

# What is IHM?

An Inventory of Hazardous Materials (IHM) gives insight into the presence of hazardous materials on board a ship, minimizing risks to the health of employees and the environment. The report not only states which hazardous materials are present; it also specifies the quantities and their specific properties. For example, IHM tests the presence of PCBs, mercury (compounds), asbestos, radioactive substances and chromium-6. An IHM report is "dynamic", meaning the report eventually covers the entire life cycle of a vessel. Roughly three stages can be distinguished:

## BUILDING STAGE

### SHIPYARDS

As of December 31, 2018, newbuild vessels are obliged to carry an IHM report. During the building stage, the shipyard – in cooperation with the shipowner – will set up the IHM that is based on material declarations. This is certified by the Flag State or Recognized Organization (RO), and checked by Port State Control (PSC) and periodic verification of certification.

In some cases, a check of possibly used materials from suppliers is useful before the construction of the ship.

Note: This is not an IHM, but it can already reveal many insights. In both cases a first investigation (IHM Part I) is carried out.

## OPERATIONAL STAGE

### SHIPOWNERS

When certain changes take place on board, an (updated) IHM is required. For example, after a refit or intensive docking, it is possible that hazardous materials have been brought on board.

For an existing vessel that already had an IHM during construction, an additional survey will be sufficient. In that case, the existing IHM Part I report will receive an update or will be further expanded if needed.

When the ship does not have an IHM on board yet, an initial survey (IHM Part I) will be carried out.

## RECYCLING STAGE

### SHIP OWNERS AND SHIP RECYCLING FACILITIES

If a ship has reached the end of its economic life, it will have to be demolished and recycled. Recycling ships is a major challenge, in both social and environmental terms.

In practice, this is often a hazardous and environmentally damaging job, because of the hazardous materials that are processed in the ship and in its equipment.

During the preparatory phase of the decommissioning, a final investigation (Part I, II & III) is carried out. This IHM report forms a major source of information for the ship recycling plan and the selection of the ship recycling facility. Together with a SRP (Ship Recycling Plan) and DASR (Document of Authorization to conduct Ship Recycling), the ship can be dismantled safely.

## LEGAL FRAMEWORK

IHM is an integral part of the Hong Kong Convention, approved by the IMO in 2009. Although this convention has not come into effect yet; it determines that every ship must have an inventory of all hazardous materials on board.

The convention aims to ensure that ships can be dismantled safely, with minimal risks to people or environment. A similar regulation came into force in the European Union in 2013: the new European Regulation on ship recycling (EU SSR). Both require an IHM for all ships.

The responsibility of the IHM lies indirectly with the ship or fleet owner, or rather more directly with the ship's technical management. All EU-flagged types of vessels of 500 GT and over must have an IHM on board. Vessels from non-EU countries will also be required to carry an IHM when calling at EU-ports. Furthermore, EU-flagged vessels must be demolished in an approved ship recycling facility. New build EU-flagged vessels must have an IHM on board with a Statement of Compliance from after December 31, 2018.



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An IHM consists of research and sampling on board. After research and preparing a Visual Sampling and Checking Plan (VSCP) an approved HazMat Expert will collect samples from all kinds of materials during an onboard survey. Next, he will have them analysed in a certified and accredited laboratory. In all cases, we recommend having both desk research and a visual inspection carried out during IHM Part I. It provides a solid foundation for a Part I research, since it factually proves that the report matches with reality. There are different IHM-approaches concerning the life stages of the ship:

## SHIPBUILDING & OPERATION

### IHM PART I

#### Structure & Equipment

HKC Table A & B, EU SRR Annex I & II Materials

## PREPARATION PRIOR TO RECYCLING

### IHM PART II

#### Operationally generated wastes

HKC Table C Materials (Potentially hazardous items (liquids, gases & solids))

### IHM PART III

#### Stores

HKC Table D Materials (Regular consumable goods potentially containing hazardous materials)



For all EU-flagged ships as well as ships from third countries (non-EU) above 500 GT calling at EU ports or anchorages, the certified IHM Part I will be required from 31 December 2020.

During an inventory of hazardous materials, numerous samples are being taken by a HazMat Expert. Below you will find an overview of the materials and substances that are sampled.

### SAMPLING AT NEW AND EXISTING SHIPS, IHM PART I

REGULATIONS	MATERIALS	
Table A - Materials listed in Appendix 1 of the HKC and Annex I of the EU SRR	Asbestos	
	Polychlorinated Biphenyls (PCBs)	
	Ozone Depleting Substances	CFCs
		Halons
		Other fully halogenated CFCs
		Carbon Tetrachloride
		1,1,1-Trichloroethane (Methyl chloroform)
		Hydrochlorofluorocarbons
		Hydrobromofluorocarbons
		Methyl bromide
Bromochloromethane		
	Anti-fouling systems containing organotin compounds as a biocide	
Materials listed in Annex I of the EU SRR	Perfluoro octane sulfonic acid (PFOS) and its derivatives	

### SAMPLING AT NEW SHIPS AND AS FAR AS PRACTICABLE FOR EXISTING SHIPS, IHM PART I

REGULATIONS	MATERIALS
Table B - Materials listed in Appendix 2 of the HKC and Annex II of the EU SRR	Cadmium and Cadmium Compounds
	Hexavalent Chromium and Hexavalent Chromium Compounds
	Lead and Lead Compounds
	Mercury and Mercury Compounds
	Polybrominated Biphenyl (PBBs)
	Polybrominated Diphenyl Ethers (PBDEs)
	Polychlorinated Naphthalenes (more than 3 chlorine atoms)
	Radioactive Substances
	Certain Shortchain Chlorinated Paraffins (Alkanes, C10-C13, chloro)
Materials listed in Annex II of the EU SRR	Brominated Flame Retardant (HBCDD)

### SAMPLING AT SHIPS DURING THE RECYCLING STAGE, IHM PART II OR III

In the preparation stage prior to recycling, the existing IHM Part I report will be supplemented. An IHM Part II identifies all potentially hazardous items before the ship is dismantled. This concerns the following materials, as listed in Table C of the HKC:

- Liquids (e.g. oils, kerosene and paints)
- Gases (e.g. fuel gas, methane and CO<sub>2</sub>)
- Solids (e.g. garbage and residues).

Finally, an IHM Part III gives insight into all regular consumable goods (such as electronic and interior equipment) that possibly contain hazardous materials (Table D). All in order to safely dismantle the ship, reducing risks to people and environment.