
Preparing for Compliance with Ship Recycling Requirements



PREPARING FOR COMPLIANCE WITH SHIP RECYCLING REQUIREMENTS

IMO HONG KONG INTERNATIONAL CONVENTION (HKC)

In 2005, the IMO General Assembly adopted Resolution A.981(24) which directed the Marine Environment Protection Committee (MEPC) to develop a new legally binding instrument on ship recycling. The *Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships* was subsequently adopted at a diplomatic conference held in Hong Kong in May 2009.

The Hong Kong Convention applies to ships of 500GT or more engaged in international trade and flying the Flag of a Party to the Convention or operating under the authority of a Flag of a Party to the Convention, and to ship recycling facilities operating under the jurisdiction of a Party to the Convention. The Convention aims to:

a) Enhance ship safety, protection of human health and the environment throughout a ship's operating life.

Ships will be required to develop and maintain an Inventory of Hazardous Materials (IHM) which will identify as Part I, Hazardous Materials listed in Appendices 1 and 2 to the Convention and contained in the ship's structure or equipment, their location and approximate quantities. The Convention prohibits and/or restricts new installation on ships of Hazardous Materials listed in Appendix 1 and requires the recording of new installations containing Hazardous Materials listed in Appendix 2. New installation are installations of systems, equipment, insulation or other materials on a ship after the entry into force date of the Convention.

| Hazardous Material | Definitions | Threshold value |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Asbestos | Materials containing asbestos | 0.1% |
| Ozone depleting substances | Controlled substances defined in paragraph 4 of article 1 of the Montreal Protocol on Substances that Deplete the Ozone Layer, 1987, listed in Annexes A, B, C or E to the said Protocol in force at the time of application or interpretation of the Annex. Ozone-depleting substances that may be found on board ships include, but are not limited to: <ul style="list-style-type: none"> • Halon 1211 • Bromochlorodifluoromethane • Halon 1301 Bromotrifluoromethane • Halon 2402 1,2-Dibromo-1,1,2,2- tetrafluoroethane (also known as Halon 114B2) • CFC-11 Trichlorofluoromethane • CFC-12 Dichlorodifluoromethane • CFC-113 1,1,2-Trichloro-1,2,2- trifluoroethane • CFC-114 1,2-Dichloro-1,1,2,2- tetrafluoroethane • CFC-115 Chloropentafluoroethane | No threshold value (new installations containing hydrochlorofluorocarbons (HCFCs) are permitted until 1 January 2020) |
| Polychlorinated biphenyls (PCBs) | "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 | 50 mg/kg |
| 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 the Annex. | 2,500 mg total tin/kg |

Hazardous Materials listed in Appendix 1

| No. | Hazardous Materials | Threshold value |
|-----|---------------------------------------------------------------------|--------------------------|
| 1 | Any Hazardous Materials listed in Appendix 1 | As above table |
| 2 | Cadmium and cadmium compounds | 100 mg/kg |
| 3 | Hexavalent chromium and hexavalent chromium compounds | 1,000 mg/kg |
| 4 | Lead and lead compounds | 1,000 mg/kg |
| 5 | Mercury and mercury compounds | 1,000 mg/kg |
| 6 | Polybrominated biphenyl (PBBs) | 50 mg/kg |
| 7 | Polybrominated diphenyl ethers (PBDEs) | 1,000 mg/kg ⁸ |
| 8 | Polychlorinated naphthalenes (more than 3 chlorine atoms) | 50mg/kg |
| 9 | Radioactive substances | No threshold value |
| 10 | Certain shortchain chlorinated paraffins (Alkanes, C10-C13, chloro) | 1% |

Hazardous Materials listed in Appendix 2

New ships contracted on or after the entry into force date of the Convention shall have an IHM in place at delivery. The IHM should be developed during the design and construction stage based on material declarations for products from suppliers.

Existing ships shall comply as far as practicable not later than 5 years after the entry into force date of the Convention, or before going for recycling if that occurs earlier. The IHM should be developed following a 5-step process as described in the IHM Guidelines and involves the preparation of a visual/sampling check plan to systematically assess the ship for presence or absence of hazardous materials.

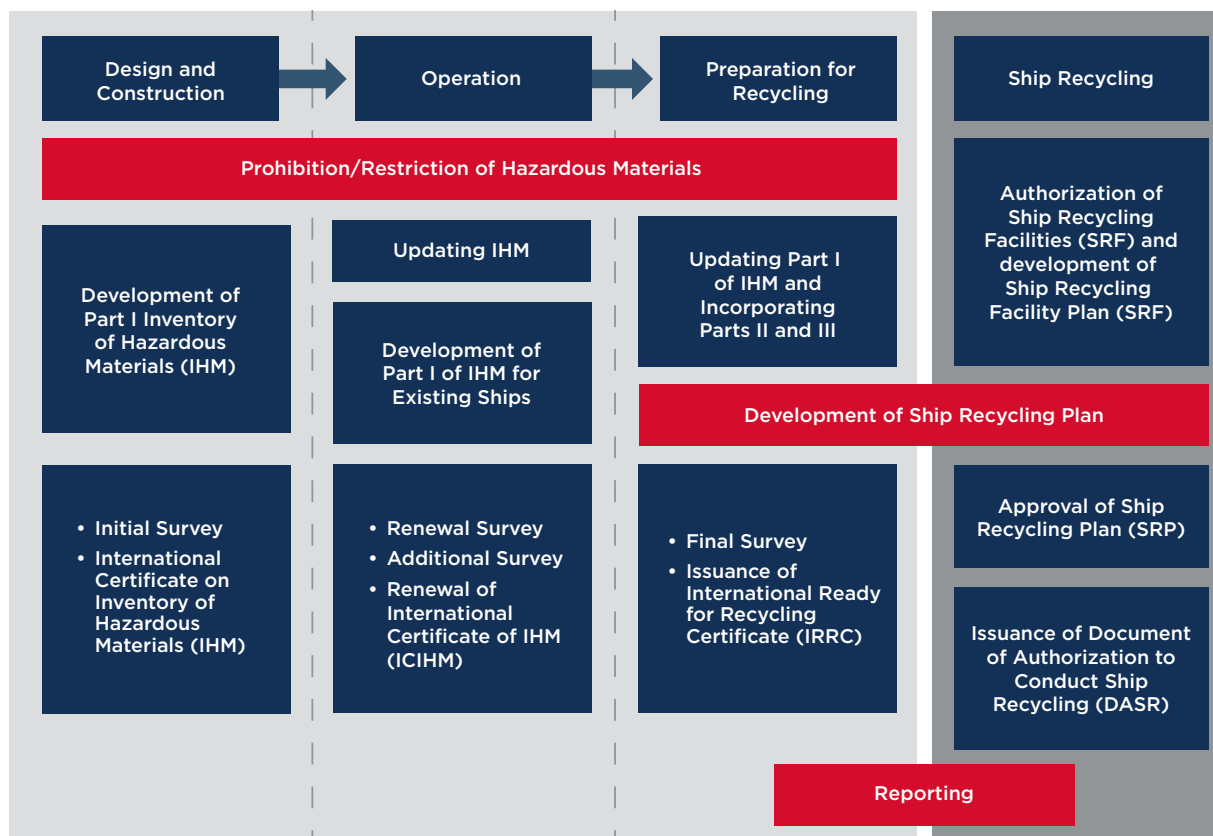
Part I of the IHM, after it is developed and verified on board, shall be properly maintained and updated throughout the operational life of the ship, reflecting new installations and relevant changes in ship structure and equipment.

Prior to recycling of the ship, the IHM, in addition to the properly updated Part I, shall incorporate Part II for operationally generated wastes and Part III for stores, and be verified on board.

Ships will be required to have an initial survey to verify the IHM, a renewal survey every 5 year period, an additional survey either general or partial, at the request of the shipowner after a change, replacement, or significant repair, and a final survey prior to recycling.

b) Prevent and to the extent practicable, eliminate accidents, injuries and other adverse effects on human health and the environment caused by Ship Recycling.

The Convention sets requirements to ensure that Ship Recycling Facilities are designed, constructed and operated in a safe and environmentally sound manner and authorized by a Competent Authority. Ship Recycling Facilities authorized by a Party shall prepare a Ship Recycling Facility Plan for ensuring implementation of the requirements set out in the Convention. The Ship Recycling Facility shall also prepare a ship-specific, Ship Recycling Plan prior to any recycling of a ship, specifying the manner in which the ship will be recycled, depending on its particulars and its inventory so as to facilitate safe and environmentally sound recycling without compromising the safety and operational efficiency of ship.



The Convention will enter into force 24 months after the date the following conditions are met:

- a) Ratification, acceptance, approval or accession by at least 15 states
- b) Those States must represent not less than 40% of the world merchant shipping by gross tonnage
- c) Combined maximum annual ship recycling volume of those States must, during the preceding 10 years, constitute not less than 3 per cent of their combined merchant shipping tonnage.

As ship recycling is concentrated in a few countries, the Convention was drafted with a mandatory condition that the Convention will enter into force when it has garnered sufficient support from countries with ship recycling capacity like India, Bangladesh, China and Pakistan.

Over the years, IMO has developed a number of guidelines to support the implementation of the Hong Kong Convention:

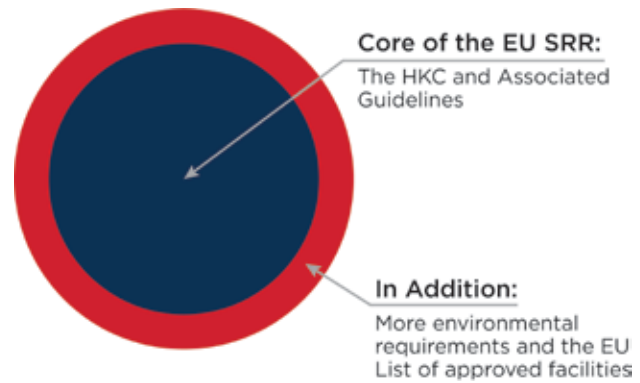
- Resolution [MEPC.196\(62\)](#) - 2011 Guidelines for the Development of the Ship Recycling Plan
- Resolution [MEPC 210\(63\)](#) - 2012 Guidelines for Safe and Environmentally Sound Ship Recycling
- Resolution [MEPC.211\(63\)](#) - 2012 Guidelines for the Authorization of Ship Recycling Facilities
- Resolution [MEPC.222\(64\)](#) - 2012 Guidelines for the Survey and Certification of Ships under the Hong Kong Convention
- Resolution [MEPC.223\(64\)](#) - 2012 Guidelines for the Inspection of Ships under the Hong Kong Convention
- Resolution [MEPC. 269\(68\)](#) - 2015 Guidelines for the Development of the Inventory of Hazardous Materials (IHM)

The Hong Kong Convention is important for the international maritime community because it would become the acknowledged global standard regulating all ship recycling efforts.

THE EUROPEAN UNION (EU) SHIP RECYCLING REGULATION (SRR)

The European Union (EU) adopted the EU Ship Recycling Regulation 2013 ([Regulation \(EU\) No. 1257/2013](#)), which entered into force 30 December 2013. This regulation applies to ships greater or equal to 500 gross tonnes, flying the flag of an EU member or flying the flag of a third country calling at European ports or anchorages. The objective of the Regulation is to reduce the negative impacts linked to the recycling of EU-flagged ships, especially in South Asia, without creating unnecessary economic burdens.

The EU SRR is generally aligned with the Hong Kong Convention, restricting or prohibiting the use of hazardous materials including asbestos, ozone-depleting substances, PCBs, and anti-fouling compounds and systems. Also in line with the Hong Kong Convention, each new European ship (or a ship flying a flag of the third country calling at EU port or anchorage) will be required to have on board an Inventory of Hazardous Materials (IHM) verified by the relevant administration or authority. The EU regulation, however, adds Perfluorooctane Sulfonic Acid (PFOS) to the list of controlled Hazardous Material (in Annex I) and Brominated Flame Retardant (HBCDD) to the list of items for the Inventory of Hazardous Materials (in Annex II).



| Hazardous Materials | Definitions | Threshold value |
|--------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Perfluorooctane sulfonic acid (PFOS) | 'Perfluorooctane sulfonic acid' (PFOS) means perfluorooctane sulfonic acid 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 thereof equal to or above than 0.1% by weight calculated |

Additional Hazardous Materials listed in Annex I of EU SRR

| No | Hazardous Materials | Threshold value |
|----|------------------------------------|-------------------|
| 11 | Brominated Flame Retardant (HBCDD) | 100 mg/Kg (0.01%) |

Additional Hazardous Materials listed in Annex II of EU SRR

New EU flagged ships (the building contract placed on or after the date of application of the Regulation) will need to have on board an IHM at delivery while existing vessels will need to have on board an IHM not later than 31 December 2020. In case however a ship flying the flag of an EU Member State is to be recycled, it will need to develop an Inventory of Hazardous Material, as far as practicable, regardless of the facility to be used for recycling.

EU flagged ships will be required to be recycled at EU authorized Ship Recycling Facilities, either in EU or in third countries. Ship Recycling Facilities within the EU have to be authorized by national authorities and, in case of non-EU Ship Recycling Facilities, by independent verifiers with appropriate qualifications. The European List of ship recycling facilities has been officially published on 19 December 2016 and includes 18 ship recycling facilities located in the EU. Assessment of ship recycling facilities located outside of the EU is ongoing and the list will be updated in the future through Implementing Acts to add more compliant facilities or to remove facilities which have ceased to comply.

In addition, the EU SRR extends more into downstream waste management than the Hong Kong Convention, having more stringent requirements pertaining to environmental requirements, health and safety, and certifications and inspections. Ship recycling facilities should ensure they understand and follow the additional requirements prior to applying to be included on the EU SRR list of approved facilities.

APPLICATION SCHEDULE

The EU SRR shall apply from the earlier of the following two dates:

- 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), or
- b. on 31 December 2018.

MAIN DIFFERENCES BETWEEN THE HONG KONG CONVENTION AND EU SRR 1257/2013:

The EU 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 the following:

- SRR has different time lines for the application of the requirements, depending on specific ship stage, EU or non-EU flagged, etc.
- SRR sets additional requirements for approved ship recycling facilities to:
 - Control of any leakage, in particular in intertidal zones
 - Handle Hazardous Material (HM) and waste only on impermeable floors with effective drainage systems
 - Operate from built structures
 - Implement standards for downstream waste management
- The following table summarizes the *minimum* control and *respective inclusion in the IHM* of the two additional hazardous materials (and Ozone Depleting Substances as regards exceptions in the HKC) on board ships either flying the flag of a Member State or a flag of a third country:

| | PFOS Perfluorooctane Sulfonic Acid | HBCDD Brominated Flame Retardant | ODS Ozone Depleting Substances | Comments |
|---------|------------------------------------------|----------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EU SRR | ✓ | ✓ | ✓ | |
| IMO HKC | - | - | ✓ | Includes Ozone Depleting Substances but provides for an exception of new installations containing hydrochlorofluorocarbons (HCFCs) which are permitted until 1 January 2020 |

EU SRR Additional HMs

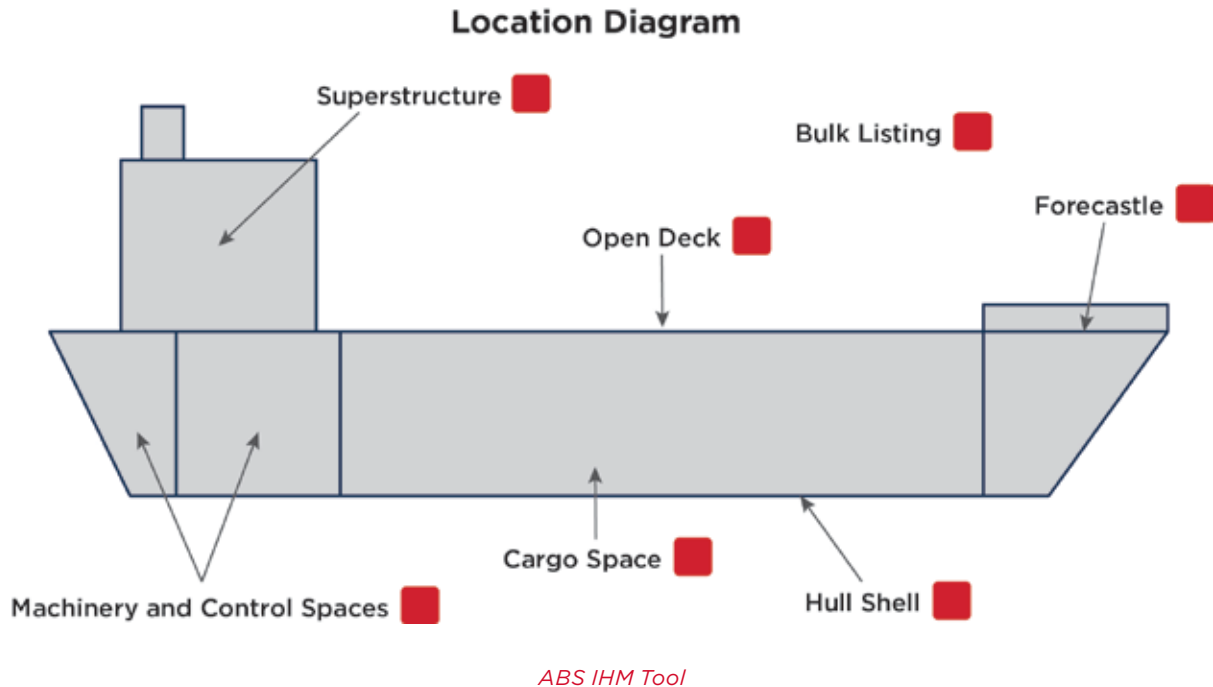
Article 4 prohibits or restricts the installation or use of hazardous materials referred to in Annex I on ships after the date of application of the SRR. After the initial preparation of the IHM, it shall be properly maintained and updated reflecting new installations containing hazardous material referred to in Annex II of the SRR.

It should be noted that according to the HKC new installations containing hydrochlorofluorocarbons (HCFCs) are permitted until 1 January 2020 but this provision has not been incorporated in the SRR. Therefore in addition to PFOS, the use of HCFC shall be prohibited in new installations after the date of application of the SRR. Brominated Flame Retardant (HBCDD), even as a new installation, can be recorded in the IHM under the SRR.

The European Maritime Safety Agency (EMSA) recently published the [Best Practice Guidance on the Inventory of Hazardous Materials](#). The document provides guidance and a harmonized approach to the development and maintenance of the IHM and for the inspection of ships ascertaining their compliance, to identifying non-compliances and to applying control procedures for the enforcement of the Regulation.

ABS ASSISTANCE

ABS has published the [Guide for the Inventory of Hazardous Materials](#) which provides the ABS requirements for reviewing and verifying the initial IHM for newbuilds and existing vessels. Obligations for maintenance, verification and endorsement for vessels in service are defined in the Guide. In addition, ABS has developed the user-friendly IHM application (IHM) which assists ship owners to systematically collect information for the preparation of a Visual and Sampling Check Plan and develop Part I of the Inventory of Hazardous Materials.



Through the use of IHM, ship owners can readily assess a ship for presence or absence of hazardous materials with guidance from dropdown menus. Additionally, the program allows the automated preparation of the Visual/Sampling Check Plan (VSCP) and Part I of the Inventory of Hazardous Materials (IHM).

To support compliance with HKC and EUSRR, ABS can complete a review of the IHM, conduct surveys to verify the location of the hazardous materials on board and issue associated review letters and Statements of Compliance.

For further guidance on the IHM requirements please contact:
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