

Inventory of Hazardous Materials Implications from EU Regulations

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AGENDA



WHAT IS IHM



WHY IS IT IMPORTANT



IHM FOR EXISTING VESSELS, NEW BUILDS AND MAINTENANCE



HOW WSM HANDLES IHM

AGENDA



WHAT IS IHM



WHY IS IT IMPORTANT



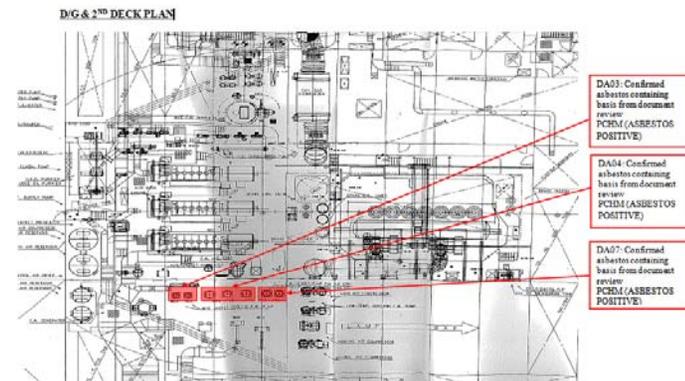
IHM FOR EXISTING VESSELS, NEW BUILDS AND MAINTENANCE



HOW WSM HANDLES IHM

A detailed document outlaying all potentially hazardous material onboard a vessel

- Hazardous material is any substance that can pose a risk to the health and safety of people or to the environment as identified and listed by the Hong Kong Convention (2009)
- Inventory of Hazardous Material (IHM) is a document in which all potentially hazardous material onboard a vessel is identified, located and quantified and follows IMO Resolution MEPC.197(62) guidelines.



Hazardous material in table A is mandatory for all ships

TABLE A* Materials Listed in Appendix 1 of the Convention

No.	Materials		Inventory			Threshold level
			Part I	Part II	Part III	
A-1	Asbestos		x			no threshold level
A-2	Polychlorinated Biphenyls (PCBs)		x			no threshold level
A-3	Ozone Depleting Substances	CFCs	x			no threshold level
		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			2500 mg total tin/kg

Hazmat in table B is voluntary for existing vessels

TABLE B* Materials Listed in Appendix 2 of the Convention

No.	Materials	Inventory			Threshold level
		Part I	Part II	Part III	
B-1	Cadmium and Cadmium Compounds	x			100 mg/kg
B-2	Hexavalent Chromium and Hexavalent Chromium Compounds	x			1 g/kg
B-3	Lead and Lead Compounds	x			1 g/kg
B-4	Mercury and Mercury Compounds	x			1 g/kg
B-5	Polybrominated Biphenyl (PBBs)	x			1 g/kg
B-6	Polybrominated Diphenyl Ethers (PBDEs)	x			1 g/kg
B-7	Polychlorinated Naphthalenes (more than 3 chlorine atoms)	x			no threshold level
B-8	Radioactive Substances	x			no threshold level
B-9	Certain Shortchain Chlorinated Paraffins (Alkanes, C10-C13, chloro)	x			10g/kg

* For materials in this Table with no threshold level, quantities occurring as unintentional trace contaminants should not be listed in Material Declarations and in the Inventory

Table D covers “Exceptions” and is covered in part III

TABLE D¹ Regular consumable goods potentially containing Hazardous Materials

No.	Properties	Example	Inventory		
			Part I	Part II	Part III
D-1	Domestic and accommodation appliances	Computers, refrigerators, printers, scanners, television sets, radio sets, video cameras, video recorders, telephones, consumer batteries, fluorescent lamps, filament bulbs, lamps			x

- This Table does not include ship specific equipment integral to ship operations, which has to be listed in Part 1 of the Inventory

Thresholds levels under discussions

- A threshold level of 0.1% for asbestos with a relaxation clause allowing 1% was agreed
- A 5 year time limit was agreed
- Asbestos containing materials is determined by 0.1%, but 1% is allowed to use within 5 years after the Convention entry into force
- 50 mg/kg should be used as the threshold, as established under the Basel and Stockholm Conventions referring to the low persistent organic pollutants (POPs) content
- In accordance with regulation 4 of the Convention, for all ships, new installation of materials which contain PCBs shall be prohibited.
- It was generally agreed to establish a threshold level of 50 mg/kg for PBBs.
- No threshold value' is in accordance with the Montreal Protocol for reporting ODS.

Thresholds levels under discussions

- Agreements and open issues - Cadmium, Chromium, Lead, Mercury, and PBDEs

No.	Materials	Inventory			Threshold level
		Part I	Part II	Part III	
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-6	Polybrominated diphenyl ethers (PBDEs)	X			1,000 mg/kg

- It was generally agreed to have a list of items containing radioactive materials, which will be included in the IHM Guidelines. – No threshold values
- Depends on the outcome of the correspondence with IAEA (International Atomic Energy Agency)

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HOW WSM HANDLES IHM

IHM is mandatory

IHM (Hong Kong Convention 2009)	EU Regulation 1257/2013
Adopted at Diplomatic Conference in HK May 2009	Signed and approved by EU parliament and in force from Dec 2013. Earliest application Dec 2015
Aimed at regulating ship recycling	Aimed to facilitate early ratification of the Hong Kong Convention 2009 (within EU and outside EU countries)
Main items to be listed (asbestos, PCBs, ODS, TBT) from Table A, and others materials from Table B (heavy metals & radioactive substances)	Additional 2 new hazardous materials to be sampled (PFOS and HBCDD) apart from items in Table A and Table B.
Signed by 6 nations: Norway (ratified), Congo (ratified), France (ratified), Italy, The Netherlands, Saint Kitts & Nevis and Turkey	In line with HKC requirements with specifics for the EU region and EU-flagged vessels. Will be implemented without waiting for HKC ratification
Demands IHM for all vessels within 5 years of ratification and immediate for all vessels going for recycling	EU-flagged vessels of 500GT and over will be required to carry an IHM
States that vessel recycling should: "not pose any unnecessary risk to human health and safety or to the environment"	When calling EU ports, vessels from non-EU countries will also required to carry IHM onboard



The New HazMats

PFOS – Perfluorooctane Sulfonic Acid

■ Use in Marine Industry

- ❑ No specific investigation of PFOS-related chemicals' usage in marine industry is found. Based on survey out come of their general usage, their possibility of on board appearance is presumed low.
- ❑ They are most probably found in interior textiles like apparel and leather, upholstery, carpet, curtains.
- ❑ High concern could be paid on the following items regarding onboard materials and equipment - Rubber and plastic materials, i.e. cable sheath, PVC flooring, gaskets, seals, Coatings, i.e. paintings

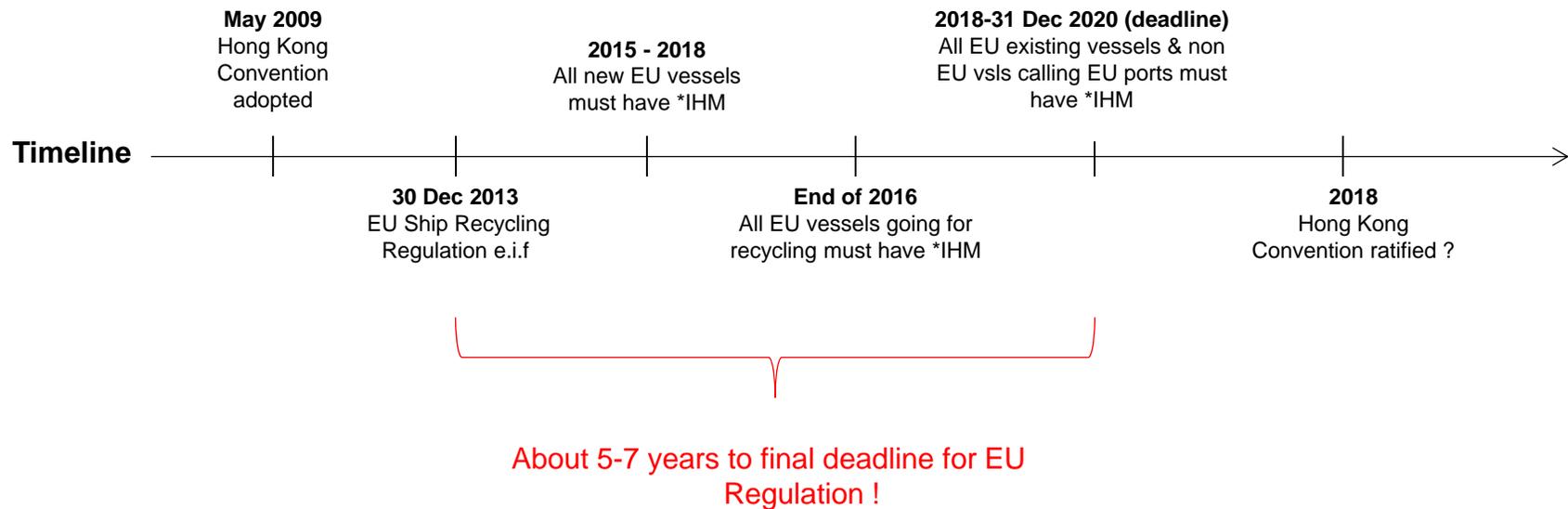
The New HazMats

HBCDD – Hexabromocyclododecane

■ Use in Marine Industry

- ❑ No specific investigation of HBCDD usage in marine industry is found. Based on survey out come of their general usage, high concern could be paid on the following items regarding onboard materials and equipment: They are most probably found in interior textiles like apparel and leather, upholstery, carpet, curtains.
- ❑ High concern could be paid on the following items regarding onboard materials and equipment - Thermal insulation boards, in particular, foam materials. Rubber and plastic materials, i.e. cable sheath, PVC flooring, gaskets, seals. Coatings, i.e. paintings

IHM and EU Regulation timeline



IHM replaces Green Passport

Inventory of Hazardous Material

- Based on the IMO Hong Kong Convention (HKC)
- Focuses on 13 categories of HMs
- Requires survey, sampling and laboratory tests
- All HMs is identified, located and quantified
- Will be mandatory for all vessels



Green Passport

- Based on the Basel Convention which is being replaced by the HKC
- Focuses on 64 types of HMs
- Requires no sampling, surveys or tests
- Only states if a vessel has certain HMs or not
- Replaced by IHM soon



Enhanced control, higher sales value and compliance with CSR

Control & Commercial Interests

- Gives knowledge to what kind, where and how much of potential hazardous materials there is onboard your vessel
- Allows for proper safety measures and isolation
- Plan for removal at docking and increase sales price
- Higher ship value with controlled and certified vessel
- Avoid rush once the new regulation enters into force



Corporate Social Responsibility

- Mitigate environmental risks
- Show care for crew and other people working with the vessel
- Early compliance with new regulation
- Avoid negative publicity and NGO attention
- Necessary preparation for green recycling



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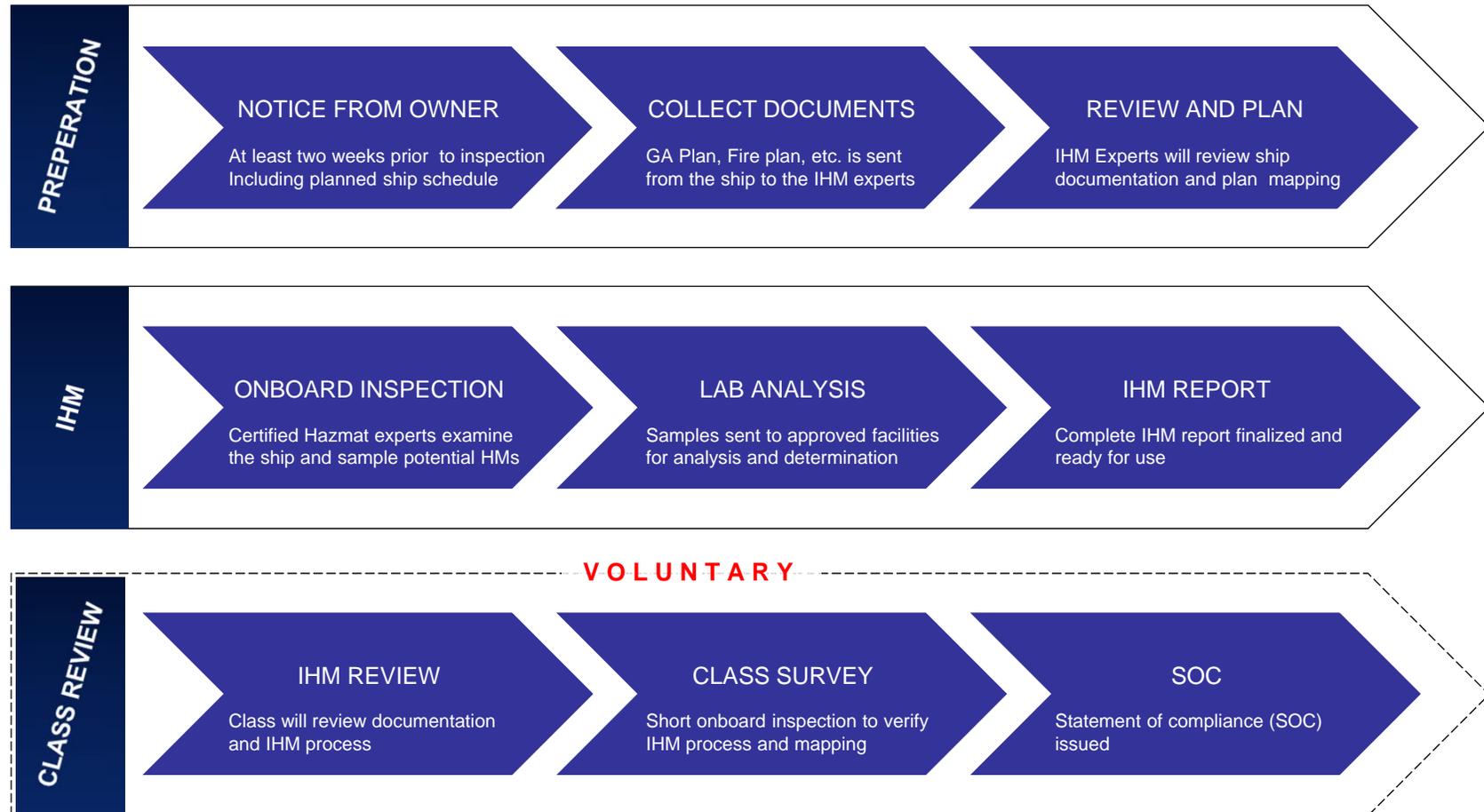
HOW WSM HANDLES IHM

An inventory of hazardous materials in the ship structure and equipment is first priority for all vessels

- IHM is divided in three parts:
 - I. Ship's structure and equipment*
 - II. Operationally generated wastes*
 - III. Stores*
- Part I is handled either during the construction for new vessels or during operation for existing vessels
- Part II and III are developed at the end of the vessel life shortly before it is recycled
- Table A is mandatory for all existing and new vessels while table B is only compulsory for new buildings
- Table C and D are only required for part II and III

Scope of the inventory of hazardous materials	Shipbuilding & operating	Preparation prior to recycling	
	Part I Structure and Equipment	Part II Operative waste	Part III Stores
Table A Materials Asbestos, PCBs, Ozone depleting substances and organotin compounds	✓		
Table B Materials Heavy Metals (i.e. Lead, Mercury, Radioactive substances)	✓		
Table C Materials Liquids, Gases, Solids		✓	✓
Table D Materials Regular consumer goods potentially containing hazardous materials	List of exclusions		✓

IHM for existing vessels takes 3-6 weeks depending on vessel schedule and availability



Visual documentation obtained here from the bridge and the accommodation area



Samples are gathered and clearly marked, here from the ECR, ER and Main Deck



Equipment types and models are verified against original documentation, here from the Engine Room



IHM Report – Sample of Location Diagram

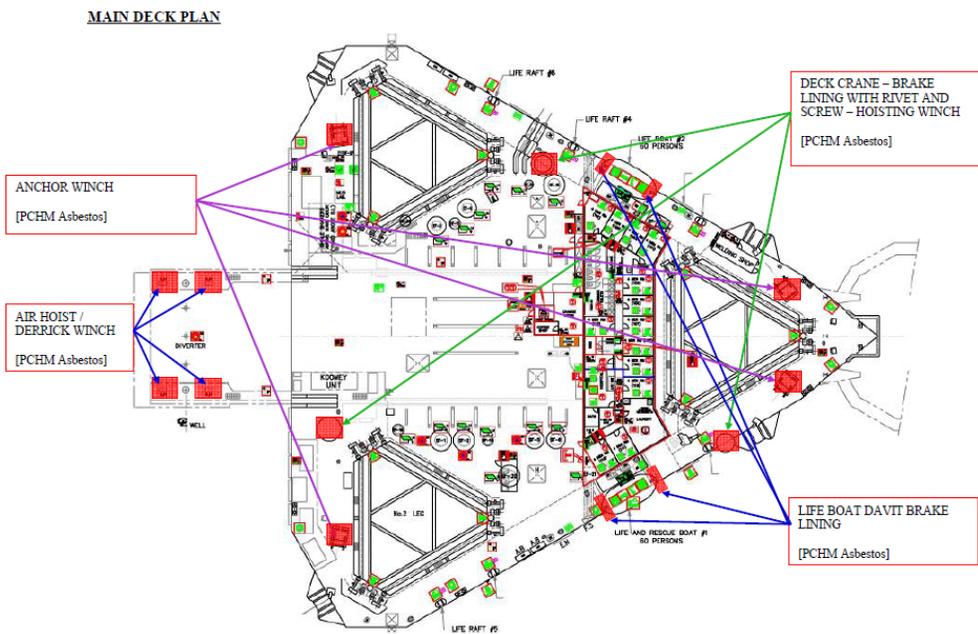
Location diagram of Hazardous Materials for

This location diagram is drawn in accordance with ISO 30006 Ship recycling management systems – Diagrams to show the Location of hazardous materials onboard ships.

[LEGEND]

Table A/B/C	Colour	Items
A/B		Inventory No., Paint/Equipment/System and/or Area [Material]
C		Inventory No., Location/Item [Material]

Check point of sampling	
Sample / P <small>(Name of sampling object [Materials])</small>	Not Contained
Sample / P <small>(Name of sampling object [Materials])</small>	Contained



IHM Report – Sample of the report content

WILHELMSSEN SHIP MANAGEMENT



PICTURES FROM THE ASBESTOS SURVEY

Sampling



WILHELMSSEN SHIP MANAGEMENT



PICTURES FROM PCB SURVEY

Sampling



We work with all the major classification societies and will offer free liaison until SoC completion



Form 130
SR/ES/SOF

NIPPON KAIJI KYOKAI

Statement of Fact

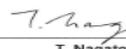
No.KC11N3-040 Date: 4 Aug. 2011

THIS IS TO CERTIFY that NIPPON KAIJI KYOKAI did, at the request of
examine the report of "INVENTORY OF HAZARDOUS MATERIALS
Part I" of the following vessel:

Signal Letters	:
Port of Registry	: Panama City
Gross Tonnage	: 68,570GT
IMO Number	:
IMO registered owner ID number	:
IMO company ID number	:
Date of Construction	: 15 May 2006
Name and address of shipowner	:

In accordance with paragraph 4.2 of IMO Resolution MEPC 179(59) "GUIDELINES FOR THE DEVELOPMENT OF THE INVENTORY OF HAZARDOUS MATERIALS", and found satisfactory.

Nippon Kaiji Kyokai




T. Nagatome
General Manager of
Marine & Industrial Service Department

Attachment:
Inventory of Hazardous Materials for

This Report is issued subject to the condition that it is understood and agreed that neither the Society nor any of its Committees is under any circumstances whatever to be held responsible for any inaccuracy in any report or certificate issued by this Society or its Surveyors or if any entry in the Record or other publication of the Society or the any error of judgment, default or negligence of its Officers, Surveyors or Agents.

Suppliers provide detailed material declarations providing necessary input to prepare IHM

- IHM process while vessel is being built:
 1. Identify all suppliers
 2. Request for and collect Suppliers Declaration of Conformity (SDoC) and Material Declaration (MD) for all products
 3. Screen the products containing Hazardous Materials above threshold level
 4. Identify the location of these products and calculate the mass of Hazardous Materials at each location
 5. Prepare IHM in the standard format
- Using a software, we are able to simplify data collection and enhance efficiency in the IHM process
- If suppliers are unable to produce MD and SDoC, WSM provides analysis to verify the contents of your equipment

MEPC 62/24
Annex 3, page 41

**APPENDIX 6
FORM OF MATERIAL DECLARATION**

<Date of declaration>
Date: _____

<MD ID number>
MD ID no.: _____

<Supplier (respondent) information>

Company name	_____
Division name	_____
Address	_____
Contact person	_____
Telephone number	_____
Fax number	_____
E-mail address	_____
MSC ID no.	_____

<Other information>

Remark 1	_____
Remark 2	_____
Remark 3	_____

<Product information>

Product name	Product number	Delivered as	Unit	Product information

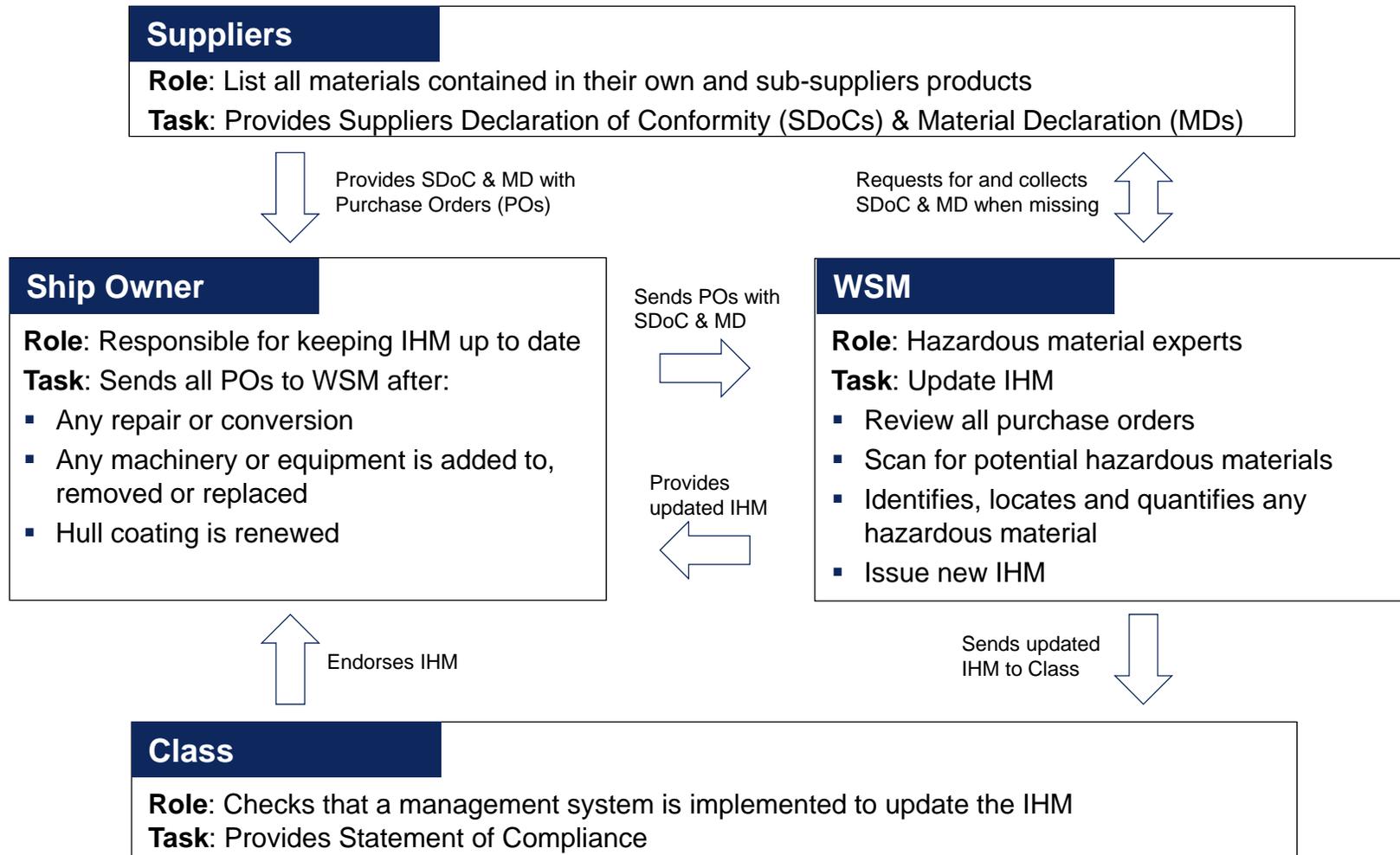
<Materials information>

This materials information shows the amount of hazardous materials contained in _____ Unit (pack, kg, m, m³, m², etc.) of the product

Table	Material name	Threshold level	Present above threshold level	If yes, material mass		If yes, information on where it is used
			Y/N	Mass	Unit	
Table A Hazardous materials listed in Annex 1 of the Convention	Adhesives	Adhesives	10 threshold level			
	Fluorinated compounds (FCs)	Fluorinated compounds (FCs)	10 threshold level			
	Chlorofluorocarbons (CFCs)	Chlorofluorocarbons (CFCs)				
	Hydrochlorofluorocarbons (HCFCs)	Hydrochlorofluorocarbons (HCFCs)				
	Hydrofluorocarbons (HFCs)	Hydrofluorocarbons (HFCs)				
	Perfluorocarbons (PFCs)	Perfluorocarbons (PFCs)				
	Chlorinated hydrocarbons	Chlorinated hydrocarbons	10 threshold level			
	1,1,1-Trichloroethane	1,1,1-Trichloroethane				
	Hydrochlorofluorocarbons	Hydrochlorofluorocarbons				
	Hydrofluorocarbons	Hydrofluorocarbons				
Acidifying agents	Acidifying agents	2,000 mg/kg (0.1%)				
Table B Hazardous materials listed in Annex 2 of the Convention	Chromium and chromium 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				
	Polychlorinated biphenyls (PCBs)	1,000 mg/kg				
	Polychlorinated biphenyls (PCBs)	1,000 mg/kg				
	Polycyclic aromatic hydrocarbons (PAHs)	1,000 mg/kg				
	Substances listed in Annex 2 of the Convention	10 threshold level				
	Substances listed in Annex 2 of the Convention	10 threshold level				
	Carbon particulate (estimated particle)	1%				

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WSM Hazmat experts ensures proper IHM maintenance



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HOW WSM HANDLES IHM

WSM is part of the Wilhelmsen group, one of the worlds largest maritime networks

Who we are

- Wilhelmsen Ship Management (WSM) is a subsidiary of Wilhelmsen Maritime Services, a Wilh. Wilhelmsen group company
- One of the largest third party ship managers with more than 450 vessels on crew and technical management
- 7 Ship management offices and 19 crew offices worldwide

Our range of services

- Full technical management
- Crew management
- Vessel inspections and audits
- IHM / Green Passport
- Green recycling
- Lay-up
- Dry Docking
- Insurance services
- Maritime training



WSM is an experienced and certified IHM expert working with all the major classification societies

What we do

- Wilhelmsen Ship Management (WSM) can offer IHM and IHM maintenance for all vessels anywhere in the world
- We have worked with all the large classification societies and vessels varying from traditional bulkers and tankers to more advanced specialised ships and offshore installations

What makes WSM different

- WSM has a strong IHM team with many certified experts, allowing us to handle IHM in an efficient, flexible and economical manner
- We offer a fixed competitive price for our services and should you decide for a Statement of Compliance from your classification society, we will facilitate and offer free liaison with class until completion

ClassNK

WSM has provided IHM for a wide variety of traditional and more advanced vessels and offshore installations

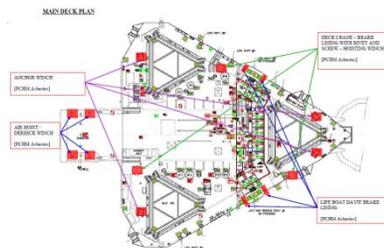


EUKOR Car Carriers Inc.



WSM – a class certified expert providing IHM - all types of vessels (existing and new) anywhere in the world

- Inventory of Hazardous Material (IHM) is a document in which all potentially **hazardous material onboard a vessel** that can pose a risk to the health and safety of people or to the environment **is identified, located and quantified**
- IMO's Hong Kong Convention (2009) will make IHM mandatory for all vessels once ratified over the next few years while new **EU regulation makes IHM compulsory** for all new and vessels visiting European ports **from 2015 – 2018**
- Wilhelmsen Ship Management (**WSM**) is a certified IHM expert with a strong team in place allowing us to handle IHM for both new and existing vessels in an **efficient, flexible and economical** manner
- Existing vessels require on board inspection and laboratory analysis and can be completed in **3-6 weeks** depending on vessel schedule and availability
- WSM provides an easy and reliable procedure to make sure your IHM maintains up to date
- WSM has **worked with all the large classification societies especially with Class NK** and vessels varying from **traditional bulkers and tankers** to more advanced specialised ships **and offshore** installations.





www.wilhelmsen.com/shipmanagement

For more information, please contact Rakesh Bhargava, Head of IHM, +60 3 2084 5750 / rakesh.bhargava@wilhelmsen.com