Regulation (EU) No 1257/2013 Table 1.3.4

No.	Hazardous Materials	Threshold value
A-5	Perfluorooctane sulfonic acid (PFOS) and its derivatives	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 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 the amount of PFOS is equal to or above than 1 μg/m² of the textiles or other coated material
B-10	Brominated flame retardant (HBCDD)	100 mg/kg

Chapter 2 Approval Basis

2.1 Asbestos testing organization

2.1.1 IMO resolution MSC.282(86) "Adoption of Amendments to the International Convention for the Safety of Life at Sea, 1974, as Amended"

2.1.2 IMO "Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009"

2.1.3 IMO MSC.1/Circ.1379 "Unified Interpretation of SOLAS Regulation II-1/3-5"

2.1.4 IMO MSC.1/Circ.1426 "Unified Interpretation of SOLAS Regulation II-1/3-5"

2.1.5 IMO resolution MEPC.269(68) "2015 Guidelines for the Development of the Inventory of Hazardous Materials"

2.1.6 ISO 22262-1:2012 "Air Quality − Bulk Materials − Part 1: Sampling and Qualitative Determination of Asbestos in Commercial Bulk Materials"

2.1.7 ISO/WD 22262-3 "Bulk Materials − Part 3: Quantitative Determination of Asbestos by X-ray Diffraction and Microscope"

2.1.8 NI0SH 9000: 1994, "Asbestos, chrysotile by XRD"

2.2 Ozone-depleting substances (ODS) testing organizations

2.2.1 IMO "Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009"

2.2.2 IMO resolution MEPC.269(68) “2011 Guidelines for the Development of the Inventory of Hazardous Materials”

2.2.3 EPA 8260C:2006 “Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)”

2.3 Polychlorinated biphenyls (PCB) testing organizations

2.3.1 IMO “Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009”

2.3.2 IMO resolution MEPC.269(68) “2011 Guidelines for the Development of the Inventory of Hazardous Materials”

2.3.3 EPA 8082a “Polychlorinated biphenyls (PCBs) by Gas Chromatography”

2.4 Organotin compounds testing organizations

2.4.1 IMO “International Convention on the Control of Harmful Anti-fouling Systems on Ships, 2001 (AFS Convention)”

2.4.2 IMO “Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009”

2.4.3 IMO resolution MEPC.104(49) “Guidelines for Brief Sampling of Anti-fouling System on Ships”

2.4.4 IMO resolution MEPC.269(68) “2015 Guidelines for the Development of the Inventory of Hazardous Materials”

2.4.5 GB/T 26085 “Test Method and Determination of Total Tin in Antifouling Paints for Ship”

2.4.6 ISO 11885:2007 “Water Quality − Determination of Selected Elements by Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES)”

2.4.7 ISO 17353:2004 “Water quality − Determination of Selected Organotin Compounds − Gas Chromatographic Method”

2.5 Nine testing organizations listed in Appendix 2 of the Hong Kong Convention

2.5.1 IMO “Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009”

2.5.2 IMO resolution MEPC.269(68) “2015 Guidelines for the Development of the Inventory of Hazardous Materials”

2.5.3 IEC 62321:2008 “Electrotechnical products − Determination of levels of six regulated substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ethers)”

2.5.4 EPA 8270D “Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)”

2.5.5 IAEA No. GSR Part 3 “Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards”

2.5.6 GB 18871-2002 “Basic standards for protection against ionizing radiation and for the safety of radiation sources”

2.6 The two types of hazardous materials added in Regulation (EU) No 1257/2013

2.6.1 Regulation (EU) No 1257/2013

2.6.2 ISO 25101:2009 “Water quality − Determination of perfluorooctanesulfonate (PFOS) and perfluorooctanoate (PFOA) − Method for unfiltered samples using solid phase extraction and liquid chromatography/mass spectrometry”

2.6.3 IEC 62321:2008 “Electrotechnical products – Determination of levels of six regulated substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ethers)”

2.6.4 EPA 537 “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)”

2.6.5 EPA 8270D “Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)”

Chapter 3 Approval Requirements

3.1 Application and submission of documents

The applicant is to submit the Application for the Approval of Testing Organizations (Form: RWPAS 705-A) or the formal written application to the approval unit of CCS together with the documents submitted for approval. The documents to be submitted include:

(1) Outline of organization, e.g., the name, service and capabilities and qualification certificate issued by other authoritative institution or ISO 17025, history of experience in the quality testing of marine products and survey work;

(2) Declaration of Impartiality, Code of Ethics for Behaviors, Commitment to Confidentiality and information on the other activities which may present a conflict of interest with the manufacturer of marine products;

(3) list of testing/test items and list of testing standards;

(4) list of testing and test appliances, equipment, standard measurement apparatus which includes the name, model, technical indicator, name of manufacturer, verification interval, condition of verification and responsible person of testing and test appliances;

(5) competent post and list of testing personnel, measurement verification personnel and maintenance personnel, the training and working experience of relevant personnel within the relevant service area, and qualifications according to recognized national, international or industry standards, as relevant;

(6) block diagram and responsibilities of the organization;

(7) testing procedures;

(8) a guide for operators of testing/test equipment;

(9) training programmes for personnel;

(10) Quality Manual or regulations and procedural documents developed for the effective quality control;

(11) record of customer claims and of corrective actions;

(12) samples of formal testing and test reports.

3.2 General requirements

3.2.1 Training of personnel

The applicant is responsible for the qualification and training of its personnel to a recognized national, international or industry standard as applicable so as to ensure that the testing personnel, technical experts and management personnel have relevant expertise. Where such standards do not exist, the applicant is to define standards and document the reason, proving that the requirements for conducting testing service are complied with. The personnel are also to have an adequate experience and be familiar with the operation of any necessary equipment. The testing personnel is to have at least a special secondary school degree or senior high school degree and above and to have a minimum of 1 year working or internship experience of related post.

3.2.2 Supervision

The testing organization is to designate a person to supervise the provided testing services. The personnel in charge of the supervision is at least to have a college degree and above and to have a minimum of 2 years' working experience or experience of testing service of related post.

3.2.3 Personnel records

The testing organization is to keep records of the approved personnel. The record is to contain information on age, formal education, training and experience for the services for which they are approved.

3.2.4 Equipment and facilities

The testing organization is to have and maintain the necessary equipment and facilities for the testing service to be supplied and a record of the equipment used is to be kept. The record is to contain information on maintenance and calibration. The safety equipment and environment are to satisfy the need for testing service. See regulation 3.3 for detail.

3.2.5 Testing procedures

The testing organization is to have documented work procedures covering all testing services supplied. The procedures are to comply with the relevant requirements and contain the following information:

(1) reception, review and designation of application for testing service;

(2) reception, identification, storage and dealing of samples;

(3) examination and preparation before operation of testing equipment, operation instructions or guidelines, including safety protection;

(4) testing, analysis, judgement;

(5) regulations and methods for the coordination and connection between testing personnel and field surveyor (where necessary);

(6) supervision and verification of testing work;

(7) relevant requirements for the arrangement of testing records and the submission of records to field surveyor for signature and confirmation (if any);

(8) regulations for the development, review and approval of testing report;

(9) delivery and filing of the report.

3.2.6 Verification

The testing organization is to verify that the testing services provided are in compliance with the requirements of approval procedures.

3.2.7 Reporting

The report is to be prepared in a form acceptable to CCS.

3.2.8 Quality system

3.2.8.1 The testing organization is to establish a quality system according to ISO 17025 or the current version of ISO 9001. An approval certificate issued by an authoritative certification institution is to be obtained with satisfactory audit by CCS.

3.2.8.2 If the certificate mentioned in 3.2.8.1 is not obtained, the testing organization is to have a documented system covering at least the following:

(1) code of conduct for the relevant activity;

(2) maintenance and calibration of equipment;

(3) training programmes for testing personnel/supervisors/management personnel;

(4) supervision and verification to ensure compliance with operational procedures;

(5) recording and reporting of information;

(6) quality management of subsidiaries and agents (if applicable);

(7) job preparation;

(8) periodic review of work process procedures, complaints, corrective actions, and issuance, maintenance and control of documents.

3.3 Special requirements

3.3.1 Asbestos testing organization

3.3.1.1 Necessary testing equipment, standard samples

Electronic Scales, Muffle Furnace, Scanning Electronic Microscopy and Energy Disperse Spectroscopy (SEM+EDS), Polarized Light Microscopy (PLM), X-Ray Diffraction (XRD, detection limit is 0.1%), stereoscopic microscope, standard sample of asbestos and index matching fluid.

A sufficient number of equipment and appliances are to be provided to satisfy the need for the activities within the scope of service.

3.3.1.2 Testing items

Chrysotile/CAS No. 12001-29-5

Crocidolite/CAS No. 12001-28-4

Amosite (grunerite)/CAS No. 12172-73-5

Actinolite/CAS No. 77536-66-4

Anthophyllite/CAS No. 77536-67-5

Asbestos Tremolite/CAS No. 77536-68-6

3.3.1.3 Testing method or testing technique: ISO 22262-1:2012, NIOSH9000:1994, ISO/WD 22262-3, Polarized Light Microscopy (PLM), Scanning Electronic Microscopy and Energy Disperse Spectroscopy (SEM+EDS), X-Ray Diffraction (XRD). Testing organizations are to choose the most suitable methods to determine, and in most cases, two or more techniques are to be utilized together.

3.3.1.4 Testing results

The type and contents (%) of the asbestos are to be reported.

Note: Considering the uncertainty in the testing of the concentration of asbestos, 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.

3.3.2 Ozone-depleting substances (ODP) testing organization

3.3.2.1 Necessary testing equipment

Gas Chromatography-Mass Spectrometry (GC-MS), coupled Electron Capture Detectors (GC-ECD) and Electrolytic Conductivity Detectors (GC-ELCD)

A sufficient number of equipment and appliances are to be provided to satisfy the need for the activities within the scope of service.

3.3.2.2 Testing items

CFCs, halons, other fully halogenated CFCs, carbon tetrachloride, 1,1,1-Trichloroethane, hydrochlorofluorocarbons, hydrobromofluorocarbons, methyl bromide, bromochloromethane.

3.3.2.3 Testing methods

EPA 8260C:2006

3.3.2.4 Testing results

The type and concentration of ozone-depleting substances are to be reported.

3.3.3 Polychlorinated biphenyls (PCBs) testing organization

3.3.3.1 Necessary testing equipment

Gas Chromatography-Mass Spectrometry (GC-MS), coupled Electron Capture Detectors (GC-ECD) and Electrolytic Conductivity Detectors (GC-ELCD). A sufficient number of equipment and appliances are to be provided to satisfy the need for the activities within the scope of service.

3.3.3.2 Testing items

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

3.3.3.3 Testing methods

The testing is to be carried out according to EPA 8082a, by using appropriate appliances mentioned in 3.3.3.1.

3.3.3.4 Testing results

PCB congener, ppm per congener in sample and ppm per aroclor in sample are to be reported.

3.3.4 Testing organization of anti-fouling systems containing organotin compounds as a biocide

3.3.4.1 Necessary testing equipment

Electronic Scales, Gas Chromatography-Mass Spectrometry (GC-MS) or ICPOES, ICP-MS, AAS, XRF. A sufficient number of equipment and appliances are to be provided to satisfy the need for the activities within the scope of service.

3.3.4.2 Testing items

Tributyl tins (TBT), Triphenyl tins (TPT) and Tributyl tin oxide (TBTO) containing organotin compounds as a biocide, shown as mass of total tin per kilogram of dry paint.

3.3.4.3 Testing methods

The testing is to be carried out according to GB/T 26085-2010 or ISO 11885: 2007 or ISO 17353: 2004, by using appropriate appliances mentioned in 3.3.4.1.

3.3.4.4 Testing results

Type and concentration of organotin compound are to be reported, mass of total tin is not to be greater than 2,500 mg/kg (dry paint).

3.3.5 The testing organization of the nine types of hazardous materials listed in Appendix 2 to the Hong Kong Convention

No.	Hazardous materials	Threshold value	Testing method	Equipment
B-1	Cadmium and cadmium compounds	100 mg/kg	IEC 62321	ICP-OES or ICP-MS or AAS
B-2	Hexavalent chromium and hexavalent chromium compounds	1000 mg/kg	IEC 62321	UV-VIS
B-3	Lead and lead compounds	1000 mg/kg	IEC 62321	ICP-OES or ICP-MS or AAS
B-4	Mercury and mercury compounds	1000 mg/kg	IEC 62321	ICP-OES or ICP-MS or AAS
B-5	Polybrominated biphenyl (PBBs)	50 mg/kg	IEC 62321	GC-MS
B-6	Polybrominated diphenyl ethers (PBDEs)	1000 mg/kg	IEC 62321	GC-MS
B-7	Polychlorinated naphthalenes (more than 3 chlorine atoms)	50 mg/kg	EPA 8270D:2007	GC-MS or GC-ECD or GC-ELCD
B-8	Radioactive substances	no threshold value	IAEA No. GSR Part 3 or GB 18871-2002	γ-ray dosimeter α,β-ray contamination monitor
B-9	Certain shortchain chlorinated paraffins (Alkanes, C10-C13, chloro)	1%	EPA 8270D:2007	GC-MS or GC-ECD or GC-ELCD

3.3.6 The two types of hazardous materials added in Regulation (EU) No 1257/2013

No.	Hazardous materials	Threshold value	Testing method	Equipment
A-5	Perfluorooctane sulfonic acid (PFOS) and its derivatives	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 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 the amount of PFOS is equal to or above than 1 μg/m² of the textiles or other coated material.	ISO 25101：2009, EPA 537, EPA 8321B:2007, NPR-CEN/TS 15968,	LC-MS/MS or LC-MS, LCqMS, GC-MS, LC-qMS, LC-tandem/MS
B-10	Brominated flame retardant (HBCDD)	100 mg/kg	IEC 62321, EPA8321B-2007 , EPA 8270D:2007	GC-MS

3.3.7 Capabilities of screening the hazardous materials contained in the samples with unknown content

3.3.7.1 The testing organization is to be capable of screening the hazardous materials contained in the samples with unknown content, and the screening apparatus and methods used are to ensure the accuracy of the result is to meet the requirements of regulatory limits. Generally, X-ray fluorescence spectrometry (XRF) and/or ion chromatograph (IC) is to be provided according to IEC 62321, and XRF may be used for screening of heavy metal elements and halogen (total bromine, total chlorine). IC may be used for screening halogen (total bromine, total chlorine).

3.3.7.2 Other screening methods or means may not be used until they are evaluated and approved by CCS.

3.3.7.3 Screening is not to be used for hazardous materials with no threshold requirements.

3.3.7.4 The result of screening is not to substitute the testing result.

3.3.8 Requirements for disjointing and pre-treatment

3.3.8.1 The testing organization is to be capable of disjointing the complicated material into homogeneous material, and selecting the appropriate pre-treatment method based on the property of the material and target hazardous materials. For detailed pre-treatment methods, see Table 3.3.8.1 for reference.

References of standards and apparatus for pre-treatment methods Table 3.3.8.1

Pre-treatment methods	Reference standard	Apparatus and equipment	Applicable sample matrix
Soxhlet extraction	EPA 3540	Soxhlet extractor	Solids
Solid-phase extraction	EPA 3535	Solid-phase extraction column	Liquids
Microwave digestion	EPA 3052	Microwave dissolver	Solids
Microwave extraction	EPA 3546	Microwave extractor	Solids
Ultrasonic extraction	EPA 3550	Ultrasonica extractor	Solids
Equilibrium headspace analysis	EPA 5021	Headspace system	Liquids, solids
Closed-system purge-and-trap and extraction	EPA 5035	Purge-and-trap system	Solids
Bomb preparation method	EPA 5050	Oxygen bomb combustion device	Solids

3.3.8.2 Generally, soxhlet extraction is taken as the basic requirements for pre-treatment of hazardous materials. If other pre-treatment methods are used, the recovery rate of the method is to be equivalent to that of soxhlet extraction method.

3.3.8.3 For pre-treatment (extraction) of target hazardous materials, the testing organization is to specify in the operation procedure the appropriate solvent or methods for selecting the solvent.

3.3.8.4 The testing organization is to be provided with and to use relevant standard materials as required by CCS.

3.3.8.5 The detection limit of each hazardous material is to comply with the basic requirements of CCS.

3.4 Field audit

3.4.1 CCS is to establish the approval working group which is to conduct the field audit according to CCS Rules, procedures and relevant requirements mentioned above.

3.4.2 The approval working group is to make records of the problems found during the field audit by the testing organization at any time and to inform the testing organization in written form timely for the rectification and relevant rectification measures are to be confirmed effective by CCS surveyor.

3.4.3 The field audit is at least to include:

(1) checking the implementation of management system documents, operational procedures by the testing organization;

(2) checking and confirming the qualification of the testing organization in relation to personnel training, experience, education and qualification;

(3) verifying whether the facilities and environment of the testing organization are useful in the correct implementation of the testing, test and maintenance service;

(4) verifying whether appropriate methods and procedures are taken by the testing organization to conduct the testing, test and maintenance within the approval area and whether the selecting, dealing and storage of the samples of testing and tests are in compliance with the relevant requirements;

(5) verifying whether the testing organization is provided with necessary testing and test equipment and whether the measurement apparatus and software achieve the required accuracy, and whether the mechanism for periodical verification and calibration is established;

(6) verifying the correctness and traceability of the results, quality records and reports of the testing and tests carried out by the testing organization, and whether the development, endorsement, review and issue of the report are in compliance with the relevant requirements;

(7) witnessing the major test items on site to verify the testing and test capabilities of the testing organization and the accuracy, safety and effectiveness of the operation personnel during the testing/tests.

Chapter 4 Certification Requirements

4.1 Certification

4.1.1 The approval working group may issue the approval certificate for testing organization according to the requirements of CCS upon the satisfactory results after the field audit and witnessing the necessary actual operational testing. The testing report issued by the organization as specified may be considered as the basis for CCS surveyors to issue the certificate or report.

4.1.2 The approval certificate is to be in compliance with the requirements for the approval basis.

4.1.3 The type of testing item, testing basis and relevant limitations (if any) are to be indicated clearly in the approval certificate.

4.1.4 The period of validity of the approval certificate of testing organization is four years and relevant approval information is to be issued on CCS website.

4.2 Periodical audit

4.2.1 The approval unit may conduct a periodical audit according to the procedural requirements of CCS within the validity of the approval certificate for testing organization.

4.2.2 The periodical audit is to be carried out within 3 months before or after the second anniversary date of the certificate. If the application for the periodical audit is not provided by the testing organization within 3 months of the due date of the periodical audit, the approval certificate is to be suspended by the approval unit according to regulation 4.5.2. If the application for periodical audit is still not submitted to CCS by the testing organization within 3 months after the suspension of the approval certificate, the approval certificate is to be canceled by the approval unit according to regulation 4.5.3.

4.3 Change of approval certificate

The testing organization may submit the application for the change of approval certificate according to the relevant requirements of CCS if the name and address of the organization change or the testing items and scope are added within the validity of the approval certificate for the testing organization.

4.4 Renewal of approval certificate

An application for the renewal of approval certificate is to be submitted by the testing organization to local survey unit of CCS within 3 months before the due date of the certificate.

4.5 Invalidation, suspension and cancellation of approval certificate

4.5.1 The approval certificate will be automatically invalidated within the period of its validity in one of the following conditions:

(1) any unauthorized alteration has been made to the certificate by its holder;

(2) any convention, rule or standard applicable to the existing approved products has been changed (change of detailed requirements).

4.5.2 CCS will suspend the certificate within the period of its validity when CCS identifies that one of the following conditions exists at the testing organization:

(1) application for a periodical audit by CCS has not been submitted within the specified period;

(2) any serious nonconformity of the approved products is found during a periodical audit or any nonconformity found during a periodical audit has not been rectified as required;

(3) no remedial action has been promptly taken to quality problems of products or no assistance given to investigation by CCS.

4.5.3 CCS will cancel the certificate within the period of its validity when CCS identifies that one of the following conditions exists at the testing organization:

(1) the date of periodical audit is pasted and the application for periodical audit is not submitted by the testing organization to CCS within 3 months after the suspension of certificate;

(2) any major change has been made to the testing/test conditions, control of equipment or quality and management system of the testing organization and the existing approval conditions of CCS are not maintained;

(3) testing/test is not properly conducted or the results are not properly reported;

(4) major deficiencies are found in the management system of the testing organization and no corrective measures are properly taken so as to ensure the accuracy, reliability and impartiality of the testing and test results;

(5) falsification of the test result is confirmed;

(6) the testing and test for the marine products are not conducted according to the approved test procedures and standards;

(7) relevant fees have not been paid to CCS.

Appendix 1 APPLICATION FOR APPROVALOF INSPECTION & TESTING FIRM

Form: RWPMP705-A(E)

CHINA CLASSIFICATION SOCIETY

APPLICATION FOR APPROVAL
OF INSPECTION & TESTING FIRM

Job No.: _____
(To be Completed by CCS)

The Applicant acknowledges: Once this Application with the Applicant's signature and stamp is processed by China Classification Society, This Application shall be deemed the evidence of contract between the Applicant and CCS. Unless otherwise agreed with CCS, the relevant terms in the latest edition of Rules and Regulations for the Classification of Seagoing Steel Ships of CCS, including, but not limited to, the General Part of the Rules, constitute the contract between the Applicant and CCS, which governs all services provided in connection with this Application.

The Applicant guarantees shall promise legal possession of submitted drawings and documents and be responsible for the truthfulness and completeness of application and submitted drawings and documents.If any false data are found, the Applicant shall assume legal responsibility, and hold responsibility for all the serious consequences arising therefore.

The Applicant agrees to provide adequate & safe survey conditions for CCS in the course of approval and pay the fee for the specified service and, in addition, any traveling and other expenses incurred by the surveyor related to the services. In the event of this project not being completed under the Society's services because of the Applicant's reason, the Applicant also agrees to pay the relevant fee and expenses for the services provided.

Name of the Firm	
Inspection & Testing Items / Scope	
Documents Submitted:	

Item of applying for approval:

Initial approval □ Renewal approval □ Modified approval □ Periodical review □

Former approval certificate No.:_____ Expiry date of the certificate:_____

Name of applicant				Liaison person	
Address of applicant					
Telephone No.		Fax No.		Post Code	

Signature/Stamp: | **Date:**

Notes: 1. "☒" in the above form indicates "yes" or "applicable"; "□" indicates "no" or "not applicable"
2. Additional pages may be attached in the case of short space.

Rev. 4.0 20150710

Annex 9 Approval Requirements for Specialist Organization Engaged in Visual/sampling Check of Hazardous Materials

Chapter 1 General

1.1 Purposes

This Annex provides CCS with detailed requirements and methods for the approval and certification of the specialist organization engaged in visual and/or sampling checks for hazardous materials onboard ships (including new ships and existing ships) (hereinafter referred to as "specialist organization") and also provides general methods and guidance for the approval of the application submitted by the specialist organization for the visual/sampling check of hazardous materials.

1.2 Application

1.2.1 This Annex applies to CCS approval of qualification of specialist organization engaged in visual and/or sampling checks for development of Inventory of Hazardous Materials.

1.2.2 The specialist organization may be an independent legal person organization or testing organization, or an organization attached to specialist testing organization. The independency, impartiality and honesty of the specialist organization are to comply with the following requirements:

1.2.2.1 The specialist organization and checking personnel are neither to be the designer, manufacturer, supplier, installer, purchaser, owner, user or maintainer of the items checked, nor to be the authorized representative of any one of the parties mentioned above.

1.2.2.2 The specialist organization and its personnel are not to be engaged in any activities which may be against the independence and honesty of the judgment of the check. In particularly, they are not to be directly involved in the design, manufacture, supply, installation, use or maintenance of the items checked or similar competitive items.

1.2.2.3 All relevant parties are to be served by specialist organization without any undue financial state and other conditions. The specialist organization is to manage the operation procedures without discrimination.

1.2.3 The specialist organization employed by the shipowner or relevant parties is to be engaged in visual and/or sampling checks for the 15 types of hazardous materials onboard existing ships as specified in IMO resolution MEPC.269(68) "2015 Guidelines for the development of the Inventory of Hazardous Materials, as amended", Appendix 1 and 2 of the Annex to the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 and Regulation (EU) No 1257/2013, including the advice on quantities and locations of samples as well as the preparation of reports on the quantities, locations and estimates of these onboard materials.

1.2.4 The result of visual/sampling check of hazardous materials carried out by the approved specialist organization (check report and record) may be considered as the basis for CCS surveyor to issue the certificate and report.

1.3 Definitions and abbreviations

1.3.1 Visual and/or sampling checks are to be executed by persons with professional knowledge of hazardous materials licensed as required and, who are trained and equipped experts, in particular with regards to the evaluation and sampling of hazardous materials and materials containing hazardous materials as:

The four types of hazardous materials listed in Appendix 1 of the Hong Kong Convention

Table 1.3.1A

No.	Hazardous Materials	Threshold value
A-1	Asbestos	0.1%
A-2	Ozone-depleting substances	no threshold value
A-3	Polychlorinated biphenyls (PCB)	50 mg/kg
A-4	Anti-fouling systems containing organotin compounds as a biocide (Tributyl tins (TBT), Triphenyl tins (TPT) and Tributyl tin oxide (TBTO)	2,500 mg total tin/kg in dry film

The nine types of hazardous materials listed in Appendix 2 of the Hong Kong Convention

Table 1.3.1B

No.	Hazardous Materials	Threshold value
B-1	Cadmium and cadmium 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)(PCN)	50 mg/kg
B-8	Radioactive substances	no threshold value
B-9	Certain shortchain chlorinated paraffins (Alkanes, C10-C13, chloro)	1%

The two types of hazardous materials added in Regulation (EU) No 1257/2013

Table 1.3.1C

No.	Hazardous Materials	Threshold value
A-5	Perfluorooctane sulfonic acid (PFOS) and its derivatives	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 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 the amount of PFOS is equal to or above than 1 μg/m² of the textiles or other coated material
B-10	Brominated flame retardant (HBCDD)	100 mg/kg

Chapter 2 Approval Basis

2.1 Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009.

2.2 IMO resolution MEPC.269(68) “2015 Guidelines for the Development of the Inventory of Hazardous Materials”.

2.3 IACS Rec.113 “Expert Parties Engaged in Visual and/or Sampling Checks for Preparation of Inventory of Hazardous Materials”.

2.4 Regulation (EU) No 1257/2013.

Chapter 3 Approval Requirements

3.1 Application and submission of documents

The applicant is to submit the application for approval or the formal written application to the approval unit of CCS together with relevant documents. The documents to be submitted include:

(1) outline of the name, address (Chinese and English), service and capabilities of the organization, qualification certificate issued by other authoritative institution (such as type A inspection organizations specified in ISO/IEC 17020:1998) or existing ISO 9001 certificate or equivalent standards, working experience and achievements within the service area;

(2) scope of approval: name of the hazardous materials applied for approval, include the 15 types of hazardous materials listed in Tables 1.3.1A, B, C;

(3) Declaration of Independency, Impartiality and Honesty, Code of Ethics for Behaviors, Commitment to Confidentiality and information on the other activities which may present a conflict of interest with the applicant or the entrusting party;

(4) list of visual/sampling check personnel (name, gender, age, education, title, training and working experience in relation to approval service);

(5) sampling tools and materials;

(6) list of testing organization entrusted for the testing of samples (to be approved by CCS);

(7) block diagram and responsibilities of the organization;

(8) procedures for sampling and check or operation instructions;

(9) requirements for personal protection of sampling and check personnel;

(10) training programmes for personnel;

(11) Quality Manual or regulations and procedural documents developed for the effective quality control;

(12) record of customer claims and of corrective actions;

(13) samples of formal sampling and check records and/or report.

3.2 General requirements

3.2.1 Basic requirements for personnel

3.2.1.1 Education background

(1) The checking personnel is to have a special secondary school degree (or above) of majors in waterborne transport facilities, waterborne facilities, navigating, management of machinery installations, shipping, ship equipment, ship materials or other majors.

(2) The supervisor and technical director are to have a college degree (or above) of majors in waterborne transport facilities, waterborne facilities, navigating, management of machinery installations, shipping, ship equipment, ship materials or other majors.

3.2.1.2 Working experience

The personnel working for the specialist organization (checking personnel, supervisor, technical director) are to have experience in ship management, manufacturing of ship and equipment, technical service for ship and water-borne facility, material design, material manufacturing, navigating, management of machinery installations or relevant industries relating to the ship or water-borne facilities. The checking personnel is to have a minimum of one year experience in the above mentioned work and the supervisor and technical director are to have a minimum of 2 years' experience in the above mentioned work.

3.2.1.3 Training requirements

The applicant is to organize the training for the personnel according to the national or international or industry standards so as to ensure:

(1) Checking personnel

The checking person engaged in the visual/sampling check of hazardous materials is to be satisfactorily trained or certified and to be trained according to the national or international or industry standards where necessary and to obtain the required qualification certificate for hazardous materials and to have professional knowledge of ship structures, equipment, hazardous materials and materials used for ship structures and equipment for the sampling and handling of such materials where necessary. In addition, the person is also to have the knowledge of sampling techniques, necessary personal safety protection and personal safety equipment and relevant testing standards.

(2) Supervisor

The supervisor is to be qualified and is to obtain the required qualification certificate for hazardous materials according to the national or international or industry standards where necessary and to have professional knowledge of ship structures, equipment, hazardous materials and materials used for ship structures and equipment. The supervisor is to be familiar with the checking methods, procedures and purposes and to evaluate the checking results.

Note: not all the supervisors or checking personnel are expected to obtain qualification for all hazardous materials applied for by the company, but there must be sufficient number of supervisors and checking personnel with qualification for all hazardous materials.

(3) Technical director

The specialist organization is to appoint a technical director who has relevant qualifications and experience in organization operation regardless of the title and to be fully responsible for the quality system. The technical director is to be a formal and long-term employee.

3.2.1.4 The specialist organization is to be composed by a sufficient number of checking personnel, among which at least 1 supervisor is to be provided so as to meet the needs for the execution of checking service.

3.2.2 Personnel records

The applicant is to keep records of the approved personnel. The record is to contain information on age, education level, education background, title, qualification, training records and experience records for the services for which they are approved.

3.2.3 Sampling tools and materials

The applicant is to be provided with the necessary sampling tools fit for the checking service provided and materials for sealing samples.

3.2.4 Working procedures for sampling and check or operation instructions

3.2.4.1 The applicant is to maintain the written working procedures or operation instructions, covering all relevant activities, which is to comply with the relevant requirements and contain the following:

- reception, review and designation of application for testing service;
- information on survey preparation;
- safety procedures relevant to the hazards;
- selection and identification of visual and/or sampling check locations;
- preparation for sampling tools and materials;
- sample removal;
- reinstatement of safe conditions for the material once the sample is taken;
- sample storage, identification and transport requirements;
- other means and requirements for the informing of CCS surveyor and other relevant parties during sampling;
- means and requirements for the testing carried out by the entrusting testing organization (the testing organization approved by CCS);
- report preparation and content;

- delivery and filing of the report.

3.2.5 Verification

The applicant is to verify that the services provided are in compliance with the requirements of approval procedures.

3.2.6 Reporting

The report is to include the relevant information of shipowner/manager and the ship, normally including the following items:

- information of the target ship (e.g. name, ship number, type of the ship, gross tonnage, $L \times B \times D$, IMO number, ship class, flag State, call sign, shipyard, shipowner);
- information of the specialist organization;
- scope of the check;
- normative reference (regulatory requirements);
- checking (investigation) methods, procedures and limitations:
  (1) necessary collection of plans and information;
  (2) assessment of the plans and information;
  (3) preparation of visual/sampling check plan;
  (4) onboard visual/sampling check;
  (5) analyses and testing carried out by the recognized laboratory and the development of the Inventory of Hazardous Materials (IHM);
- statement of the Inventory of Hazardous Materials (IHM): findings of the check (investigation), types of the identified hazardous materials and potentially containing Hazardous Material (PCHM), location of hazardous materials, estimation algorithm for estimating the quantities of hazardous materials on board (if applicable);
- signature of the checking personnel and person responsible for the issue of the report;
- Appendix:
  (1) Hazardous Materials Visual/Sampling Check Plan;
  (2) report for the testing of samples;
  (3) records of visual/sampling check (investigation);

(4) photographs of the checkpoints.

3.2.7 Quality system

3.2.7.1 A qualification certificate issued by other authoritative institution (such as type A inspection organizations specified in ISO/IEC 17020:1998) or an existing ISO 9001 certificate is to be obtained with satisfactory audit by CCS.

3.2.7.2 If the certificate mentioned in 3.2.7.1 is not obtained, the applicant is to have a documented system covering at least the following:

(1) code of conduct for the relevant activity;

(2) maintenance and calibration of equipment;

(3) training programmes for checking personnel/supervisors/technical directors;

(4) supervision and verification to ensure compliance with operational procedures;

(5) recording and reporting of information;

(6) quality management of subsidiaries and agents (if applicable);

(7) job preparation;

(8) periodic review of work process procedures, complaints, corrective actions, and issuance, maintenance and control of documents.

3.3 Field audit

3.3.1 CCS is to establish the approval working group which is to conduct the field audit according to CCS Rules, procedures and relevant requirements mentioned above.

3.3.2 The approval working group is to make records of the problems found during the field audit by the specialist organization at any time and to inform the specialist organization in written form timely for the rectification and relevant rectification measures are to be confirmed effective by CCS surveyor.

3.3.3 The field audit is at least to include:

(1) checking the implementation of management system documents, operational procedures by the specialist organization;

(2) checking and confirming the qualification of the specialist organization in relation to personnel training, experience and qualification;

(3) verifying whether the facilities, environment, sampling tools and materials of the specialist organization are useful in the correct implementation of the check;

(4) verifying whether appropriate methods and procedures are taken by the specialist organization to conduct check within the approval area;

(5) checking whether the selecting, identification, dealing, storage and protection of the samples carried out by the specialist organization are in compliance with the relevant requirements;

(6) checking whether the entrusting testing of the selected samples carried out by the specialist organization is in compliance with the relevant requirements and whether the testing organization is approved by CCS;

(7) verifying the correctness and traceability of quality records and reports of the check carried out by the specialist organization, and whether the development, endorsement, review and issue of the report are in compliance with the relevant requirements;

(8) witnessing the major items on site to verify the checking capabilities of the specialist organization and the accuracy, safety and effectiveness of the checking personnel during the check.

Chapter 4 Certification Requirements

4.1 Certification

4.1.1 The approval working group may issue the approval certificate for specialist organization engaged in visual/sampling check according to the requirements of CCS upon the satisfactory results after the field audit and necessary verification inspections. The testing report issued by the organization as specified may be considered as the basis for CCS surveyors to issue the certificate or report.

4.1.2 The approval certificate is to be in compliance with relevant requirements of CCS.

4.1.3 The type of checking item, checking standards and relevant limitations (if any) are to be indicated clearly in the approval certificate.

4.1.4 The period of validity of the approval certificate of testing organization is four years and relevant approval information is to be issued on CCS website.

4.2 Periodical audit

4.2.1 The approval unit may conduct a periodical audit according to the procedural requirements of CCS within the validity of the approval certificate for testing organization.

4.2.2 The periodical audit is to be carried out within 3 months before or after the second anniversary date of the certificate. If the application for the periodical audit is not provided by the specialist organization within 3 months of the due date of the periodical audit, the approval certificate is to be suspended by the approval unit according to regulation 4.5.2. If the application for periodical audit is still not submitted to CCS by the specialist organization within 3 months after the suspension of the approval certificate, the approval certificate is to be canceled by the approval unit according to regulation 4.5.3.

4.3 Change of approval certificate

The testing organization may submit the application for the change of approval certificate according to the relevant requirements of CCS if the name and address of the organization change or the testing items and scope are added within the validity of the approval certificate for the testing organization.

4.4 Renewal of approval certificate

An application for the renewal of approval certificate is to be submitted by the specialist organization to local survey unit of CCS within 3 months before the due date of the certificate.

4.5 Invalidation, suspension and cancellation of approval certificate

4.5.1 The approval certificate will be automatically invalidated within the period of its validity in one of the following conditions:

(1) any unauthorized alteration has been made to the certificate by its holder;

(2) any convention, rule or standard applicable to the existing approved products has been changed (change of detailed requirements).

4.5.2 CCS will suspend the certificate within the period of its validity when CCS identifies that one of the following conditions exists at the specialist organization:

(1) application for a periodical audit by CCS has not been submitted within the specified period;

(2) any serious nonconformity of the approved products is found during a periodical audit or any nonconformity found during a periodical audit has not been rectified as required;

(3) no remedial action has been promptly taken to quality problems of products or no assistance given to investigation by CCS.

4.5.3 CCS will cancel the certificate within the period of its validity when CCS identifies that one of the following conditions exists at the specialist organization:

(1) the date of periodical audit is pasted and the application for periodical audit is not submitted by the specialist organization to CCS within 3 months after the suspension of certificate;

(2) any major change has been made to the testing/test conditions, control of equipment or quality and management system of the specialist organization and the existing approval conditions of CCS are not maintained;

(3) testing/test is not properly conducted or the results are not properly reported;

(4) major deficiencies are found in the management system of the specialist organization and no corrective measures are properly taken so as to ensure the accuracy, reliability and impartiality of the testing and test results;

(5) falsification of the test result is confirmed;

(6) the check is not conducted according to the approved sampling check procedures and testing standards;

(7) relevant fees have not been paid to CCS.

Annex 10 Example of Visual/sampling Check Plan

Visual/sampling check plan for sample ship

Name of ship	XXXXXXXXXX
IMO Number	XXXXXXXXXX
Gross Tonnage	28,000 GT
L x B x D	xxx.xx × xx.xx × xx.xx m
Date of delivery	dd.mm.1987
Shipowner	XXXXXXXXXX
Contact point (Tel.,Fax, E-mail, address)	XXXXXXXXXX Tel: XXXX-XXXX Fax: XXXX-XXXX E-mail: abcdefg@hijk.co.net
Check schedule	Visual check: dd, mm, 20XX Sampling check： dd, mm, 20XX
Site of check	XX shipyard, No. Dock
In charge of check	XXXX XXXX
Check engineer	XXXX XXXX、YYYY YYYY、ZZZZ ZZZZ
Sampling engineer	Person with specialized knowledge of sampling
Sampling method and anti-scattering measure for asbestos	Wet the sampling location prior to cutting and allow it to harden after cutting to prevent scatter. Notes: Workers performing sampling activities shall wear protective equipment.
Sampling of fragments of paints	Paints suspected to contain TBT are to be collected and analyzed from load line, directly under bilge keel and flat bottom near amidships.
Laboratory	QQQQ QQQQ
Chemical analysis method	Method by ISO/DIS 22262-1 Bulk materials--Part 1: Sampling and qualitative determination of asbestos in commercial bulk materials and ISO/CD 22262-2 Bulk materials – Part 2: Quantitative determination of asbestos by gravimetric and microscopic methods. ICP Luminous analysis (TBT)
Location of visual/sampling check	Refer to lists for visual/sampling check

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

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

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

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

Prepared by: XXXX XXXX
Tel: YYYY-YYYY
E-mail: XXXX@ZZZZ.co.net

- Document check ･date/place:
  dd, mm, 20XX at XX Lines Co. Ltd.
- Preparation date of plan: dd. mm, 20XX

Annex 11 Specific Test Methods

1 Asbestos

Types to test for: as per resolution MEPC.179(59); 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.

Notes:

(1) The suggested three kinds of testing techniques are most commonly used methods when analysing asbestos and each of them has its limitation. Laboratories are to choose the most suitable methods to determine, and in most cases, two or more techniques are to 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 are to 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 is also to be reported.

Notes:

(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 the 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 appendix 8 to IMO resolution MEPC.269(68), 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

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), including: Tributyl tins (TBT), Triphenyl tins (TPT) and Tributyl tin oxide (TBTO).

Specific testing technique: As per resolution MEPC.104(49) (Guidelines for Brief Sampling of Anti-Fouling Systems on Ships), adopted 18 July 2003, 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.

5 Perfluorooctane sulfonic acid (PFOS)

Types to test for: As per Regulation (EC) No 850/2004 of the European Parliament and of the Council, new installations which contain perfluorooctane sulfonic acid (PFOS) and its derivatives are to be prohibited.

Specific testing technique: LC-MS/MS or LC-MS, GC-MS, LC-qMS, LC-tandem/MS.

Specific reporting information: Type and concentration of perfluorooctane sulfonic acid (PFOS) and its derivatives.

Annex 12 Inventory of Hazardous Materials and Example of Location Diagram of Hazardous Materials for Existing Ships

Inventory of Hazardous Materials for sample ship

Identification/verification number of Part I of the Inventory of Hazardous Materials:_____

Particulars of the "Sample Ship"

Distinctive number or letters	XXXX
Port of registry	Port of XXX
Type of vessel	Bulk carrier
Gross Tonnage	28,000 GT
IMO number Name of shipbuilder	NNNNNNN xx Shipbuilding Co. Ltd
Name of shipowner	yy Maritime SA
Date of delivery	MM/DD/1988

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

Attachment: Location diagram of Hazardous Materials

Prepared by:_____

Address:_____

Date:_____

Inventory of Hazardous Materials: “Sample Ship”

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

I-1 Paints and coating systems containing materials listed in Table A and Table B of Annex 1 to this Guidelines

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

I-2 Equipment and machinery containing materials listed in Table A and Table B of Annex 1 to this Guidelines

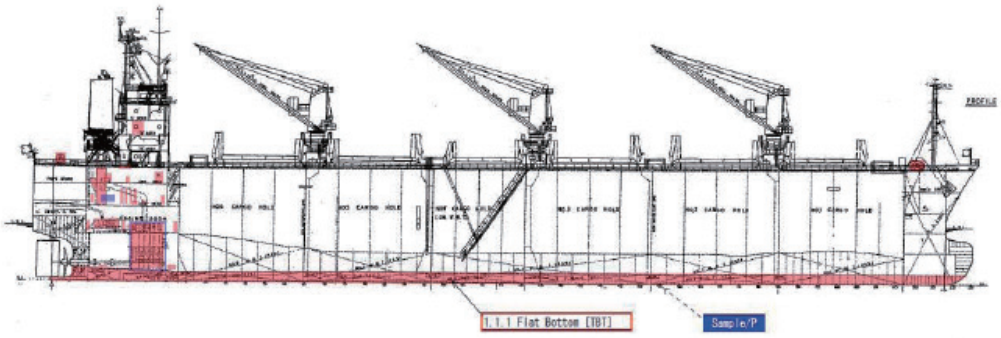
No.	Name of equipment and machinery	Location *1	Materials (classification in Annex 1)	Parts where used	Approx. quantity		Remarks
1	Main engine	Lower floor	Asbestos	Exh. pipe packing	3.50	kg	
2	Aux. boiler	3rd deck	Asbestos	Unknown packing	10.00	kg	PCHM (potentially containing Hazardous Material)
3	Piping/flange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

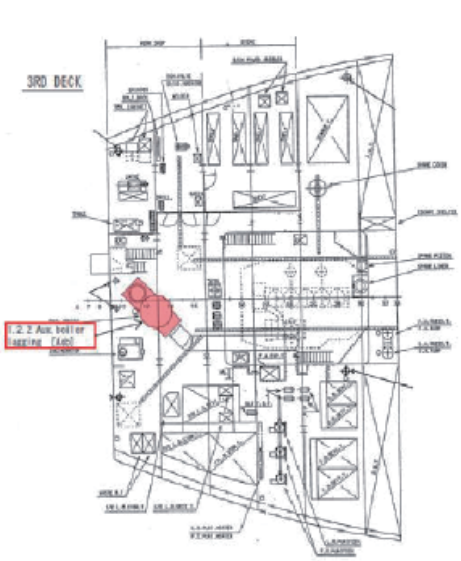
I-3 Structure and hull containing materials listed in Table A and Table B of Annex 1 to this Guidelines

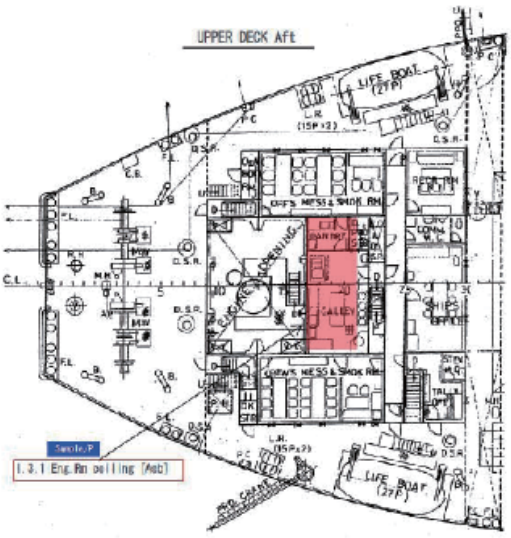
No.	Name of structural element	Location *1	Materials (classification in appendix 1)	Parts where used	Approx. quantity		Remarks
1	Back deck ceiling	Upper deck	Asbestos	Engine-room ceiling (A class)	3.80	kg	Confirmed by sampling
2							
3							

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

Example of location diagram of Hazardous Materials







Annex 13 EXAMPLES OF RADIOACTIVE SOURCES

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 (3H)

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 gauges

Radioactive conveyor gauges

Radioactive spinning pipe gauges

Note: 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

References

1.1 References

(1) Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (referred to as "the Hong Kong Convention");

(2) 2015 Guidelines for the Development of the Inventory of Hazardous Materials (resolution MEPC.269(68));

(3) 2012 Guidelines for the Survey and Certification of Ships under the Hong Kong Convention (resolution MEPC.222(64));

(4) CCS Rules for Classification of Sea-going Steel Ships;

(5) Unified Interpretation of SOLAS regulation II-1/3-5 (MSC.1/Circ.1426).

(6) Regulation (EU) No 1257/2013

1.2 Abbreviations

(1) IMO: International Maritime Organization

(2) MEPC: Marine Environment Protection Committee of IMO

(3) GPR: CCS class notation "Green Passport"

(4) GT: Gross Tonnage

(5) FSU: Floating Storage Unit

(6) FPSO: Floating Production, Storage and Offloading Facilities

(7) HCFCs: Hydrochlorofluorocarbons

(8) IHM: Inventory of Hazardous Materials

(9) HSSC: Harmonized System of Survey and Certification

(10) MD: Materials Declaration

(11) SDoC: Supplier's Declaration of Conformity

(12) TBT: Tributyl tins

(13) PCHM: potentially containing Hazardous Material

(14) DASR: Document of Authorization to conduct Ship Recycling

(15) EU: European Union

Appendix 1 Regulation (EU) No 1257/2013

REGULATION (EU) No 1257/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 November 2013
on ship recycling and amending Regulation (EC) No 1013/2006 and Directive 2009/16/EC

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 192(1) thereof,

Having regard to the proposal from the European Commission,

After transmission of the draft legislative act to the national parliaments,

Having regard to the opinion of the European Economic and Social Committee①,

After consulting the Committee of the Regions,

Acting in accordance with the ordinary legislative procedure②,

Whereas:

(1) Ships which constitute waste and which are subject to a transboundary movement for recycling are regulated by the Basel Convention of 22 March 1989 on the Control of the Transboundary Movements of Hazardous Wastes and their Disposal ('the Basel Convention') and Regulation (EC) No 1013/2006 of the European Parliament and of the Council③. Regulation (EC) No 1013/2006 implements the Basel Convention as well as an amendment④ to that Convention adopted in 1995, which has not yet entered into force at international level, and which establishes a ban on exports of hazardous waste to countries that are not members of the Organisation for Economic Cooperation and Development (OECD). Such ships are generally classified as hazardous waste and prohibited from being exported from the Union for recycling in facilities in countries that are not members of the OECD.

(2) The mechanisms for monitoring the application of, and enforcing the current Union and international law are not adapted to the specificities of ships and international shipping. Efforts involving interagency cooperation between the International Labour Organisation (ILO), the International Maritime Organisation (IMO) and the Secretariat of the Basel Convention have been successful in reaching agreement on the introduction of mandatory requirements, at global level, aimed at ensuring an efficient and effective solution to unsafe and unsound ship recycling practices in the form of the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships ('the Hong Kong Convention').

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① OJ C 299, 4.10.2012, p.158.
② Position of the European Parliament of 22 October 2013 (not yet published in the Official Journal) and decision of the Council of 15 November 2013.
③ Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste (OJ L 190, 12.7.2006, p.1).
④ Amendment to the Basel Convention ('Ban amendment') adopted by Decision III/1 of the Parties to the Basel Convention.

(3) Current ship recycling capacity in OECD countries which is legally accessible to ships flying the flag of a Member State is insufficient. Current safe and environmentally sound ship recycling capacity in countries which are not members of the OECD is sufficient to treat all ships flying the flag of a Member State and is expected to expand further by 2015 as the results of actions taken by recycling countries to meet the requirements of the Hong Kong Convention.

(4) The Hong Kong Convention was adopted on 15 May 2009 under the auspices of the International Maritime Organization. The Hong Kong Convention will enter into force only 24 months after the date of ratification by at least 15 states representing 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. That Convention covers the design, the construction, the operation and the preparation of ships with a view to facilitating safe and environmentally sound recycling without compromising ship safety and operational efficiency. It also covers the operation of ship recycling facilities in a safe and environmentally sound manner, and the establishment of an appropriate enforcement mechanism for ship recycling.

(5) This Regulation is aimed at facilitating early ratification of the Hong Kong Convention both within the Union and in third countries by applying proportionate controls to ships and ship recycling facilities on the basis of that Convention.

(6) The Hong Kong Convention provides explicitly for its Parties to take more stringent measures consistent with international law, with respect to the safe and environmentally sound recycling of ships, in order to prevent, reduce or minimise any adverse effects on human health and the environment. Taking that into account, this Regulation should provide protection from the possible adverse effects of hazardous materials on board all ships calling at a port or anchorage of a Member State while ensuring compliance with the provisions applicable to those materials under international law. In order to ensure the monitoring of compliance with the requirements relating to hazardous materials under this Regulation, Member States should apply national provisions to implement Directive 2009/16/EC of the European Parliament and of the Council[①]. Currently, port State control inspectors are tasked with the inspection of certification and with active testing for hazardous materials, including asbestos, under the International Convention for the Safety of Life at Sea ('SOLAS'). The Paris Memorandum of Understanding on Port State Control provides a harmonised approach for those activities.

(7) The purpose of this Regulation is also to reduce disparities between operators in the Union, in OECD countries and in relevant third countries in terms of health and safety at the workplace and environmental standards and to direct ships flying the flag of a Member State to ship recycling facilities that practice safe and environmentally sound methods of dismantling ships instead of directing them to substandard sites as is currently the practice. The competitiveness of safe and environmentally sound recycling and treatment of ships in ship recycling facilities located in a Member State would thereby also be increased. The establishment of a European List of ship recycling facilities ('the European List') fulfilling the requirements set out in this Regulation would contribute to those objectives as well as to better enforcement by facilitating the control of ships going for recycling by the Member State whose flag the ship is flying. Those requirements for ship recycling facilities should be based on the requirements of the Hong Kong Convention. In this regard, ship recycling facilities approved in accordance with this Regulation should meet the necessary requirements to ensure protection of the environment, the health and safety of workers and the environmentally sound management of the waste recovered from recycled ships. For ship recycling facilities located in a third country, the requirements should achieve a high level of protection of human health and the environment that is broadly equivalent to that in the Union. Ship recycling facilities which do not meet those minimum requirements should therefore not be included in the European List.

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① Directive 2009/16/EC of the European Parliament and of the Council of 23 April 2009 on port State control (OJ L 131, 28.5.2009, p.57).

(8) The principle of equality in Union law should be applied and its application monitored, in particular when establishing and updating the European List in respect of ship recycling facilities located in a Member State and ship recycling facilities located in a third country fulfilling the requirements set out in this Regulation.

(9) Member States are encouraged to adopt appropriate measures to ensure that ships excluded from the scope of this Regulation act in a manner that is consistent with this Regulation, in so far as is reasonable and practicable.

(10) In order to avoid duplication, it is necessary to exclude ships flying the flag of a Member State falling under the scope of this Regulation from the scope of application of Regulation (EC) No 1013/2006 and of Directive 2008/98/EC of the European Parliament and of the Council① respectively. Regulation (EC) No 1013/2006 applies to shipments of waste from the Union, subject to exclusions for certain categories of waste where an alternative regime applies. This Regulation subjects ships within its scope to controls throughout their life-cycle and aims to secure recycling of those ships in an environmentally sound manner. It is therefore appropriate to specify that a ship subject to the alternative control regime throughout its life-cycle under this Regulation should not be subject to Regulation (EC) No 1013/2006. Ships neither covered by the scope of the Hong Kong Convention nor by this Regulation, and any waste on board of a ship other than operationally generated waste, should continue to be subject to Regulation (EC) No 1013/2006 and to Directives 2008/98/EC and 2008/99/EC of the European Parliament and of the Council②, respectively.

(11) It is also acknowledged that ships continue to be subject to other international conventions to ensure their safe operation at sea during the operational part of their life-cycle and, although they can exercise certain navigational rights and freedoms, ships are required to provide prior notice of entry into ports. Member States should be able to choose to apply further controls in accordance with other international treaties. Additional transit controls are therefore not considered necessary under this Regulation.

(12) When interpreting the requirements of this Regulation, consideration should be given to the guidelines developed by the IMO ('IMO guidelines') to support the Hong Kong Convention.

(13) For the purposes of this Regulation, the term 'recycling' should not have the same meaning as defined in Directive 2008/98/EC. This Regulation should therefore introduce a specific definition for the term 'ship recycling'.

(14) Regulation (EC) No 1272/2008 of the European Parliament and of the Council③ implements at Union level the Globally Harmonised System for the classification and labelling of chemicals. That Regulation, together with Council Directive 67/548/EEC④ and Directive 1999/45/EC of the European Parliament and of the Council⑤, provides useful guidance in determining what constitutes a hazardous material.

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① Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (OJ L 312, 22.11.2008, p.3).

② Directive 2008/99/EC of the European Parliament and of the Council of 19 November 2008 on the protection of the environment through criminal law (OJ L 328, 6.12.2008, p.28).

③ Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (OJ L 353, 31.12.2008, p.1).

④ Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (OJ 196, 16.8.1967, p.1).

⑤ Directive 1999/45/EC of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations (OJ L 200, 30.7.1999, p.1).

(15) Keeping an inventory of hazardous materials on board a ship throughout its life-cycle is a key requirement laid down in the Hong Kong Convention and in this Regulation. In accordance with Regulation 8(2) of the Hong Kong Convention, a ship destined to be recycled should minimise the amounts of operationally generated waste in the period prior to entering the ship recycling facility. If the operationally generated waste is intended for delivery with the ship to a ship recycling facility, the approximate quantities and locations of that waste should be listed in Part II of the inventory.

(16) Member States should take measures to prevent circumvention of ship recycling rules and to enhance transparency of ship recycling. As provided for in the Hong Kong Convention, Member States should report information concerning ships to which an inventory certificate has been issued, ships for which a statement of completion has been received and information regarding illegal ship recycling and follow-up actions that they have undertaken.

(17) Member States should lay down rules on penalties applicable to infringements of this Regulation and ensure that those penalties are applied so as to prevent circumvention of ship recycling rules. The penalties, which may be of a civil or administrative nature, should be effective, proportionate and dissuasive.

(18) In accordance with the case-law of the Court of Justice, the courts of the Member States are required to interpret, to the fullest extent possible, the procedural rules relating to the conditions to be met in order to bring administrative or judicial proceedings in accordance with the objectives of Article 9(3) of the Aarhus Convention.

(19) In the interest of protecting human health and the environment and having regard to the 'polluter pays' principle, the Commission should assess the feasibility of establishing a financial mechanism applicable to all ships calling at a port or anchorage of a Member State, irrespective of the flag they are flying, to generate resources that would facilitate the environmentally sound recycling and treatment of ships without creating an incentive to out-flag.

(20) In order to take into account developments regarding the Hong Kong Convention, the power to adopt acts in accordance with Article 290 of the Treaty on the Functioning of the European Union should be delegated to the Commission in respect of the updating of Annexes I and II to this Regulation. It is of particular importance that the Commission carry out appropriate consultations during its preparatory work, including at expert level. The Commission, when preparing and drawing up delegated acts, should ensure a simultaneous, timely and appropriate transmission of relevant documents to the European Parliament and to the Council.

(21) In order to ensure uniform conditions for the implementation of this Regulation, implementing powers should be conferred on the Commission. Those powers should be exercised in accordance with Regulation (EU) No 182/2011 of the European Parliament and of the Council[①].

(22) Since the objective of this Regulation, namely to prevent, reduce or eliminate adverse effects on human health and the environment caused by the recycling, operation and maintenance of ships flying the flag of a Member State, cannot be sufficiently achieved by the Member States due to the international character of shipping and ship recycling, but can rather by reason of its scale and effects, be better achieved at Union level, the Union may adopt measures, in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty on European Union. In accordance with the principle of proportionality, as set out in that Article, this Regulation does not go beyond what is necessary in order to achieve that objective,

① Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011 laying down the rules and general principles concerning mechanisms for control by the Member States of the Commission's exercise of implementing powers (OJ L 55, 28.2.2011, p.13).

HAVE ADOPTED THIS REGULATION:

TITLE I SUBJECT-MATTER, SCOPE AND DEFINITIONS

Article 1 Subject matter and purpose

The purpose of this Regulation is to prevent, reduce, minimise and, to the extent practicable, eliminate accidents, injuries and other adverse effects on human health and the environment caused by ship recycling. The purpose of this Regulation is to enhance safety, the protection of human health and of the Union marine environment throughout a ship's life-cycle, in particular to ensure that hazardous waste from such ship recycling is subject to environmentally sound management.

This Regulation also lays down rules to ensure the proper management of hazardous materials on ships.

This Regulation also aims to facilitate the ratification of the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 ('the Hong Kong Convention').

Article 2 Scope

1. This Regulation, with the exception of Article 12, shall apply to ships flying the flag of a Member State.

Article 12 shall apply to ships flying the flag of a third country calling at a port or anchorage of a Member State.

2. This Regulation shall not apply to:

(a) any warships, naval auxiliary, or other ships owned or operated by a state and used, for the time being, only on government non-commercial service;

(b) ships of less than 500 gross tonnage (GT);

(c) ships operating throughout their life only in waters subject to the sovereignty or jurisdiction of the Member State whose flag the ship is flying.

Article 3 Definitions

1. For the purposes of this Regulation, the following definitions apply:

(1) '*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), as well as a vessel stripped of equipment or being towed;

(2) '*new ship*' means a ship for which either:

(a) the building contract is placed on or after the date of application of this Regulation;

(b) in the absence of a building contract, the keel is laid or the ship is at a similar stage of construction six months after the date of application of this Regulation or thereafter; or

(c) the delivery takes place thirty months after the date of application of this Regulation or thereafter;

(3) '*tanker*' means an oil tanker as defined in Annex I to the Convention for the Prevention of Pollution from Ships ('MARPOL Convention') or a Noxious Liquid Substances (NLS) tanker as defined in Annex II to that Convention;

(4) '*hazardous material*' means any material or substance which is liable to create hazards to human health and/or the environment;

(5) '*operationally generated waste*' means waste water and residues generated by the normal operation of ships subject to the requirements of the MARPOL Convention;

(6) '*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, for preparation for re-use or for re-use, whilst ensuring the management 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;

(7) '*ship recycling facility*' means a defined area that is a yard or facility located in a Member State or in a third country and used for the recycling of ships;

(8) '*ship recycling company*' means, the owner of the ship recycling facility or any other organisation or person who has assumed the responsibility for the operation of the ship recycling activity from the owner of the ship recycling facility;

(9) '*administration*' means a governmental authority designated by a Member State as being responsible for duties related to ships flying its flag or to ships operating under its authority;

(10) '*recognised organisation*' means an organisation recognised in accordance with Regulation (EC) No 391/2009 of the European Parliament and of the Council[①];

(11) '*competent authority*' means a governmental authority or authorities designated by a Member State or a third country as responsible for ship recycling facilities, within a specified geographical area or an area of expertise, relating to all operations within the jurisdiction of that state;

(12) '*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;

(13) '*competent person*' means a person with suitable qualifications, training, and sufficient knowledge, experience and skill, for the performance of the specific work;

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① Regulation (EC) No 391/2009 of the European Parliament and of the Council of 23 April 2009 on common rules and standards for ship inspection and survey organisations (OJ L 131, 28.5.2009, p.11).

(14) '*ship owner*' means the natural or legal person registered as the owner of the ship, including the natural or legal person owning the ship for a limited period pending its sale or handover to a ship recycling facility, or, in the absence of registration, the natural or legal person owning the ship or any other organisation 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, and the legal person operating a state-owned ship;

(15) '*new installation*' means the installation of systems, equipment, insulation or other material on a ship after the date of application of this Regulation;

(16) '*ship recycling plan*' means a plan developed by the operator of the ship recycling facility for each specific ship to be recycled under its responsibility taking into account the relevant IMO guidelines and resolutions;

(17) '*ship recycling facility plan*' means a plan prepared by the operator of the ship recycling facility and adopted by the board or the appropriate governing body of the ship recycling company that describes the operational processes and procedures involved in ship recycling at the ship recycling facility and that covers in particular workers' safety and training, protection of human health and the environment, roles and responsibilities of personnel, emergency preparedness and response, and systems for monitoring, reporting and record-keeping, taking into account the relevant IMO guidelines and resolutions;

(18) '*safe-for-entry*' means a space that meets all of the following criteria:

(a) the oxygen content of the atmosphere and the concentration of flammable vapours are within safe limits;
(b) any toxic materials in the atmosphere are within permissible concentrations;

(c) any residues or materials associated with the work authorised by the competent person will not produce uncontrolled release of toxic materials or an unsafe concentration of flammable vapours under existing atmospheric conditions while maintained as directed;

(19) '*safe-for-hot work*' means a space in which all of the following criteria are met:

(a) safe, non-explosive conditions, including gas-free status, exist for the use of electric arc or gas welding equipment, cutting or burning equipment or other forms of naked flame, as well as heating, grinding, or spark-generating operations;

(b) the safe-for-entry criteria set out in point 18 are met;

(c) existing atmospheric conditions do not change as a result of the hot work;

(d) all adjacent spaces have been cleaned, rendered inert or treated sufficiently to prevent the start or spread of fire;

(20) '*statement of completion*' means a confirmatory statement issued by the operator of the ship recycling facility that the ship recycling has been completed in accordance with this Regulation;

(21) '*inventory certificate*' means a ship-specific certificate that is issued to ships flying the flag of a Member State in accordance with Article 9 and that is supplemented by an inventory of hazardous materials in accordance with Article 5;

(22) '*ready for recycling certificate*' means a ship-specific certificate that is issued to ships flying the flag of a Member State in accordance with Article 9(9) and that is supplemented by an inventory of hazardous materials in accordance with Article 5(7) and the approved ship recycling plan in accordance with Article 7;

(23) '*statement of compliance*' means a ship-specific certificate that is issued to ships flying the flag of a third country and that is supplemented by an inventory of hazardous materials in accordance with Article 12;

(24) '*light displacement tonnes (LDT)*' means the weight of a ship in tonnes without cargo, fuel, lubricating oil in storage tanks, ballast water, fresh water, feedwater, consumable stores, passengers and crew and their effects and it is the sum of the weight of the hull, structure, machinery, equipment and fittings of the ship.

2. For the purposes of Article 7(2)(d) and Articles 13, 15 and 16,

(a) 'waste', 'hazardous waste', 'treatment' and 'waste management' have the same meaning as in Article 3 of Directive 2008/98/EC;

(b) 'site inspection' means an inspection of the ship recycling facility assessing whether the conditions on site are consistent with those described in any relevant documen¬tation provided;

(c) 'worker' means any person who performs work, either regularly or temporarily, in the context of an employment relationship, including the personnel working for contractors and subcontractors;

(d) 'environmentally sound management' means taking all practicable steps to ensure that waste and hazardous materials are managed in a manner which protects human health and the environment against the adverse effects which may result from such materials and waste.

3. For the purposes of point 13 of paragraph 1, a competent person may be a trained worker or a managerial employee capable of recognising and evaluating occupational hazards, risks, and employee exposure to potentially hazardous materials or unsafe conditions in a ship recycling facility, and who is capable of specifying the necessary protection and precautions to be taken to eliminate or reduce those hazards, risks or that exposure.

Without prejudice to Directive 2005/36/EC of the European Parliament and of the Council①, the competent authority may define appropriate criteria for the designation of such persons and may determine the duties to be assigned to them.

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① Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications (OJ L 255, 30.9.2005, p.22).

TITLE II SHIPS

Article 4 Control of hazardous materials

The installation or use of hazardous materials referred to in Annex I on ships shall be prohibited or restricted as specified in Annex I, without prejudice to other requirements of relevant Union law which may require further measures.

Article 5 Inventory of hazardous materials

1. Each new ship shall have on board an inventory of hazardous materials, which shall identify at least the hazardous materials referred to in Annex II and contained in the structure or equipment of the ship, their location and approximate quantities.

2. Subject to point (b) of Article 32(2), existing ships shall comply, as far as practicable, with paragraph 1.

In the case of ships going for recycling, they shall comply, as far as practicable, with paragraph 1 of this Article from the date of the publication of the European List of ship recycling facilities ('the European List') as set out in Article 16(2).

Subject to point (b) of Article 32(2), when the inventory of hazardous materials is developed it shall identify, at least, the hazardous materials listed in Annex I.

3. The inventory of hazardous materials shall:

(a) be specific to each ship;

(b) provide evidence that the ship complies with the prohibition or restrictions on installing or using hazardous materials in accordance with Article 4;

(c) be compiled taking into account the relevant IMO guidelines;

(d) be verified either by the administration or a recognised organisation authorised by it.

4. In addition to paragraph 3, for existing ships a plan shall be prepared describing the visual or sampling check by which the inventory of hazardous materials is developed and taking into account the relevant IMO guidelines.

5. The inventory of hazardous materials shall consist of three parts:

(a) a list of hazardous materials referred to in Annexes I and II, in accordance with the provisions of paragraphs 1 and 2 of this Article, and contained in the structure or equipment of the ship, with an indication of their location and approximate quantities (Part I);

(b) a list of the operationally generated waste present on board the ship (Part II);

(c) a list of the stores present on board the ship (Part III).

6. Part I of the inventory of hazardous materials shall be properly maintained and updated throughout the operational life of the ship, reflecting new installations containing any hazardous materials referred to in Annex II and relevant changes in the structure and equipment of the ship.

7. Prior to recycling, and taking into account the relevant IMO guidelines, the inventory of hazardous materials shall, in addition to the properly maintained and updated Part I, incorporate Part II for operationally generated waste and Part III for stores, and be verified by the administration or a recognised organisation authorised by it.

8. The Commission shall be empowered to adopt delegated acts in accordance with Article 24 concerning the updating of the list of items for the inventory of hazardous materials in Annexes I and II to ensure that the lists include at least the substances listed in Appendices I and II of the Hong Kong Convention.

The Commission shall adopt a separate delegated act in respect of each substance to be added or deleted from Annexes I or II.

Article 6 General requirements for ship owners

1. When preparing to send a ship for recycling, ship owners shall:

(a) provide the operator of the ship recycling facility with all ship-relevant information, necessary for the development of the ship recycling plan set out in Article 7;

(b) notify in writing the relevant administration, within a timeframe to be determined by that administration, of the intention to recycle the ship in a specified ship recycling facility or facilities. The notification shall include at least:

(i) the inventory of hazardous materials; and

(ii) all ship-relevant information provided under point (a).

2. Ship owners shall ensure that ships destined to be recycled:

(a) are only recycled at ship recycling facilities that are included in the European List;

(b) conduct operations in the period prior to entering the ship recycling facility in such a way as to minimise the amount of cargo residues, remaining fuel oil, and ship generated waste remaining on board;

(c) hold a ready for recycling certificate issued by the administration or a recognised organisation authorised by it prior to any recycling of the ship and after the receipt of the ship recycling plan approved in accordance with Article 7(3).

3. Ship owners shall ensure that tankers arrive at the ship recycling facility with cargo tanks and pump rooms in a condition ready for certification as safe-for-hot work.

4. Ship owners shall provide the operator of the ship recycling facility with a copy of the ready for recycling certificate issued in accordance with Article 9.

5. Ship owners shall be responsible for the ship and shall make arrangements to maintain that ship in compliance with the requirements of the administration of the Member State whose flag the ship is flying up until such time as the operator of the ship recycling facility accepts responsibility for that ship. The operator of the ship recycling facility may decline to accept the ship for recycling if the condition of the ship does not correspond substantially with the particulars of the inventory certificate, including where Part I of the inventory of hazardous materials has not been properly maintained and updated, reflecting changes in the ship's structure and equipment. In such circumstances, the ship owner shall retain responsibility for that ship and shall inform the administration thereof without delay.

Article 7 Ship recycling plan

1. A ship-specific ship recycling plan shall be developed prior to any recycling of a ship. The ship recycling plan shall address any ship-specific considerations that are not covered in the ship recycling facility plan or that require special procedures.

2. The ship recycling plan shall:

(a) be developed by the operator of the ship recycling facility in accordance with the relevant provisions of the Hong Kong Convention and taking into account the relevant IMO guidelines and the ship-relevant information provided by the ship owner in accordance with Article 6(1)(a) so that its contents are consistent with the information contained in the inventory of hazardous materials;

(b) clarify whether and to what extent any preparatory work, such as pre-treatment, identification of potential hazards and removal of stores, is to take place at a location other than the ship recycling facility identified in the ship recycling plan. The ship recycling plan should include the location where the ship will be placed during recycling operations and a concise plan for the arrival and safe placement of the specific ship to be recycled;

(c) include information concerning the establishment, maintenance and monitoring of the safe-for-entry and safe-for-hot work conditions for the specific ship, taking into account features such as its structure, configuration and previous cargo, and other necessary information on how the ship recycling plan is to be implemented;

(d) include information on the type and amount of hazardous materials and of waste to be generated by the recycling of the specific ship, including the materials and the waste identified in the inventory of hazardous materials, and on how they will be managed and stored in the ship recycling facility as well as in subsequent facilities; and

(e) be prepared separately, in principle, for each ship recycling facility involved where more than one ship recycling facility is to be used, and identify the order of use and the authorised activities that will occur at those facilities.

3. The ship recycling plan shall be tacitly or explicitly approved by the competent authority in accordance with the requirements of the state where the ship recycling facility is located, where applicable.

Explicit approval shall be given when the competent authority sends a written notification of its decision on the ship recycling plan to the operator of the ship recycling facility, the ship owner and the administration.

Tacit approval shall be deemed given, if no written objection to the ship recycling plan is communicated by the competent authority to the operator of the ship recycling facility, the ship owner and the administration within a review period laid down in accordance with the requirements of the state where the ship recycling facility is located, where applicable, and notified in accordance with Article 15(2)(b).

4. Member States may require their administration to send to the competent authority of the state where the ship recycling facility is located the information provided by the ship owner pursuant to Article 6(1)(b) and the following details:

(i) the date on which the ship was registered within the State whose flag it flies;

(ii) the ship's identification number (IMO number);

(iii) the hull number on new-building delivery;

(iv) the name and type of the ship;

(v) the port at which the ship is registered;

(vi) the name and address of the ship owner as well as the IMO registered owner identification number;

(vii) the name and address of the company;

(viii) the name of any classification societies with which the ship is classed;

(ix) the ship's main particulars (Length overall (LOA), Breadth (Moulded), Depth (Moulded), LDT, Gross and Net tonnage, and engine type and rating).

Article 8 Surveys

1. Surveys of ships shall be carried out by officers of the administration, or of a recognised organisation authorised by it, taking into account the relevant IMO guidelines.

2. Where the administration uses recognised organisations to conduct surveys, as described in paragraph 1, it shall, as a minimum, empower such recognised organisations to:

— require a ship that they survey to comply with this Regulation; and

— carry out surveys if requested by the appropriate authorities of a Member State.

3. Ships shall be subject to the following surveys:

(a) an initial survey;

(b) a renewal survey;

(c) an additional survey;

(d) a final survey.

4. The initial survey of a new ship shall be conducted before the ship is put in service, or before the inventory certificate is issued. For existing ships, an initial survey shall be conducted by 31 December 2020. The survey shall verify that Part I of the inventory of hazardous materials complies with the requirements of this Regulation.

5. The renewal survey shall be conducted at intervals specified by the administration, which shall not exceed five years. The renewal survey shall verify that Part I of the inventory of hazardous materials complies with the requirements of this Regulation.

6. The additional survey, either general or partial depending on the circumstances, shall be conducted if requested by the ship owner after a change, replacement or significant repair of the structure, equipment, systems, fittings, arrangements and material, which has an impact on the inventory of hazardous materials. The survey shall be such as to ensure that any change, replacement, or significant repair has been made in a manner that ensures that the ship continues to comply with the requirements of this Regulation, and that Part I of the inventory of hazardous materials is amended as necessary.

7. The final survey shall be conducted prior to the ship being taken out of service and before the recycling of the ship has started.

That survey shall verify that:

(a) the inventory of hazardous materials complies with the requirements of Article 5;

(b) the ship recycling plan properly reflects the information contained in the inventory of hazardous materials and complies with the requirements of Article 7;

(c) the ship recycling facility where the ship is to be recycled is included in the European List.

8. For existing ships intended for ship recycling, the initial survey and the final survey may be conducted at the same time.

Article 9 Issuance and endorsement of certificates

1. After successful completion of an initial or renewal survey, the administration or a recognised organisation authorised by it shall issue an inventory certificate. That certificate shall be supplemented by Part I of the inventory of hazardous materials, referred to in Article 5(5)(a).

Where the initial survey and the final survey are conducted at the same time as provided for in Article 8(8), only the ready for recycling certificate referred to in paragraph 9 of this Article shall be issued.

The Commission shall adopt implementing acts to establish the format of the inventory certificate to ensure it is consistent with Appendix 3 to the Hong Kong Convention. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 25 of this Regulation.

2. An inventory certificate shall be endorsed at the request of the ship owner either by the administration or by a recognised organisation authorised by it after successful completion of an additional survey conducted in accordance with Article 8(6).

3. Subject to paragraph 4, the administration or recognised organisation authorised by it shall issue or endorse, as appropriate, an inventory certificate, where the renewal survey is successfully completed:

(a) in the three month period before the expiry date of the existing inventory certificate, and the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of expiry of the existing one;

(b) after the expiry date of the existing inventory certificate, and the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of expiry of the existing one;

(c) more than three months before the expiry date of the existing inventory certificate, and the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of completion of the renewal survey.

4. Where a renewal survey has been successfully completed and a new inventory certificate cannot be issued or placed on board before the expiry date of the existing certificate, the administration or recognised organisation authorised by it shall endorse the existing certificate and such a certificate shall be accepted as valid for a further period which shall not exceed five months from the date of expiry.

5. In case of an inventory certificate issued for a period of less than five years, the administration or the recognised organisation authorised by it may extend the validity of the existing certificate for a further period which shall not exceed five years.

6. In special circumstances as determined by the administration, a new inventory certificate need not be dated from the date of expiry of the existing certificate as required by points (a) and (b) of paragraph 3 and paragraphs 7 and 8. In those circumstances, the new certificate shall be valid for a period not exceeding five years from the date of completion of the renewal survey.

7. Where a ship is not at the port or anchorage where it is to be surveyed when the inventory certificate expires, the administration may, if it is proper to do so, extend the period of validity of the inventory certificate for a period not exceeding three months to enable the ship to complete its voyage to the port in which it is to be surveyed. Any such extension granted shall be conditional on the survey being completed at that port before the ship leaves. A ship to which an extension is granted shall not, on its arrival in the port in which it is to be surveyed, be entitled, by virtue of such extension, to leave the port without having a new certificate. When the renewal survey is completed, the new inventory certificate shall be valid for a period not exceeding five years from the date of expiry of the existing certificate before the extension was granted.

8. An inventory certificate for a ship engaged on short voyages and which has not been extended under the conditions referred to in paragraph 7 may be extended by the administration for a period of grace of up to one month from its expiry. When the renewal survey is completed, the new inventory certificate shall be valid for a period not exceeding five years from the date of expiry of the existing certificate before the extension was granted.

9. After successful completion of a final survey in accordance with Article 8(7), the administration or a recognised organisation authorised by it shall issue a ready for recycling certificate. That certificate shall be supplemented by the inventory of hazardous materials and the ship recycling plan.

The Commission shall adopt implementing acts to establish the format of the ready for recycling certificate to ensure it is consistent with Appendix 4 to the Hong Kong Convention. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 25 of this Regulation. A ready for recycling certificate issued after a final survey in accordance with the first subparagraph of this paragraph shall be accepted by the other Member States and regarded for the purposes of this Regulation as having the same validity as a ready for recycling certificate issued by them.

Article 10 Duration and validity of certificates

1. Subject to Article 9, an inventory certificate shall be issued for a period specified by the administration, which shall not exceed five years.

2. An inventory certificate issued or endorsed under Article 9 shall cease to be valid in any of the following cases:

(a) if the condition of the ship does not correspond substantially with the particulars of that inventory certificate, including where Part I of the inventory of hazardous materials has not been properly maintained and updated, reflecting changes in ship structure and equipment, taking into account the relevant IMO guidelines;

(b) where the renewal survey is not completed within the intervals specified in Article 8(5).

3. A ready for recycling certificate shall be issued by the administration or by a recognised organisation authorised by it for a period not exceeding three months.

4. A ready for recycling certificate issued under Article 9(9) shall cease to be valid where the condition of the ship does not correspond substantially with the particulars of the inventory certificate.

5. By way of derogation from paragraph 3, the ready for recycling certificate may be extended by the administration or by a recognised organisation authorised by it for a single point to point voyage to the ship recycling facility.

Article 11 Port State control

1. Member States shall apply control provisions for ships in accordance with their national law having regard to Directive 2009/16/EC. Subject to paragraph 2, any such inspection shall be limited to checking that either an inventory certificate or a ready for recycling certificate is kept on board, which, if valid, shall be considered sufficient for the inspection to be approved.

2. A detailed inspection may be carried out by the relevant authority involved in port State control activities, taking into account the relevant IMO guidelines, where a ship does not carry a valid certificate or there are clear grounds for believing either that:

(a) the condition of the ship or its equipment does not correspond substantially with the particulars of that certificate, Part I of the inventory of hazardous materials, or both; or

(b) there is no procedure implemented on board the ship for the maintenance of Part I of the inventory of hazardous materials.

3. A ship may be warned, detained, dismissed or excluded from the ports or offshore terminals under the jurisdiction of a Member State in the event that it fails to submit to the relevant authorities of that Member State a copy of the inventory certificate or the ready for recycling certificate, as appropriate and on request of those authorities, without prejudice to Article 9. A Member State taking such action shall immediately inform the administration concerned. Failure to update the inventory of hazardous materials shall not constitute a detainable deficiency, but any inconsistencies in the inventory of hazardous materials shall be reported to the administration concerned and shall be rectified at the time of the next survey.

4. Access to a specific port or anchorage may be permitted by the relevant authority of a Member State in the event of force majeure or overriding safety considerations, or to reduce or minimise the risk of pollution or to have deficiencies rectified, provided that adequate measures to the satisfaction of the relevant authority of that Member State have been implemented by the owner, the operator or the master of the ship to ensure safe entry.

Article 12 Requirements for ships flying the flag of a third country

1. Subject to point (b) of Article 32(2), when calling at a port or anchorage of a Member State, a ship flying the flag of a third country shall have on board an inventory of hazardous materials that complies with Article 5(2).

Notwithstanding the first subparagraph, access to a specific port or anchorage may be permitted by the relevant authority of a Member State in the event of force majeure or overriding safety considerations, or to reduce or minimise the risk of pollution or to have deficiencies rectified, provided that adequate measures to the satisfaction of the relevant authority of that Member State have been implemented by the owner, the operator or the master of the ship to ensure safe entry.

2. The installation of hazardous materials referred to in Annex I on ships flying the flag of a third country, whilst in a port or anchorage of a Member State, shall be prohibited or restricted as specified in Annex I.

The use of hazardous materials referred to in Annex I on ships flying the flag of a third country, whilst in a port or anchorage of a Member State, shall be prohibited or restricted as specified in Annex I, without prejudice to the exemptions and transitional arrangements applicable to those materials under international law.

3. The inventory of hazardous materials shall be specific to each ship, be compiled taking into account the relevant IMO guidelines and serve to clarify that the ship complies with paragraph 2 of this Article. When the inventory of hazardous materials is developed it shall identify, at least, the hazardous materials listed in Annex I. A plan shall be established by the ship flying the flag of a third country describing the visual/sampling check by which the inventory of hazardous materials is developed taking into account the relevant IMO guidelines.

4. The inventory of hazardous materials shall be properly maintained and updated throughout the operational life of the ship, reflecting new installations containing any hazardous materials referred to in Annex II and relevant changes in the structure and equipment of the ship, taking into account the exemptions and transitional arrangements applicable to those materials under international law.

5. A ship flying the flag of a third country may be warned, detained, dismissed or excluded from the ports or offshore terminals under the jurisdiction of a Member State in the event that it fails to submit to the relevant authorities of that Member State a copy of the statement of compliance in accordance with paragraphs 6 and 7, together with the inventory of hazardous materials, as appropriate and on request from those authorities. A Member State taking such action shall immediately inform the relevant authorities of the third country whose flag the ship concerned is flying. Failure to update the inventory of hazardous materials shall not constitute a detainable deficiency, but any inconsistencies in the inventory of hazardous materials shall be reported to the relevant authorities of the third country whose flag that ship is flying.

6. The statement of compliance shall be issued after verification of the inventory of hazardous materials by the relevant authorities of the third country whose flag the ship is flying or an organisation authorised by them, in accordance with the national requirements. The statement of compliance may be modelled on the basis of Appendix 3 to the Hong Kong Convention.

7. The statement of compliance and the inventory of hazardous materials shall be drawn up in an official language of the issuing relevant authorities of the third country whose flag the ship is flying and where the language used is not English, French or Spanish, the text shall include a translation into one of those languages.

8. Subject to point (b) of Article 32(2), ships flying the flag of a third country applying to be registered under the flag of a Member State shall ensure that an inventory of hazardous materials, as provided for in Article 5(2), is kept on board or is established within six months of the registration under the flag of that Member State or during any of the next surveys under Article 8(3), whichever comes first.

TITLE III SHIP RECYCLING FACILITIES

Article 13 Requirements necessary for ship recycling facilities to be included in the European List

1. In order to be included in the European List, a ship recycling facility shall comply with the following requirements, in accordance with the relevant Hong Kong Convention provisions and taking into account the relevant guidelines of the IMO, the ILO, the Basel Convention and of the Stockholm Convention on Persistent Organic Pollutants and of other international guidelines:

(a) it is authorised by its competent authorities to conduct ship recycling operations;

(b) it is designed, constructed and operated in a safe and environmentally sound manner;

(c) it operates from built structures;

(d) it establishes management and monitoring systems, procedures and techniques which have the purpose of preventing, reducing, minimising and to the extent practicable eliminating:

(i) health risks to the workers concerned and to the population in the vicinity of the ship recycling facility, and

(ii) adverse effects on the environment caused by ship recycling;

(e) it prepares a ship recycling facility plan;

(f) it prevents adverse effects on human health and the environment, including the demonstration of the control of any leakage, in particular in intertidal zones;

(g) it ensures safe and environmentally sound management and storage of hazardous materials and waste, including:

(i) the containment of all hazardous materials present on board during the entire ship recycling process so as to prevent any release of those materials into the environment; and in addition, the handling of hazardous materials, and of waste generated during the ship recycling process, only on impermeable floors with effective drainage systems;

(ii) that all waste generated from the ship recycling activity and their quantities are documented and are only transferred to waste management facilities, including waste recycling facilities, authorised to deal with their treatment without endangering human health and in an environmentally sound manner;

(h) it establishes and maintain an emergency preparedness and response plan; ensures rapid access for emergency response equipment, such as fire-fighting equipment and vehicles, ambulances and cranes, to the ship and all areas of the ship recycling facility;

(i) it provides for worker safety and training, including ensuring the use of personal protective equipment for operations requiring such use;

(j) it establishes records on incidents, accidents, occupational diseases and chronic effects and, if requested by its competent authorities, reports any incidents, accidents, occupational diseases or chronic effects causing, or with the potential for causing, risks to workers' safety, human health and the environment;

(k) it agrees to comply with the requirements of paragraph 2.

2. The operator of a ship recycling facility shall:

(a) send the ship recycling plan, once approved in accordance with Article 7(3), to the ship owner and the administration or a recognised organisation authorised by it;

(b) report to the administration that the ship recycling facility is ready in every respect to start the recycling of the ship;

(c) when the total or partial recycling of a ship is completed in accordance with this Regulation, within 14 days of the date of the total or partial recycling in accordance with the ship recycling plan, send a statement of completion to the administration which issued the ready for recycling certificate for the ship. The statement of completion shall include a report on incidents and accidents damaging human health and/or the environment, if any.

3. The Commission shall adopt implementing acts to establish the format of:

(a) the report required by point (b) of paragraph 2 of this Article to ensure it is consistent with Appendix 6 to the Hong Kong Convention; and

(b) the statement required by point (c) of paragraph 2 of this Article to ensure it is consistent with Appendix 7 to the Hong Kong Convention.

Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 25 of this Regulation.

Article 14 Authorisation of ship recycling facilities located in a Member State

1. Without prejudice to other relevant provisions of Union law, competent authorities shall authorise ship recycling facilities located on their territory that comply with the requirements set out in Article 13 to conduct ship recycling. That authorisation may be granted to the respective ship recycling facilities for a maximum period of five years and renewed accordingly.

Provided that the requirements of this Regulation are complied with, any permit produced pursuant to other relevant national or Union law provisions may be combined with the authorisation under this Article to form a single permit, where such a format obviates the unnecessary duplication of information and the duplication of work by the operator of the ship recycling facility or the ship recycling company or the competent authority. In those cases the authorisation may be extended in accordance with the permit regime referred to in the first subparagraph, but not exceeding a maximum period of five years.

2. Member States shall establish and update a list of the ship recycling facilities that they have authorised in accordance with paragraph 1.

3. The list referred to in paragraph 2 shall be communicated to the Commission without delay and not later than 31 March 2015.

4. Where a ship recycling facility ceases to comply with the requirements set out in Article 13, the Member State where that ship recycling facility is located shall suspend or withdraw the authorisation given to it or require corrective actions by the ship recycling company concerned and shall inform the Commission thereof without delay.

5. Where a ship recycling facility has been authorised in accordance with paragraph 1, the Member State concerned shall inform the Commission thereof without delay.

Article 15 Ship recycling facilities located in a third country

1. A ship recycling company owning a ship recycling facility located in a third country and intending to recycle ships flying the flag of a Member State shall submit an application to the Commission for inclusion of that ship recycling facility in the European List.

2. The application referred to in paragraph 1 shall be accompanied by evidence that the ship recycling facility concerned complies with the requirements set out in Article 13 in order to conduct ship recycling and to be included in the European List in accordance with Article 16.
In particular, the ship recycling company shall:

(a) identify the permit, license or authorisation granted by its competent authorities to conduct the ship recycling and, where relevant, the permit, license or authorisation granted by the competent authorities to all its contractors and sub-contractors directly involved in the process of ship recycling and specify all information referred to in Article 16(2);

(b) indicate whether the ship recycling plan will be approved by the competent authority through a tacit or explicit procedure, specifying the review period relating to tacit approval, in accordance with national requirements, where applicable;

(c) confirm that it will only accept a ship flying the flag of a Member State for recycling in accordance with this Regulation;

(d) provide evidence that the ship recycling facility is capable of establishing, maintaining and monitoring of the safe-for-hot work and safe-for-entry criteria throughout the ship recycling process;

(e) attach a map of the boundary of the ship recycling facility and the location of ship recycling operations within it;

(f) for each hazardous material referred to in Annex I and additional hazardous material which might be part of the structure of a ship, specify:

(i) whether the ship recycling facility is authorised to carry out the removal of the hazardous material. Where it is so authorised, the relevant personnel authorised to carry out the removal shall be identified and evidence of their competence shall be provided;

(ii) which waste management process will be applied within or outside the ship recycling facility such as incineration, landfilling or another waste treatment method, the name and address of the waste treatment facility if different from that of the ship recycling facility, and provide evidence that the applied process will be carried out without endangering human health and in an environmentally sound manner;

(g) confirm that the company adopted a ship recycling facility plan, taking into account the relevant IMO guidelines;

(h) provide the information necessary to identify the ship recycling facility.

3. The Commission shall be empowered to adopt implementing acts to specify the format of the information required to identify the ship recycling facility. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 25.

4. In order to be included in the European List, compliance by ship recycling facilities located in third countries with the requirements set out in Article 13 shall be certified following a site inspection by an independent verifier with appropriate qualifications. The certification shall be submitted to the Commission by the ship recycling company when applying for inclusion in the European List and, every five years thereafter, upon renewal of the inclusion in the European List. The initial inclusion on the list and the renewal thereof shall be supplemented by a mid-term review to confirm compliance with the requirements set out in Article 13.

By applying for inclusion in the European List, ship recycling companies accept the possibility of the ship recycling facility concerned being subject to site inspections by the Commission or agents acting on its behalf prior to or after their inclusion in the European List in order to verify compliance with the requirements set out in Article 13. The independent verifier, the Commission or agents acting on its behalf shall cooperate with the competent authorities of the third country where the ship recycling facility is located in order to carry out those site inspections.

The Commission may issue technical guidance notes in order to facilitate such certification.

5. For the purposes of Article 13, with regard to the waste recovery or disposal operation concerned, environmentally sound management may only be assumed to be in place provided the ship recycling company can demonstrate that the waste management facility which receives the waste will be operated in accordance with human health and environmental protection standards that are broadly equivalent to relevant international and Union standards.

6. The ship recycling company shall provide updated evidence without delay in the event of any changes to the information provided to the Commission and shall, in any event, three months prior to expiry of each five year period of inclusion on the European List, declare that:

(a) the evidence that it has provided is complete and up-to-date;

(b) the ship recycling facility continues and will continue to comply with the requirements of Article 13.

Article 16 Establishment and updating of the European List

1. The Commission shall adopt implementing acts to establish a European List of ship recycling facilities which:

(a) are located in the Union and have been notified by the Member States in accordance with Article 14(3);

(b) are located in a third country and whose inclusion is based on an assessment of the information and supporting evidence provided or gathered in accordance with Article 15.

Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 25.

2. The European List shall be published in the Official Journal of the European Union and on the website of the Commission not later than 31 December 2016. It shall be divided into two sub-lists indicating the ship recycling facilities located in a Member State and the ship recycling facilities located in a third country.

The European List shall include all of the following information about the ship recycling facility:

(a) the method of recycling;

(b) the type and size of ships that can be recycled;

(c) any limitation and conditions under which the ship recycling facility operates, including as regards hazardous waste management;

(d) details on the explicit or tacit procedure, as referred to in Article 7(3), for the approval of the ship recycling plan by the competent authority;

(e) the maximum annual ship recycling output.

3. The European List shall indicate the date of expiry of the inclusion of the ship recycling facility. An inclusion shall be valid for a maximum period of five years and shall be renewable.

4. The Commission shall adopt implementing acts to regularly update the European List, in order to:

(a) include a ship recycling facility in the European List where:

(i) it has been authorised in accordance with Article 14; or

(ii) its inclusion in the European List is decided in accordance with paragraph 1(b) of this Article;

(b) remove a ship recycling facility from the European List where:

(i) the ship recycling facility ceases to comply with the requirements set out in Article 13; or

(ii) the updated evidence is not provided at least three months prior to expiry of the five-year period as set out in paragraph 3 of this Article.

Those implementing acts shall be adopted, in accordance with the examination procedure referred to in Article 25.

5. In establishing and updating the European List, the Commission shall act in accordance with the principles enshrined in the Treaties and with the international obligations of the Union.

6. Member States shall communicate to the Commission all information that may be relevant in the context of updating the European List. The Commission shall forward all relevant information to the other Member States.

TITLE IV GENERAL ADMINISTRATIVE PROVISIONS

Article 17 Language

1. The ship recycling plan referred to in Article 7 shall be developed in a language accepted by the state authorising the ship recycling facility. Where the language used is not English, French or Spanish, the ship recycling plan shall be translated into one of those languages, except where the administration is satisfied that that is unnecessary.

2. The inventory certificate and the ready for recycling certificate issued pursuant to Article 9 shall be drawn up in an official language of the issuing administration. Where the language used is not English, French or Spanish, the text shall include a translation into one of those languages.

Article 18 Designation of competent authorities and administrations

1. Member States shall designate the competent authorities and administrations responsible for the application of this Regulation and shall notify the Commission of those designations. Member States shall immediately notify the Commission of any changes in such information.

2. The Commission shall publish on its website lists of the designated competent authorities and administrations and shall update those lists as appropriate.

Article 19 Designation of contact persons

1. Member States and the Commission shall each designate one or more contact persons responsible for informing or advising natural or legal persons making enquiries. The contact person of the Commission shall forward to the contact persons of the Member States any questions received which concern the latter, and vice versa.

2. Member States shall notify the Commission of the designation of contact persons. Member States shall immediately notify the Commission of any changes to that information.

3. The Commission shall publish on its website lists of the designated contact persons and shall update those lists as appropriate.

Article 20 Meeting of contact persons

The Commission shall, if requested by Member States or where it considers it appropriate, periodically organise a meeting of the contact persons to discuss the questions raised by the implementation of this Regulation. Relevant stakeholders shall be invited to such meetings, or parts of meetings, where all Member States and the Commission are in agreement that it is appropriate to do so.

TITLE V REPORTING AND ENFORCEMENT

Article 21 Reports by the Member States

1. Each Member State shall send to the Commission a report containing the following:

(a) a list of the ships flying its flag to which a ready for recycling certificate has been issued, and the name of the ship recycling company and the location of the ship recycling facility as shown in the ready for recycling certificate;

(b) a list of the ships flying its flag for which a statement of completion has been received;

(c) information regarding illegal ship recycling, penalties and follow-up actions undertaken by the Member State.

2. Every three years, Member States shall electronically transmit the report to the Commission no later than nine months after the end of the three-year period covered by it.

The first electronic report shall cover the period from the date of application of this Regulation to the end of the first regular three-year reporting period, specified in Article 5 of Council Directive 91/692/EEC[①], falling after the starting date of the first reporting period.

The Commission shall publish a report on the application of this Regulation no later than nine months after receiving the reports from the Member States.

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① Council Directive 91/692/EEC of 23 December 1991 standardizing and rationalizing reports on the implementation of certain Directives relating to the environment (OJ L 377, 31.12.1991, p.48).

3. The Commission shall enter this information in an electronic database that is permanently accessible to the public.

Article 22 Enforcement in Member States

1. Member States shall lay down provisions on penalties applicable to infringements of this Regulation and shall take all the measures necessary to ensure that they are applied. The penalties provided for shall be effective, proportionate and dissuasive.

2. Member States shall cooperate, bilaterally or multilaterally, with one another in order to facilitate the prevention and detection of potential circumvention and breach of this Regulation.

3. Member States shall designate those members of their permanent staff responsible for the cooperation referred to in paragraph 2. That information shall be sent to the Commission, which shall distribute to those members a compiled list.

4. Member States shall communicate to the Commission the provisions of their national law relating to the enforcement of this Regulation and the applicable penalties.

Article 23 Request for action

1. Natural or legal persons affected or likely to be affected by a breach of Article 13 in conjunction with Article 15 and Article 16(1)(b) of this Regulation, or having a sufficient interest in environmental decision-making relating to the breach of Article 13 in conjunction with Article 15 and Article 16(1)(b) of this Regulation shall be entitled to request the Commission to take action under this Regulation with respect to such a breach or an imminent threat of such a breach.

The interest of any non-governmental organisation promoting environmental protection and meeting the requirements laid down in Article 11 of Regulation (EC) No 1367/2006 of the European Parliament and of the Council[①] shall be deemed sufficient for the purposes of the first subparagraph.

2. The request for action shall be accompanied by the relevant information and data supporting that request.

3. Where the request for action and the accompanying information and data show in a plausible manner that a breach of Article 13 in conjunction with Article 15 and Article 16(1)(b) has occurred, or that there is an imminent threat of such a breach, the Commission shall consider any such requests for action and information and data. In such circumstances, the Commission shall give the ship recycling company concerned an opportunity to make its views known with respect to the request for action and the accompanying information and data.

4. The Commission shall, without delay and in accordance with the relevant provisions of Union law, inform the persons who submitted a request pursuant to paragraph 1, of its decision to accede to or refuse the request for action and shall provide the reasons for it.

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① Regulation (EC) No 1367/2006 of the European Parliament and of the Council of 6 September 2006 on the application of the provisions of the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters to Community institutions and bodies (OJ L 264, 25.9.2006, p.13).

TITLE VI FINAL PROVISIONS

Article 24 Exercise of the delegation

1. The power to adopt delegated acts is conferred on the Commission subject to the conditions laid down in this Article.

2. The power to adopt delegated acts referred to in Article 5(8) shall be conferred on the Commission for a period of five years from 30 December 2013. The Commission shall draw up a report in respect of the delegation of power no later than nine months before the end of the five-year period. The delegation of power shall be tacitly extended for periods of an identical duration, unless the European Parliament or the Council opposes such extension no later than three months before the end of each period.

3. The delegation of power referred to in Article 5(8) may be revoked at any time by the European Parliament or by the Council. A decision to revoke shall put an end to the delegation of the power specified in that decision. It shall take effect the day following the publication of the decision in the Official Journal of the European Union or at a late date specified therein. It shall not affect the validity of any delegated acts already in force.

4. As soon as it adopts a delegated act, the Commission shall notify it simultaneously to the European Parliament and to the Council.

5. A delegated act adopted pursuant to Article 5(8) shall enter into force only if no objection has been expressed either by the European Parliament or the Council within a period of two months of notification of that act to the European Parliament and the Council or if, before the expiry of that period, the European Parliament and the Council have both informed the Commission that they will not object. That period shall be extended by two months at the initiative of the European Parliament or of the Council.

Article 25 Committee procedure

1. The Commission shall be assisted by a committee. That committee shall be a committee within the meaning of Regulation (EU) No 182/2011.

2. When reference is made to this paragraph, Article 5 of Regulation (EU) No 182/2011 shall apply. Where the committee delivers no opinion, the Commission shall not adopt the draft implementing act and the third subparagraph of Article 5(4) of Regulation (EU) No 182/2011 shall apply.

Article 26 Transitional provision

As of the date of publication of the European List, Member States may, prior to the date of application of this Regulation, authorise the recycling of ships in ship recycling facilities included in the European List. In such circumstances, Regulation (EC) No 1013/2006 shall not apply.

Article 27 Amendment to Regulation (EC) No 1013/2006

In Article 1(3) of Regulation (EC) No 1013/2006, the following point is added:

‘(i) ships flying the flag of a Member State falling under the scope of Regulation (EU) No 1257/2013 of the European Parliament and of the Council①.

Article 28 Amendment to Directive 2009/16/EC

In Annex IV, the following point is added:

‘49. A certificate on the inventory of hazardous materials or a statement of compliance as applicable pursuant to Regulation (EU) No 1257/2013 of the European Parliament and of the Council①.

Article 29 Financial incentive

The Commission shall, by 31 December 2016, submit to the European Parliament and to the Council a report on the feasibility of a financial instrument that would facilitate safe and sound ship recycling and shall, if appropriate, accompany it by a legislative proposal.

Article 30 Review

1. The Commission shall assess which infringements of this Regulation should be brought under the scope of Directive 2008/99/EC to achieve equivalence of the provisions related to infringements between this Regulation and Regulation (EC) No 1013/2006. The Commission shall report on its findings by 31 December 2014 to the European Parliament and to the Council and, if appropriate, accompany it by a legislative proposal.

2. The Commission shall review this Regulation not later than 18 months prior to the date of entry into force of the Hong Kong Convention and at the same time, submit, if appropriate, any appropriate legislative proposals to that effect. This review shall consider the inclusion of ship recycling facilities authorised under the Hong Kong Convention in the European List in order to avoid duplication of work and administrative burden.

3. The Commission shall keep this Regulation under review and, if appropriate, make timely proposals to address developments relating to international Conventions, including the Basel Convention, should it prove necessary.

4. Notwithstanding paragraph 2, the Commission shall, by five years after the date of application of this Regulation, submit a report to the European Parliament and to the Council on the application of this Regulation, accompanied, if appropriate, by legislative proposals to ensure that its objectives are being met and its impact is ensured and justified.

Article 31 Entry into force

This Regulation shall enter into force on the twentieth day following that of its publication in the Official Journal of the European Union.

Article 32 Application

1. This Regulation shall apply from the earlier of the following two dates, but not earlier than 31 December 2015:

① Regulation (EU) No 1257/2013 of the European Parliament and of the Council of 20 November 2013 on ship recycling and amending Regulation (EC) No 1013/2006 and Directive 2009/16/EC (OJ L 330, 10.12.2013, p.1.).’

(a) 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). The annual ship recycling output of a ship recycling facility is calculated as the sum of the weight of ships expressed in LDT that have been recycled in a given year in that facility. The maximum annual ship recycling output is determined by selecting the highest value occurring in the preceding 10-year period for each ship recycling facility, or, in the case of a newly authorised ship recycling facility, the highest annual value achieved at that facility; or

(b) on 31 December 2018.

2. However in relation to the following provisions the following dates of application shall apply:

(a) Article 2, the second subparagraph of Article 5(2), Articles 13, 14, 15, 16, 25 and 26 from 31 December 2014;

(b) the first and third subparagraphs of Article 5(2) and Article 12(1) and (8) from 31 December 2020.

3. The Commission shall publish in the Official Journal of the European Union a notice concerning the date of application of this Regulation when the conditions referred to in point (a) of paragraph 1 have been fulfilled.

4. If a Member State has closed its national ship register or, during a three year period, has had no ships registered under its flag, and as long as no ship is registered under its flag, that Member State may derogate from the provisions of this Regulation, except for Articles 4, 5, 11, 12, 13, 14, 16(6), 18, 19, 20, 21 and 22. Where a Member State intends to avail itself of this derogation, it shall notify the Commission at the latest on the date of application of this Regulation. Any subsequent change shall also be communicated to the Commission.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Strasbourg, 20 November 2013.

For the European Parliament	For the Council
The President M. SCHULZ	The President V. LEŠKEVIČIUS

ANNEX I CONTROL OF HAZARDOUS MATERIALS

Hazardous Material	Definitions	Control measures
Asbestos	Materials containing asbestos	For all ships, new installation of materials which contain asbestos shall be prohibited
Ozone-depleting substances	Controlled substances defined in Article 1(4) of the Montreal Protocol on Substances that Deplete the Ozone Layer, 1987, listed in Annexes A,B,C or E to that Protocol in force at the time of application or interpretation of this Annex. Ozone-depleting substances that may be found on board ships include, but are not limited to: Halon 1211 Bromochlorodifluoromethane Halon 1301 Bromotrifluoromethane Halon 2402 1,2-Dibromo-1,1,2,2-tetra-fluoroethane (also known as Halon 114B2) CFC-11 Trichlorofluoromethane CFC-12 Dichlorodifluoromethane CFC-113 1,1,2-Trichloro-1,2,2-trifluoro¬ethane CFC-114 1,2-Dichloro-1,1,2,2-tetrafluoro¬ethane CFC-115 Chloropentafluoroethane HCFC-22 Chlorodifluoromethane	New installations which contain ozone-depleting substances shall be prohibited on all ships
Polychlorinated biphenyls (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
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 ([2])
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 Annex.	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 ship or new installations on ships shall apply or employ anti-fouling compounds or systems in a manner inconsistent with the AFS Convention

(1) Not applicable for ships flying the flag of a third country.
(2) Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC (OJ L 158, 30.4.2004, p.7).

ANNEX II LIST OF ITEMS FOR THE INVENTORY OF HAZARDOUS MATERIALS

1. Any hazardous materials listed in Annex I
2. Cadmium and Cadmium Compounds
3. Hexavalent Chromium and Hexavalent Chromium Compounds
4. Lead and Lead Compounds
5. Mercury and Mercury Compounds
6. Polybrominated Biphenyl (PBBs)
7. Polybrominated Diphenyl Ethers (PBDEs)
8. Polychlorinated Naphthalenes (more than 3 chlorine atoms)
9. Radioactive Substances
10. Certain Shortchain Chlorinated Paraffins (Alkanes, C10-C13, chloro)
11. Brominated Flame Retardant (HBCDD)