

# Risk Focus: Inventory of Hazardous Materials (IHM) – 2nd Edition

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A guide for shipowners to ensure compliance with ship recycling legislation



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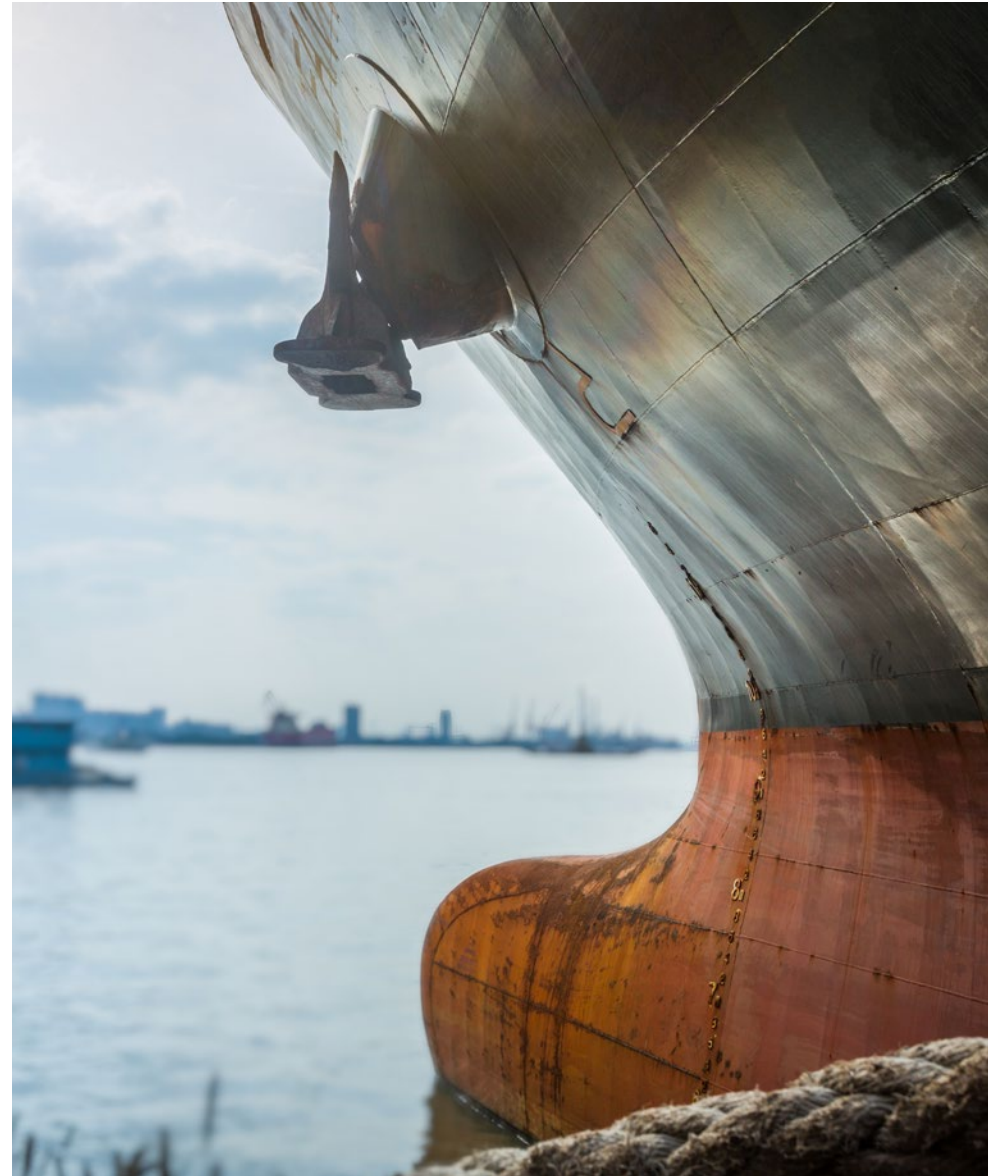
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## Disclaimer

This guide is intended to promote best practice, based on the experience of the UK P&I Club. It is informative and not directional in nature. It does not represent legal advice. Vessel owners and operators must refer to and comply with Flag State and Classification Society Rules and Guidelines, as applicable, and as directed by the applicable Administration and Recognised Organisations.

# A guide to help ensure your IHM is compliant

The advent of international and regional legislation is driving the marine industry towards achieving compliance, at all stages of a ship's life.



## Introduction

This 2<sup>nd</sup> Edition of Risk Focus: Inventory of Hazardous Materials, provides an update to the Risk Focus of the same name previously released by UK P&I Club in May 2020. As before, this Risk Focus addresses technical aspects and provides guidance to shipowners when compiling their Inventory of Hazardous Materials (IHM). It also provides updated information with regard to the June 2025 entry into force of the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, summarises the latest developments with regard to the European Union Regulation on Ship Recycling and its enforcement, and offers advice on best practices and lessons learned.

## Background

For the last 35 years or so, ship recycling – also known as ship breaking, dismantling and scrapping, amongst other terms – has been centred primarily in India, Bangladesh and Pakistan, where the vast majority of ships are broken at 'beaching' facilities. Along with China, where the 'alongside' method of ship recycling is preferred, and Turkey, which uses the 'landing' method, these five main

countries accounted for more than 95% of annual ship recycling volume.

Unfortunately, in late 2017, China instigated a blanket ban on the import of foreign wastes and so this large and successful area is effectively closed, and ship recycling for internationally trading foreign flag ships has ceased.

Ship recycling can and should be a safe and environmentally sound industry<sup>1</sup>. It employs a large workforce in South Asia where almost nothing is wasted during the dismantling and recycling process. However, working practices found at the majority of the world's ship recycling facilities have routinely fallen short of internationally acceptable standards, with environmental concerns and frequent loss of life reported by pressure groups and, over recent years, the mainstream media.

Cutting apart very large steel structures is a complex business. Although a high proportion of the ship structure provides a ready supply of steel and other metals, there are also significant amounts of plastics and other materials that must be handled carefully and appropriately. Hazardous materials such as asbestos are a constant concern. The traditional beaching methods commonly used during dismantling make it difficult to ensure worker safety and containment of pollutants.

## The Green Passport

In a bid to help ensure that workers breaking ships were forewarned of potential or known hazardous materials inherent in the ship's structure or fixed equipment, the International Maritime Organization (IMO) introduced the concept of an Inventory of Hazardous Materials – then known as a Green Passport – as part of its voluntary *Guidelines on Ship Recycling (2003)*.

The guidelines provided advice to all stakeholders in the recycling process, including the administrations of ship building and maritime equipment supplying countries, flag, port and recycling states, and commercial bodies such as shipowners, ship-builders and recycling yards.

The guidelines noted that, in the process of recycling ships, virtually nothing goes to waste. The materials and equipment are almost entirely reused. Steel is reprocessed to become, for instance, reinforcing rods for use in the construction industry or as corner castings and hinges for containers. Ships' generators are reused ashore. Batteries find their way into the local economy. Hydrocarbons on board become reclaimed oil products to be used as fuel in rolling mills or brick

kilns. Light fittings find further use on land. Furthermore, new steel production from recycled steel requires only one-third of the energy used for steel production from raw materials. Recycling thus makes a positive contribution to the global conservation of energy and resources.

It was envisaged that the Green Passport would be produced by the shipyard at construction stage and successive owners of the ship would maintain its accuracy throughout the ship's working life. The Green Passport would then be delivered with the ship to the recycling facility, providing information on the potentially hazardous materials on board. The Green Passport is now obsolete and has been replaced by the Inventory of Hazardous Materials.

## The Inventory of Hazardous Materials (IHM)

Over the last 15 years, international and regional ship recycling legislation has been adopted, some of which is already in force. The cornerstone of this legislation is the IHM, which is based on the same concept as the Green Passport but with two key differences.

<sup>1</sup> [Recycling of ships \(imo.org\)](https://www.imo.org)

Firstly, compiling and maintaining an Inventory of Hazardous Materials is no longer a voluntary requirement, but will be mandatory for all ships over 500GT, with the exemption of any warships, naval auxiliaries, or other ships owned or operated by a Party (i.e., Flag State) and used only on government non-commercial service.

Secondly, and crucially, the IHM is expected to be significantly more accurate than the old Green Passport, with sampling of unknown hazardous materials expected as standard.

This guide aims to explain the key concepts, processes and requirements of the IHM, based upon guidance materials, experience and best practice.

There are two key pieces of ship recycling legislation that need to be considered when compiling an IHM.

## IMO Hong Kong Convention<sup>2</sup>

The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (the "Convention") is aimed at ensuring that, when being recycled at the end of their

operational lives, ships over 500GT do not pose any unnecessary risks to human health, safety and the environment.

**SAVE THE DATE:  
26 JUNE 2025**

**The day the Hong Kong Convention will enter into force**

After much behind-the-scenes discussion, both Bangladesh and Liberia deposited instruments of accession on the same day – 26 June 2023. Since Liberia has a very large fleet and Bangladesh has a very large ship recycling capacity, this meant that the two outstanding conditions (the percentage of the world's fleet and the capacity of the ratified ship recycling capability) had been met, allowing the Convention to enter into force two years later – on 26 June 2025.

The Regulations in the Convention cover: the design, construction, operation and preparation of ships to facilitate safe and environmentally sound recycling without compromising the safety and operational efficiency of ships; the operation of ship recycling facilities in a safe and environmentally sound manner; and the establishment of an enforcement mechanism for ship recycling, including certification and reporting requirements.

A key requirement of the Convention is for ships over 500GT to maintain an IHM during operation, in accordance with published *MEPC Guidelines for the Development of the Inventory of Hazardous Materials*.<sup>3</sup>

From 26 June 2025, all new ships (i.e., ships for which the building contract is placed on or after 26 June 2025, or the keel laid date is on or after 26 December 2025, or delivery is on or after 26 June 2030) must be delivered with an IHM and all ships going for recycling must fulfil all the various criteria of the Convention. Existing ships, however, shall comply with this requirement by 26 June 2030 or before going to recycling, if this is earlier.

This will finally create a level playing field where everyone will need to have, and maintain, a Hong Kong Convention-compliant IHM.

Ship recycling facilities must also comply with the relevant sections of the Convention from 26 June 2025 onwards and will be expected to prepare a Ship Recycling Facility Plan (SRFP) and produce a ship-specific Ship Recycling Plan (SRP) for each vessel they recycle, taking into account information in the completed IHM. National authorities will be required to take measures to ensure

that facilities under their jurisdiction comply with the Convention.

## Developments at IMO MEPC 80<sup>4</sup>

The IMO's Marine Environmental Protection Committee (MEPC) – which developed the Hong Kong Convention – met for its 80<sup>th</sup> session in July 2023, soon after the Convention entry into force criteria were met. The meeting had a full agenda since it needed to adopt its greenhouse gas (GHG) reduction strategy as well as work on energy efficiency, ballast water management, underwater noise, marine litter, and other high-profile and urgent issues.

Therefore, although the Hong Kong Convention entry into force was reported by the Chair, there was no agenda or preparation to take any actions regarding the Convention text.

However, MEPC did adopt new 2023 Guidelines for the development of the IHM in order to align the Hong Kong Convention Guidelines with amendments made to the Anti-Fouling Systems (AFS) Convention. Appendix 1 of the IHM Guidelines now includes controls on cybutryne, which is used in hull paint to prevent biofouling growth but is acutely

<sup>2</sup> [Microsoft Word - 45.doc \(unep.org\)](#)

<sup>3</sup> [MEPC.379\(80\) 2023 Guidelines For The Developme.pdf \(wsimg.com\)](#)

<sup>4</sup> [MEPC 80 - A Summary \(ukpandi.com\)](#)

and chronically toxic for a variety of marine organisms.

It would be very unusual for a Convention to be amended so soon after it enters into force, so any changes are more likely to be updates to the guidance or other non-legally binding texts, as illustrated above.

## European Union Ship Recycling Regulation (EU SRR)<sup>5</sup>

The EU Regulation entered into force in December 2013. It applies to ships of at least 500GT flying the flag of an EU member state and to ships visiting the EU flying the flag of a non-EU member state.

The EU Regulation is mostly aligned with the Hong Kong Convention and, since 31 December 2020, all ships entering EU waters – regardless of flag – are required to maintain an IHM. The IHM lists two additional hazardous materials (PFOS and HBCDD, both of which are fire retardants and Persistent Organic Pollutants) that need to be addressed in addition to the IMO requirements.

The EU Regulation makes reference to the European Maritime Safety Agency's

*Guidance on the Inventory of Hazardous Materials*.<sup>6</sup> It should be noted that the introduction to this document states:

*“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.”*

In addition to the IHM, the EU Regulation requires the establishment of a list of approved ship recycling facilities (the “EU List”).

Ships flying the flag of an EU member state can only be recycled at a facility on the EU List. Such facilities are required to meet the design, construction and operation requirements of the EU, and can be located outside of the EU.

For facilities located in third countries (i.e., those located outside the EU) requirements and procedures for inclusion on the EU List were published by the European Commission (EC) in a Technical Guidance Note. By applying for inclusion on the EU List, facilities located in third countries accept that they will be subject to on-site inspections by the EC, or agents acting on its behalf.

In the beginning of 2023, the European Union launched a public consultation

on the evaluation of the EU Regulation. This was set to run until 7 June 2023 – coincidentally, days before the entry into force requirements for the Hong Kong Convention were met.

The evaluation aimed to assess how well the EU Regulation was being applied, and how it contributes to the general policy objectives of the European Green Deal and the Circular Economy Action Plan, and to identify shortcomings in its implementation and enforcement.

Recommendations for any changes to be made are expected in 2024.

## What is in an IHM?

The Inventory consists of:

- Part I: Specific hazardous materials contained in ship structure or fixed equipment, as detailed in Tables A and B of the MEPC Guidelines<sup>7</sup> Appendix 1, including additional EU Regulation hazardous materials as appropriate (see Figure 1)
- Part II: Operationally generated wastes, as detailed in Table C of the MEPC Guidelines
- Part III: Stores, as detailed in Tables C and D of the MEPC Guidelines

Part I of the IHM should be compiled at new build stage prior to the ship entering service or, for existing ships, during operation.

Parts II and III of the IHM are only to be compiled once a decision has been taken to recycle the ship.

Loosely fitted equipment, for example, portable extinguishers, spare parts, non-fixed electrical and electronic equipment, lamps and filament bulbs, and non-ship specific furniture (such as chairs, tables, beds, curtains, carpets, etc.) should be listed in Part III, and are not required to be listed in Part I.

Further, Table B materials 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.

<sup>5</sup> 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/ECText with EEA relevance (europa.eu)

<sup>6</sup> Latest News - EMSA Guidance on the Inventory of Hazardous Materials - EMSA - European Maritime Safety Agency (europa.eu)

<sup>7</sup> MEPC.379(80) 2023 Guidelines For The Developme.pdf (wsimg.com)

**Figure 1 – Items to be listed in the Inventory of Hazardous Materials**

Table		Materials		Inventory			Threshold value
				Part I	Part II	Part III	
Table A – Materials listed in Appendix 1 of the Annex to the Convention	A-1	Asbestos		X			0.1%
	A-2	Polychlorinated biphenyls (PCBs)		X			50 mg/kg
	A-3	Ozone-depleting substances	CFCs	X			no threshold value
			Halons	X			
			Other fully halogenated CFCs	X			
			Carbon tetrachloride	X			
			1,1,1-Trichloroethane (Methyl chloroform)	X			
			Hydrochlorofluorocarbons	X			
			Hydrobromofluorocarbons	X			
			Methyl bromide	X			
			Bromochloromethane	X			
A-4	Anti-fouling systems containing organotin compounds as a biocide		X			2,500 mg total tin/kg	
	Anti-fouling systems containing cybutryne		X			1,000 mg/kg	
EU SRR		Perfluorooctane sulfonic acid (PFOS)		X			10 mg/kg

Figure 1 continued – Items to be listed in the Inventory of Hazardous Materials

Table		Materials	Inventory			Threshold value
			Part I	Part II	Part III	
Table B – Materials listed in Appendix 2 of the Annex to the Convention	B-1	Cadmium and cadmium compounds	X			100 mg/kg
	B-2	Hexavalent chromium and hexavalent chromium compounds	X			1,000 mg/kg
	B-3	Lead and lead compounds	X			1,000 mg/kg
	B-4	Mercury and mercury compounds	X			1,000 mg/kg
	B-5	Polybrominated biphenyl (PBBs)	X			50 mg/kg
	B-6	Polybrominated diphenyl ethers (PBDEs)	X			1,000 mg/kg
	B-7	Polychlorinated naphthalenes (more than 3 chlorine atoms)	X			50 mg/kg
	B-8	Radioactive substances	X			no threshold value
	B-9	Certain short-chain chlorinated paraffins (alkanes, C10-C13, chloro)	X			1%
EU SRR		Brominated flame retardant (HBCDD)	X			100 mg/kg



## Who is responsible for compiling the IHM?

For new ships, the shipbuilder is responsible for complying with the relevant international requirements on installing hazardous materials 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 Suppliers' Declarations of Conformity (SDoCs) and related Material Declarations (MDs) collected from suppliers. Further details follow on page 12.

Part I of the Inventory for existing ships should be developed by the shipowner.

As detailed in the IMO Guidelines and the EMSA Best Practice Guidance, there are a number of key considerations that should be taken into account.

## Key considerations

### Definition of “ship”

The Convention and the EU Regulation both define a “ship” as:

- 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.

As such, the requirement for an IHM is not just limited to marine assets; the offshore industry also needs to take note.

### Hazardous Materials (HM) Experts

Inventories are not only essential for safe and environmentally sound recycling, but they provide benefits with respect to the maintenance and operation of a ship. The development of an IHM will not only help to ensure compliance with the Convention and the EU Regulation, but can also aid compliance with existing SOLAS, ISM Code and Safety Management System requirements.

However, in order to ensure that the above benefits are realised, the services of IHM service providers should be called upon to offer help and advice, at any stage in the development of an IHM.

Although it is possible for shipowners to develop IHMs using their own resources, compiling an Inventory and taking of samples for any unknown items or

materials in the ship's structure or fixed equipment is a complex process and one that should only be undertaken with expert guidance.

The IHM Guidelines which accompany the Convention state that, for existing ships, the procedures for the development of the IHM “*should be carried out by the shipowner, who may draw upon expert assistance*”.

The EMSA Best Practice Guidance goes further and recommends that, for new ships, expert assistance may also be sought by the shipbuilder. The Best Practice Guidance also provides further information on the expected knowledge, experience and qualifications that such an expert should possess, regardless of whether the IHM is being compiled at build or during operation:

- An “Individual HM Expert” is a person who has the appropriate training, qualifications and knowledge to conduct Hazardous Materials surveys for the development and maintenance of an IHM. They should have experience on ship structure and on the handling of such materials and sufficient knowledge of how to compile an IHM and of all the relevant international and EU legislation.

- An “IHM expert company” is an entity employing or contracting individual HM Experts to conduct any relevant work or task in relation to the IHM process for the purpose of compiling or updating Inventories.

As demand for IHM compilation increases, so are the numbers of HM Experts offering services to shipowners. The major Classification Societies have implemented procedures for approval of such experts and are considered to be well placed to offer further advice on the suitability of expert parties. Some Class Societies will only verify and subsequently certify an IHM if one of their preferred experts has compiled the Inventory.

Therefore, it is always worth checking with Class before proceeding with the development of an IHM.

## How do you select an HM Expert or IHM expert company?

Poor IHM expert companies are likely to have poor paperwork which hasn't been independently verified, and are unlikely to produce detailed IHMs with clear photographic evidence of sampling points, clear markings of samples on ship drawings and plans, etc. Shipowners should ask to see examples of the IHM expert company's Inventories in order to make an informed decision.

Poor IHM expert companies will provide in-house training only, or procure training from an unknown firm. Training courses vary, as do the entrance requirements. Generally speaking, a good HM Expert training course will be three or four days in duration, delivered by suitably qualified experts, and will include a practical exercise on a ship. Shipowners should ask the IHM expert company to provide details of the training its experts receive and the qualifications they hold.

The experts themselves should have a technical background – ideally, the experts should be experienced ship surveyors, naval architects or professionals with many years of experience in the industry and deep knowledge of ships – and will have received additional training on hazardous materials, as outlined above. Such knowledge is vital, since ships are totally different from land-based applications. Again, shipowners should seek out this information.

## Standard format of the Inventory

The Convention and the EU Regulation both refer to the same standard format for the IHM and, for the most part, the structure and layout of the IHM is in accordance with the published format – regardless of which expert company compiles the Inventory or which Classification Society subsequently verifies the information.

However, it should be noted that there is not a universally accepted electronic format and the various expert companies and Classification Societies involved in the process have different designs and/or software packages.

It is again recommended that Class is consulted prior to compiling an IHM, to

ensure that it will accept the format of the Inventory.



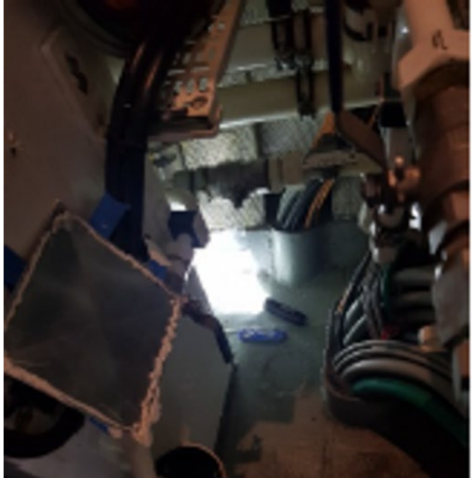
## What should a good IHM look like?

In essence, an IHM should provide documentary evidence of an onboard investigation into installed paints, structures, materials, and fitted components and equipment. This should be achieved by means of (a) documentary evidence/Material Declarations, (b) visual checks on board and (c) physical sampling on board followed by laboratory analysis.

As a minimum, a good IHM should be ship-specific and provide evidence of the documentary review; provide details on the hazardous materials, the scope of regulations and the sampling strategy used; include the finalised Visual/Sampling Check Plan; provide photographic evidence of the onboard survey, with a good description of each sample location (additionally marked on the General Arrangement); and include the results of sampling, conducted at a referenced accredited laboratory, including a quantity estimation of any hazardous materials found (see Figure 2).



Figure 2 – Example layout of an IHM

Location/ Zone/Deck	Expected Hazardous Material	Check Procedure	Sample Number	Sample Result	Quantity	Risk Level Assessment	Remarks
ENGINE CONTROL ROOM DECK	<b>ASBESTOS</b>	SAMPLING	ABC/12345/XYZ	<b>NOT CONTAINED</b>	-	-	-
Frame no.12 – Port side, near centre line Electric cable penetrations Caulking							
							

## Supplier Declaration of Conformity and Material Declarations

Information provided by the suppliers of materials and equipment is considered to be key to the development and ongoing maintenance of the IHM.

The legislation requires that the suppliers should make “Declarations” regarding the presence of any hazardous materials listed in Tables A and B if they exceed specified threshold values.

Standard formats for the Declarations are available in the IMO Guidelines.

Concerns have been raised that such Declarations are frequently not made available, or are inaccurate, and this applies at new build stage and for existing ships (during compilation, or as part of ongoing maintenance of the Inventory).

The EMSA Best Practice Guidance provides advice on additional steps to be taken if there are any concerns about Declarations.

## IHM Part I

### Requirements for new ships

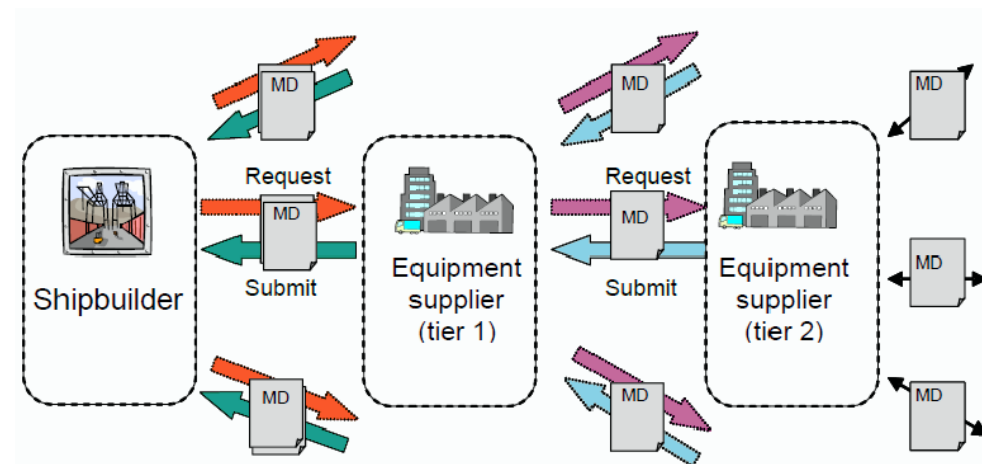
Part I of the Inventory for new ships should be developed at the design and construction stage. As much information as possible should be obtained, throughout the build process.

Reference should be made to the IMO Guidelines for the development process, which is based on three main steps:

1. Collection of hazardous material information, based upon information provided by suppliers
2. Assessment of the collected information, including identification of all systems/products which contain hazardous materials above the applicable threshold values
3. Preparation of the IHM, using the standard format.

The collection of the hazardous materials information is therefore expected to involve the entire shipbuilding supply chain, as shown in Figure 3.

Figure 3 – Process of MD (and SDoC) collection showing involvement of supply chain (Image source: IMO RESOLUTION MEPC.379 (80))



It should be noted that the non-legally binding EMSA Best Practice Guidance states the following:

*“However, in practice, there were cases where random sampling checking proved that [Material Declarations] were not accurate. Therefore, the shipbuilder should establish a quality assurance policy for performing random checking of materials provided by the suppliers... 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... The entity carrying*

*out the [hazardous materials] 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. In this context, the same process as for carrying out random checking by the shipbuilder may be applied.”*

It is recommended that Class and/or Flag are consulted to ascertain if they have specific policies or procedures that insist upon the EMSA Best Practice Guidance being followed.

## Requirements for existing ships

Part I of the Inventory for existing ships should be developed by the shipowner, with reference made to the IMO Guidelines' examples, which are based on the five main steps.

It is recommended that, when possible, IHM compilation takes place during dry-dock and that the shipowner draws upon expert assistance by contracting a suitably qualified IHM expert company to assist with all five steps:

1. Collection of information, including but not limited to:
  - a. maintenance, conversion and repair documents
  - b. certificates, manuals, ship's plans, drawings and technical specifications
  - c. data sheets and Material Declarations
  - d. hazardous material inventories or recycling information from sister ships
  - e. information sourced from previous shipowners, the shipbuilder, historical societies, Classification Society records and ship recycling facilities with experience working with similar ships.

2. Assessment of the collected information, to cover all Table A materials, with Table B assessed "as far as practicable". The results of the assessment should be reflected in the Visual/Sampling Check Plan.
3. Preparation of a Visual/Sampling Check Plan (VSCP) based on the following lists of equipment, systems and/or areas:
  - a. Visual checks – for materials confirmed by document analysis
  - b. Sampling checks – for materials that cannot be confirmed by document analysis and/or visual checks
  - c. Those classed as "potentially containing hazardous material" – materials that cannot be confirmed by document analysis, visual checks and/or sampling checks.

Note: The classification "potentially containing" should only be used if a comprehensible justification – such as the impossibility of conducting sampling without compromising the safety of the ship and its operational efficiency – can be provided. This classification is not recommended as there seems to be little value in compiling an IHM that states the ship's structure or fixed equipment potentially contains hazardous materials; it could be seen to create more questions

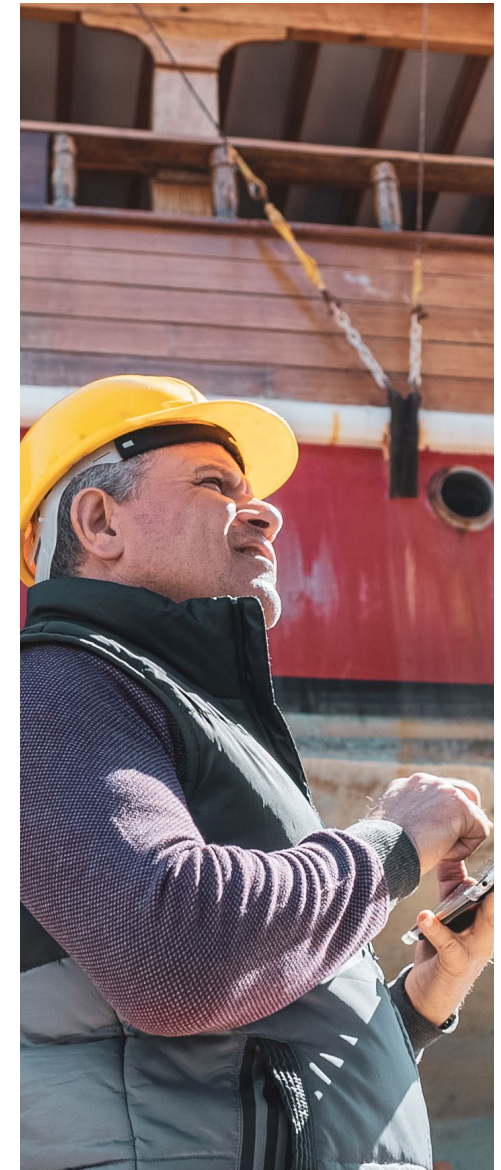
than answers. Limited, targeted sampling is strongly recommended.

4. Onboard visual/sampling check, with sample points clearly marked on the ship plan, supported by photographs, with sample results clearly referenced.

Samples may be tested by a variety of methods, including indicative or field tests. However, it is recommended, in order to avoid dispute, that "specific testing" should be used. These tests are repeatable, reliable and can demonstrate definitively whether a known type of hazard exists or not. Specific tests are to be carried out by a suitably accredited laboratory, working to international standards or equivalent, with a written report provided.

IHM expert companies and Classification Societies are well-placed to offer further advice on sampling and the associated costs.

5. Preparation of Part I of the IHM and supporting documentation, using the standard format.



## Certification and surveys<sup>8</sup>

Once the IHM has been compiled, ships shall be subject to the following surveys by the Flag State or Recognized Organisation on behalf of the Flag State:

- Initial
- Renewal
- Additional
- Final Survey.

Initial and renewal surveys must verify that the IHM Part I complies with the requirements of the Convention and/or the EU Regulation. They should take place prior to the issuance of the relevant Certificate or Statement of Compliance or, for new ships, prior to entering into service.

Additional surveys may be made at the request of the shipowner “*after a change, replacement, or significant repair of the structure, equipment, systems, fittings, arrangements and material*” which has an impact on the IHM, to ensure that the ship continues to comply with the requirements of the EU Regulation, and that Part I of the IHM is amended as necessary. It is recommended that Class, or whoever issues the certification, is consulted as to

whether an additional survey is required, considering that interpretations of the term “significant” are likely to vary.

The Final Survey must verify that the IHM (Parts I, II and III) and the Ship Recycling Plan comply with the requirements of the Convention and/or the EU Regulation, and that the ship recycling facility where the ship is to be recycled is authorised as appropriate. Further details follow on page 15.

## Ongoing maintenance of IHM Part I

Regardless of whether the Inventory is compiled, verified and certified at new build or during operation, one of the most crucial requirements of the legislation is the life-cycle management of the IHM. Without proper maintenance of the Inventory, all the good work during the initial compilation process can be undone and confidence in the contents of the IHM will be lost.

Shipowners should establish procedures on board the ship and within their company to ensure each IHM is maintained and updated throughout the operational life of the ship, reflecting new installations containing any Tables A and

B hazardous materials, including additional EU Regulation materials (as appropriate) and relevant changes in the structure and equipment of the ship.

To this end, a designated IHM responsible person should be identified, and a management system should be established by the shipowner, including specific provisions to safeguard the quality and continuity of the IHM when building, buying or selling a ship, or when changing the ship's registry. 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 could have an impact on the Inventory.

It is recommended that the Inventory, provided by the shipbuilder or IHM expert company, is in an electronic and editable format to assist with the ongoing maintenance.

## Top tips for ongoing maintenance

If in doubt when it comes to the ongoing maintenance process, it is recommended that reputable IHM expert companies are approached for support and general

guidance. There are various IHM consultancy firms offering support with ongoing maintenance, including some who will enter into contracts with shipowners to take over the responsibility in full.

Regardless of whether a shipowner seeks out such support or plans to maintain their Inventories independently, it is important to understand what items may or may not require a Material Declaration (MD) and Suppliers Declaration of Conformity (SDoC).

Figures below (4a and 4b) may be of use as part of the decision-making process.

<sup>8</sup> [Session \(imo.org\)](https://www.imo.org)

Figure 4a

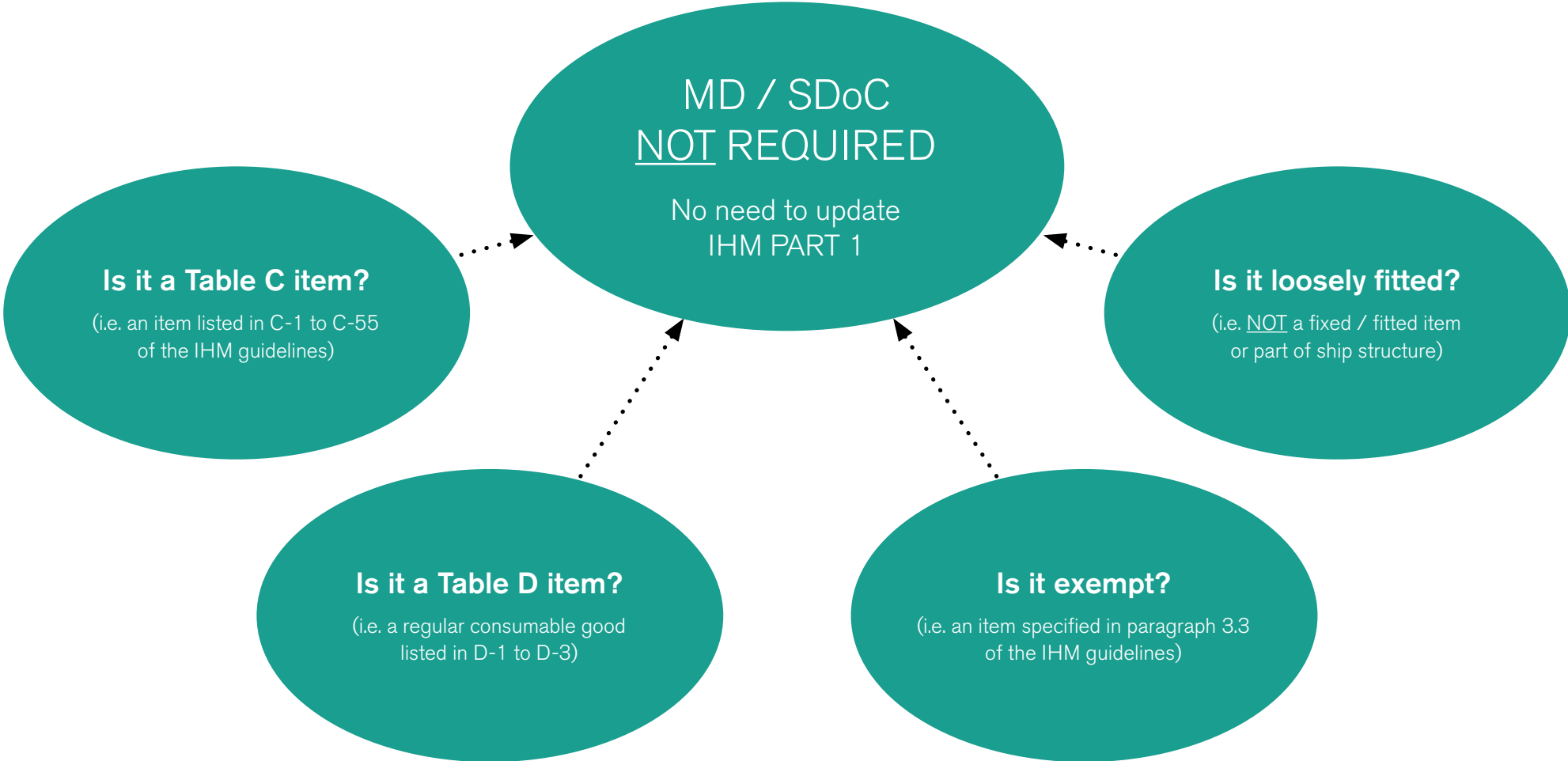
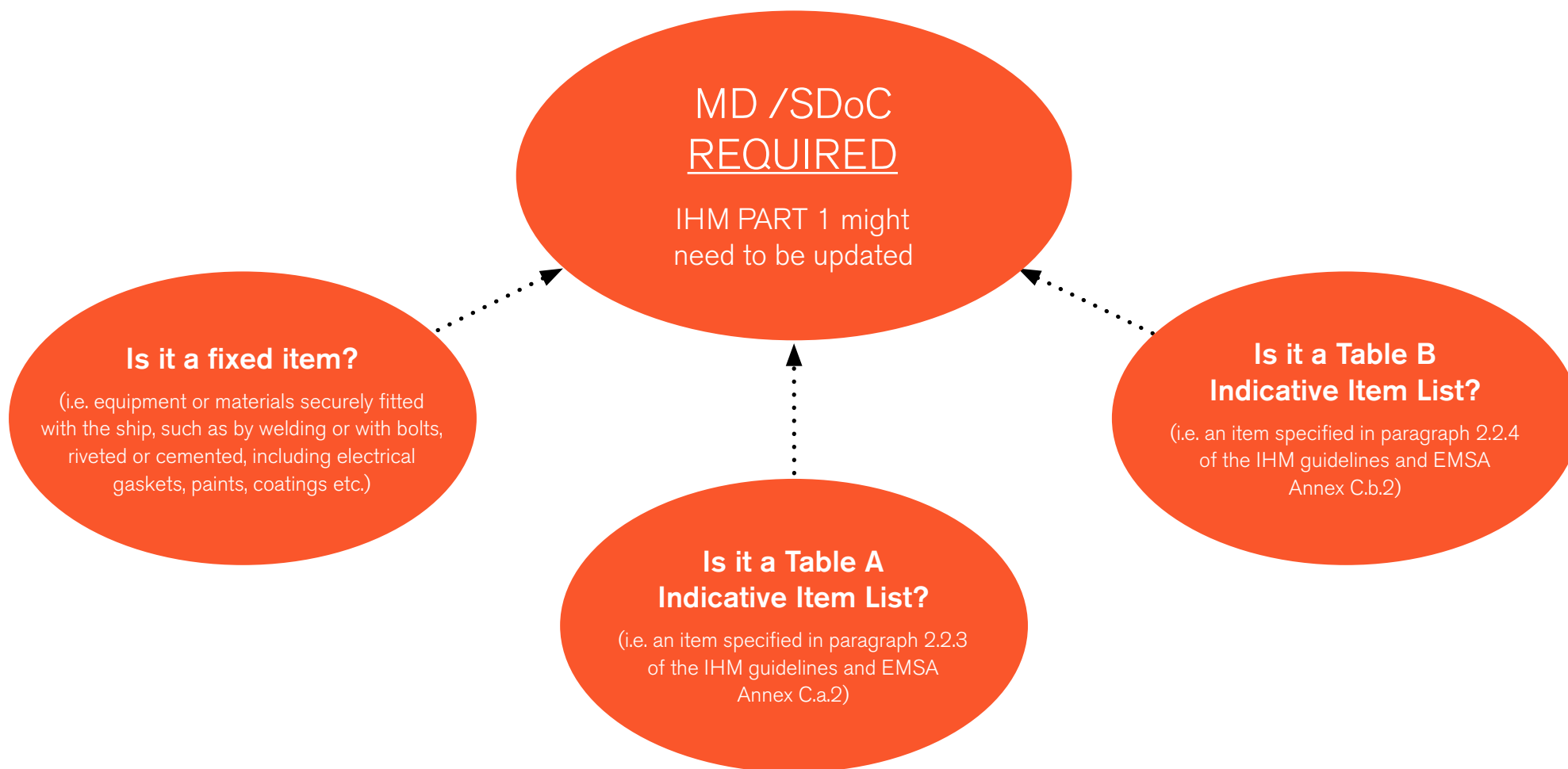


Figure 4b





## Known Port State Control (PSC) enforcement mechanisms

Both the Convention and the EU Regulation provide for the control of ships.

Once the Convention has entered into force and the requirement for an IHM applies, it is expected that Port State Control verification of the IHM will be limited to checking that a valid International Certificate on Inventory of Hazardous Materials is kept on board or, if the ship is going for recycling, that an International Ready for Recycling Certificate is available.

For the EU Regulation, the IHM application date of 31 December 2020 applies. From that date, when a ship calls at a port or anchorage of a member state, it is expected that PSC verification of the IHM will be limited to checking that an Inventory Certificate (for EU flagged ships) or Statement of Compliance (for non-EU flagged ships) is kept on board; if the certification is valid, this shall be considered sufficient for the inspection to be approved.

A key concept is “validity”. Normally, regions publish their requirements for inspection to check validity, for example, the Paris or Tokyo Memorandum of Understanding. These specific requirements for IHM do not exist yet. EMSA has published inspection guidance<sup>9</sup> to check validity, but it is unclear and appears it may rely on the PSC inspector using an external expert company to check the Inventory.

It was generally expected there would be a focus from PSC on IHMs in 2020, once the requirements came into force for ships in EU waters. This was backed up by several enquiries and proposals from PSC about what it intended to do. However, the global COVID pandemic quickly re-prioritised things and the expected PSC focus did not arise.

Regardless, when enforcement does arrive, it is paramount that all shipowners ensure they have a quality IHM.

By way of summary, each ship will need the following documents on board for PSC:

- An EU ship must have an Inventory Certificate supplemented by Part I of the IHM (or a Ready for Recycling Certificate if on the final voyage)
- A non-EU ship must have a Statement of Compliance supplemented by Part I of the IHM (Articles 11 and 12 of the EU Regulation)



For EU ships, the PSC check is limited to checking that these documents are valid. A detailed inspection may be carried out if:

- the ship does not have valid documents
- there are clear grounds for believing that either the ship or its equipment does not correspond substantially with the documents
- there is no procedure for maintenance of Part I of the IHM.

Clearly, if the crew are seen not to be knowledgeable or proficient in such procedures, PSC may decide to take further action. It is imperative, therefore,

that crew are trained in ongoing maintenance procedures.

For non-EU ships, the PSC check is limited to ensuring that the IHM:

- is ship-specific, identifies at least the Annex 1 hazards and includes the Visual Sampling Check Plan; and
- has been properly maintained and upgraded

PSC may detain both EU and non-EU ships if they do not submit the proper documents.

<sup>9</sup> [ENV\\_19\\_06-Annex-A-EMSA-Guidance-inspections-ship-recycling-002\\_.pdf \(euroflag.lu\)](#)

## Requirements for end-of-life ships

Once a decision to recycle a ship has been taken, there are some additional requirements for a shipowner to consider, some of which involve working in partnership with an authorised recycling facility.

In brief, ships destined to be recycled shall:

- only be recycled at ship recycling facilities that are authorised in accordance with the Convention or, in the case of EU-flagged ships, are published on the EU List
- only be recycled at facilities fully authorised to handle the materials identified in the IHM
- conduct operations in the period prior to entering the ship recycling facility in order to minimise the amount of cargo residues, remaining fuel oil and wastes remaining on board
- in the case of a tanker, arrive at the ship recycling facility with cargo tanks and pump room(s) in a condition that is ready for certification as Safe-for-entry or Safe-for-hot work, or both, according to the national laws, regulations and policies of the Party under

whose jurisdiction the ship recycling facility operates

- provide to the ship recycling facility all available information relating to the ship for the development of the Ship Recycling Plan required by the Convention and/or EU Regulation
- complete Parts I, II and III of the IHM; and
- be certified as Ready for Recycling by the administration or organisation that recognises it.

### IHM Parts II and III

As such, once a decision has been made to recycle the ship, the shipowner will need to complete Part II (operationally generated wastes) and Part III (stores) of the IHM, and incorporate this information into the properly maintained and updated Part I. This will then need to be verified, typically as part of the Final Survey.

Compiling Parts II and III of the IHM is typically a much simpler process than that required for the development of Part I. Expert support is not usually required, and there is no requirement for sampling to take place. Rather, it is an administrative process of ensuring that items listed in Tables C and D of the MEPC Guidelines are identified and recorded.

That said, many IHM expert companies offer this service and can provide further advice.

### Ship Recycling Plan<sup>10</sup>

In turn, the information provided by the shipowner in Parts I, II and III of the IHM – along with other documents specified in the relevant IMO Guidelines – should be used by an authorised ship recycling facility to help develop a ship-specific Ship Recycling Plan (SRP).

The SRP should be developed in accordance with the aforementioned guidelines and should include information concerning the establishment, maintenance and monitoring of Safe-for-entry and Safe-for-hot work conditions, and how the type and amount of materials – including those identified in the Inventory of Hazardous Materials – will be managed.

The SRP will be tacitly or explicitly approved by the Competent Authority authorising the ship recycling facility. To date, most of the member states who have ratified the Convention appear to prefer tacit approval. Although this removes a possible delay, it does mean that a potential governmental safeguard is not available to the Owner to allay the risks in the country of the ship recycling facility.

### Final Survey

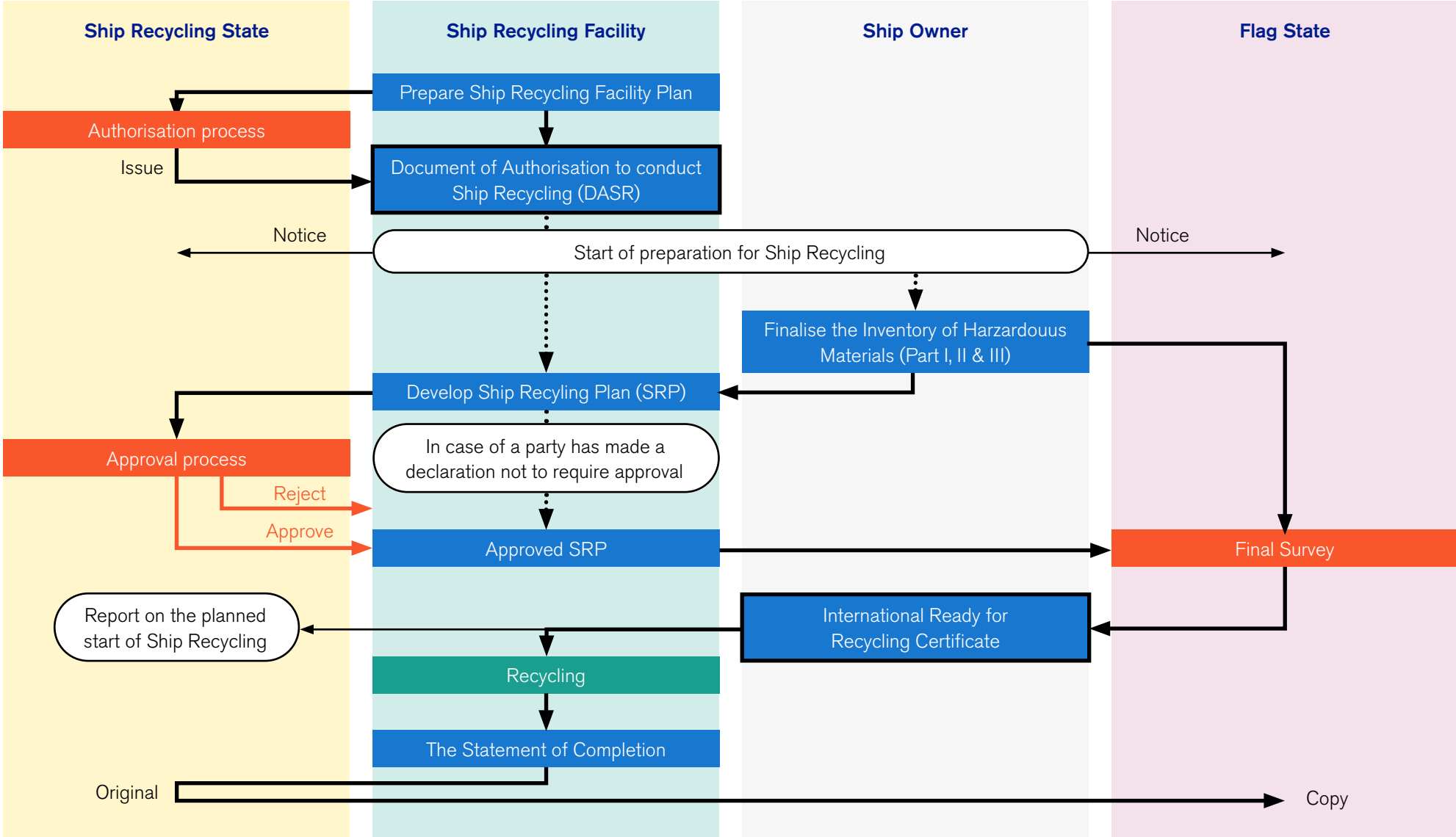
Once the above end-of-life requirements have been met, a Final Survey prior to the ship being taken out of service and before the recycling of the ship has started will be required.

This survey shall verify that:

1. Parts I, II and III of the IHM are in accordance with the requirements of the Convention and/or EU Regulation
2. the SRP properly reflects the information contained in the IHM and contains information concerning the establishment, maintenance and monitoring of Safe-for-entry and Safe-for-hot work conditions
3. the ship recycling facility(ies) where the ship is to be recycled holds a valid authorisation in accordance with the Convention or, for EU-flagged ships, is on the EU List.

<sup>10</sup> [Microsoft Word - 24.doc \(imo.org\)](#)

Figure 5 – Ship recycling process from preparation to completion (Image source: IMO RESOLUTION MEPC.210(63))



## Case Studies

# How compliance can reduce risk and increase competitive edge

The number of cases where shipowners have been prosecuted for irresponsible ship recycling or related issues with non-compliance with the law has risen continuously. Examples include:

- In March 2018, the Rotterdam District Court fined a Dutch shipping company and convicted two of its directors for selling four reefer vessels which sailed from Europe to South Asia for scrap, in breach of the EU Waste Shipment Regulation (EU WSR).<sup>11</sup> The decision was subsequently overturned by the Hague Court of Appeal and sent for a retrial. Irrespective of the eventual outcome, this case highlights that shipowners need to be mindful of how they choose to dispose of end-of-life ships.
- In 2017, the Norwegian authorities investigated a leading insurer for breaches of the EU WSR for providing

final voyage insurance to a vessel belonging to a Norwegian shipowner. Although Norway is not an EU member state, it has implemented the WSR into national legislation. Following the investigation, the Norwegian shipowner was fined and sentenced to six months imprisonment in November 2020. The shipowner appealed and the prison sentence was upheld in March 2022. This case demonstrates that the illegal scrapping of vessels can result in criminal liability which may be applicable not only to the shipowning company, but also to shipyards, brokers, insurance companies, banks and other entities enabling the transaction.

- In the case of a prominent UK-based ship manager/owner, a Bangladeshi worker successfully claimed compensation from the company, on the basis that it had a duty not to sell vessels to Bangladeshi recycling facilities, via its contractors or cash buyers, due to known harmful scrapping conditions.
- A UK-based shipping company faced a similar claim for compensation from the widow of a man who died in a fall while demolishing a VLCC in Bangladesh. In July 2020, the UK High Court ruled that the widow can

pursue a negligence claim against the shipowner and concluded that the defendant was responsible for sending the ship to Bangladesh, knowing that this would expose workers such as the claimant's husband to significant dangers. The Court's ruling means that the shipowner's liability does not automatically end once it sells a ship and the shipping company owes a duty of care to shipbreaking workers even where there are third parties involved.

The above-mentioned cases show that inadequate or uninformed decisions relating to ship recycling could lead to significant risks, including criminal liabilities, reputational damage, fines and financial loss. These issues can be avoided when applicable legislation and guidance documents are followed, even ahead of the Hong Kong Convention entering into force:

- Specified hazardous materials on board can be assessed by experts, and an IHM Part I compiled and certified by Class
- A Final Survey can be held to verify that the IHM (Parts I, II and III) and the Ship Recycling Plan comply with relevant legislation, and that the ship recycling facility:

- holds a Hong Kong Convention Statement of Compliance (ahead of the Convention entering into force); or
- is authorised by national authorities (once the Convention has entered into force); or
- is on the European List (for EU-flagged ships)

<sup>11</sup> [Regulation \(EC\) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste \(legislation.gov.uk\)](#)

## Conclusion

Ship recycling can be a complex and challenging business that requires careful attention to policies and procedures. Commonly, shipowners sell their ships to intermediaries (third parties) for recycling, but this does not necessarily mean that they are relieved from complying with the applicable regulations. The consequences of getting it wrong can be severe. Recently, it has been suggested that shipowners may owe a duty of care to ensure that the ship is safely and responsibly recycled.

To mitigate the risks, it is recommended to ensure that the recycling process complies with the applicable regime. This can be done by including protective clauses in the sale contract, such as those outlined in BIMCO's RECYCLECON,<sup>12</sup> which is a standard contract that provides for these circumstances and incorporates the requirements of the Hong Kong Convention.

Furthermore, BIMCO has recently released its Ship Sales Further Trading Clause,<sup>13</sup> which is intended to provide sellers of second-hand vessels with protection and minimise the risk of being held responsible for the actions of buyers after the transfer of ownership, especially if the buyers dispose of the vessel in violation of any laws or regulations regarding vessel demolition or dismantling.

<sup>12</sup> [RECYCLECON \(bimco.org\)](https://www.bimco.org/RECYCLECON)

<sup>13</sup> [Ship Sales Further Trading Clause 2023 \(bimco.org\)](https://www.bimco.org/Ship-Sales-Further-Trading-Clause-2023)



## Appendix

**Table C – Potentially hazardous items**

Table	Properties		Goods	Inventory		
				Part I	Part II	Part III
C-1	Liquid	Oiliness	Kerosene			X
C-2			White spirit			X
C-3			Lubricating oil			X
C-4			Hydraulic oil			X
C-5			Anti-seize compounds			X
C-6			Fuel additive			X
C-7			Engine coolant additives			X
C-8			Antifreeze fluids			X
C-9			Boiler and feed water treatment and test re-agents			X
C-10			De-ionizer regenerating chemicals			X
C-11			Evaporator dosing and descaling acids			X
C-12			Paint stabilizers/rust stabilizers			X
C-13			Solvents/thinners			X
C-14			Paints			X
C-15			Chemical refrigerants			X
C-16			Battery electrolyte			X
C-17			Alcohol, methylated spirits			X

Table C continued – Potentially hazardous items

Table	Properties		Goods	Inventory		
				Part I	Part II	Part III
C-18	Gas	Explosives/inflammables	Acetylene			X
C-19			Propane			X
C-20			Butane			X
C-21			Oxygen			X
C-22		Green House Gases	CO2			X
C-23			Perfluorocarbons (PFCs)			X
C-24			Methane			X
C-25			Hydrofluorocarbon (HFCs)			X
C-27			Nitrous oxide (N2O)			X
C-28			Sulphur hexafluoride (SF6)			X
C-29	Liquid	Oiliness	Bunkers: fuel oil			X
C-30			Grease			X
C-31			Waste oil (sludge)		X	
C-32			Bilge and/or wastewater generated by the after-treatment systems fitted on machineries		X	
C-33			Oily liquid cargo tank residues		X	
C-34			Ballast water		X	
C-35		Raw sewage		X		
C-36		Treated sewage		X		
C-37		Non-oily liquid cargo residues		X		

Table C continued – Potentially hazardous items

Table	Properties		Goods	Inventory		
				Part I	Part II	Part III
C-38	Gas	Explosibility/inflammability	Fuel gas			X
C-39	Solid		Dry cargo residues		X	
C-40			Medical waste/infectious waste		X	
C-41			Incinerator ash		X	
C-42			Garbage		X	
C-43			Fuel tank residues		X	
C-44			Oily solid cargo tank residues		X	
C-45			Oily or chemical contaminated rags		X	
C-46			Batteries (incl. lead acid batteries)			X
C-47			Pesticides/insecticide sprays			X
C-48			Extinguishers			X
C-49			Chemical cleaner (incl. electrical equipment cleaner, carbon remover)			X
C-50			Detergent/bleacher (could be a liquid)			X
C-51			Miscellaneous medicines			X
C-52			Fire-fighting clothing and personal protective equipment			X
C-53			Dry tank residues		X	
C-54			Cargo residues		X	
C-55			Spare parts which contain materials listed in table A or table B			X



**Table D – Regular consumable goods potentially containing hazardous materials**

Table	Properties	Goods	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			X
D-2	Lighting equipment	Fluorescent lamps, filament bulbs, lamps			X
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			X

## About us

### **UK P&I Club**

UK P&I Club is a leading provider of P&I insurance and other services to the international shipping community. The UK P&I Club insures over 250 million tonnes of owned and chartered shipping through its international offices and claims network. 'A-' rated by Standard & Poor's, the UK P&I Club is renowned for its specialist skills and expertise that ensure 'best in class' underwriting, claims handling and loss prevention services. ([www.ukpandi.com](http://www.ukpandi.com))

### **Marprof Environmental Ltd.**

Marprof Environmental was formed in 2018. With combined marine consultancy experience amounting to over half a century, the 2 founding partners specialise in ship recycling legislation and providing solutions – for shipbuilders, shipowners, recycling facilities, flag states, and the legislators themselves. Marprof's practical experience includes leading on asbestos and other hazmat related projects, the development of IHMs onboard, ship recycling facility audits and certification projects, and active participation at the IMO and the EU contributing to ship recycling legislation and guidance. ([www.marprof.net/marprof-environmental-ltd/](http://www.marprof.net/marprof-environmental-ltd/))



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