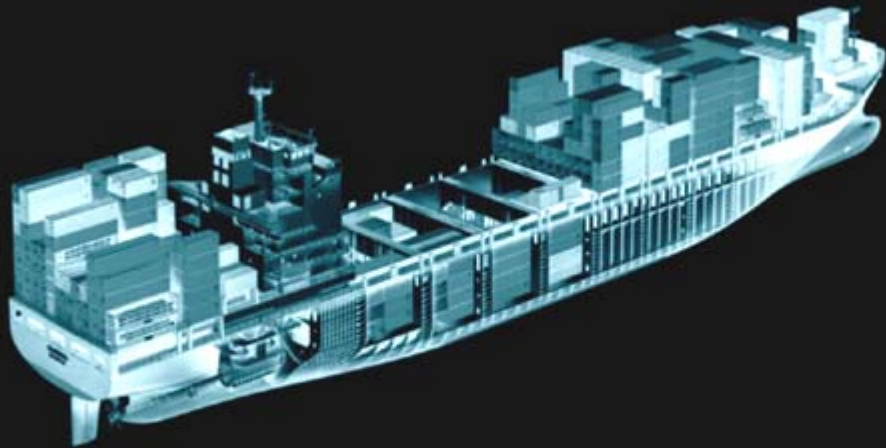


# Ship Recycling – Overview & HazMat Expert Approval

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Know what's inside your ship!



A Project Implemented by



# Germanischer Lloyd

# Speaker

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# Content

- Introduction
- Overview on IMO Ship Recycling Convention
- Tasks for Hazardous Material Experts
- Approval Scheme for HazMat Experts
- Summary

# List of Abbreviations

**HazMat** = Hazardous Material

**IHM** = Inventory of Hazardous Materials

**IMO** = International Maritime Organisation

**SRY** = Ship Recycling

# Introduction

- **Ships may contain hazardous materials**
  - e.g. Asbestos, PCB, Ozone Depleting Substances, Organotin Compounds
  - Documentation of HazMat presence ***is not required / regulated today!***
- **SRY practices today**
  - Lack of Occupational Health & Safety and Environmental protection common
- **Increasing public and political pressure**
- **Development of legally binding instrument**
  - Joint Working Group (IMO/ILO/Basel Convention, 2005-08):  
*“International Convention for the Safe and Environmentally Sound Recycling of Ships”*

# IMO Convention (Hong Kong Convention)

- Adoption: May 2009
- Start of ratification: September 2009
- Entry into force\*: ~ 2013\*

\* Estimation of EMSA OP/07/2007, page 2; EC DG-Environment



# Key addressees of IMO Convention

- **Shipping Industry**
  - Supplier
  - Ship newbuilding
  - Ship owner / operator
- **Ship Recycling Facilities**
- **Administrations** (Control Enforcement)
  - Flag State Authorities / Recognized Organisations (RO)
  - Recycling State Authorities
  - Port State Control



# Scope of IMO Convention

- **Applicable to**
  - New\* & existing ships\*\* > 500GT
  - New installations on ships > 500GT
  - Ship recycling facilities
- **Exclusions**
  - Government ships in non-commercial service
  - domestic vessels
  - ... but should be handled in light of Convention
- **Focal points**
  - Inventory of Hazardous Materials
  - Ship Recycling Facility Authorization



\* New ship: building contract on/after Eif, or keellaying 6 months after Eif or delivery 30 months after Eif

\*\* Existing ship: not a new ship

# Inventory of Hazardous Materials (IHM)

I-2 Equipment and machinery containing materials listed in Table A and Table B of appendix 1 of the Guidelines

No.	Name of equipment and machinery	Location	Materials (classification in appendix 1)	Parts where used	Approx. quantity
1	Switch board	Engine control room	Cadmium	Housing coating	0.02 kg
			Mercury	Heat gauge	<0.01 kg
2	<del>Diesel engine, xx Co., xx #150</del>	<del>Engine room</del>	<del>Cadmium</del>	<del>Bearing</del>	<del>0.02 kg</del>
3	Diesel engine, xx Co., xx #200	Engine-room	Cadmium	Bearing	0.01 kg
4	Diesel generator (x 3)	Engine-room	Lead	Ingredient of copper compounds	0.01 kg

## Documentation of HazMats

- Name of equipment & machinery
- Location
- Parts where used
- Approx. Quantity

# Putting the Convention into Practice

- Responsibilities for IHM preparation:
  - newbuildings = Ship yard
  - exist. ships = Ship owner
  - Further requirements of IMO Guideline:
    - Ship owner has to involve an „Expert“
- Certification of IHM
  - Administration / RO
  - approx. 50.000 existing ships affected
  - 5 years for compliance or prior recycling



# Tasks for HazMat Experts

## (acc. IMO Guideline)

- investigates & collects ship information (plans, manuals, sister ship IHMs, etc.)
- prepares Visual and Sampling Check Plan (VSCP)
- sends VSCP to RO for approval (if requested by RO, e.g. GL)
- Sample taking according to VSCP + “local adoption”
  - Visual Check
  - Sampling Check
- collection of analysis results
- prepares IHM Part I for certification by Flag State / RO

# Why are Experts necessary?

- **General knowledge requirements**
  - Appearance and detection of HazMats
  - Presence specific to ship's structure & equipment (Locations)
  - Safe taking of samples
  - Selection of appropriate analysis methods
  - Calculation & interpretation of analysis results
  - Final documentation / preparation of IHM



# Approval Scheme for HazMat Experts 1

- **Aim**
  - meeting / exceeding required knowledge
  - compliance with future IMO requirements
  - assurance of high quality and comparable IHMs
  - effective communication and preparation
  - early preparation ensures legal compliance in time and effectiveness
  - global distribution of HazMat Experts for easing compliance for ship owners
- **Suitable professions:**
  - Chemical-, Environmental.-, Mech. Engineers, Naval Architects, certified HazMat Experts by local authorities with basic ship knowledge

# Approval Scheme for HazMat Experts 2

- GL 4 day seminar for HazMat Experts (voluntary):
  - HazMats
    - occurrence
    - identification and sampling
    - sampling methods
    - calculation of analysis results
    - safety measures
  - PPE
  - reporting & formats
  - selection of laboratories
  - responsibilities
  - ...

# Approval Scheme for HazMat Experts 2

...

- Legal requirements
  - IMO Convention
  - IMO Guideline for the Development of IHM
- Other Requirements
  - training scheme in style of European law
  - GL Classification Rules
  - Related industry standards
- **Examination & Witnessing (mandatory)**

## Practice

- on board
- in laboratory

# Bulkhead / Deck fittings (asbestos)



# Refrigerants (e.g. CFC, HCFC)



# PCB, Heavy Metals in Paints & Coatings



# Summary

- Quality of IHM related to expertise
- Expertise essential
- Timely preparation advantageous (avoiding rush)
- IMO requirements can be fulfilled by shipping industry already today

# Summary

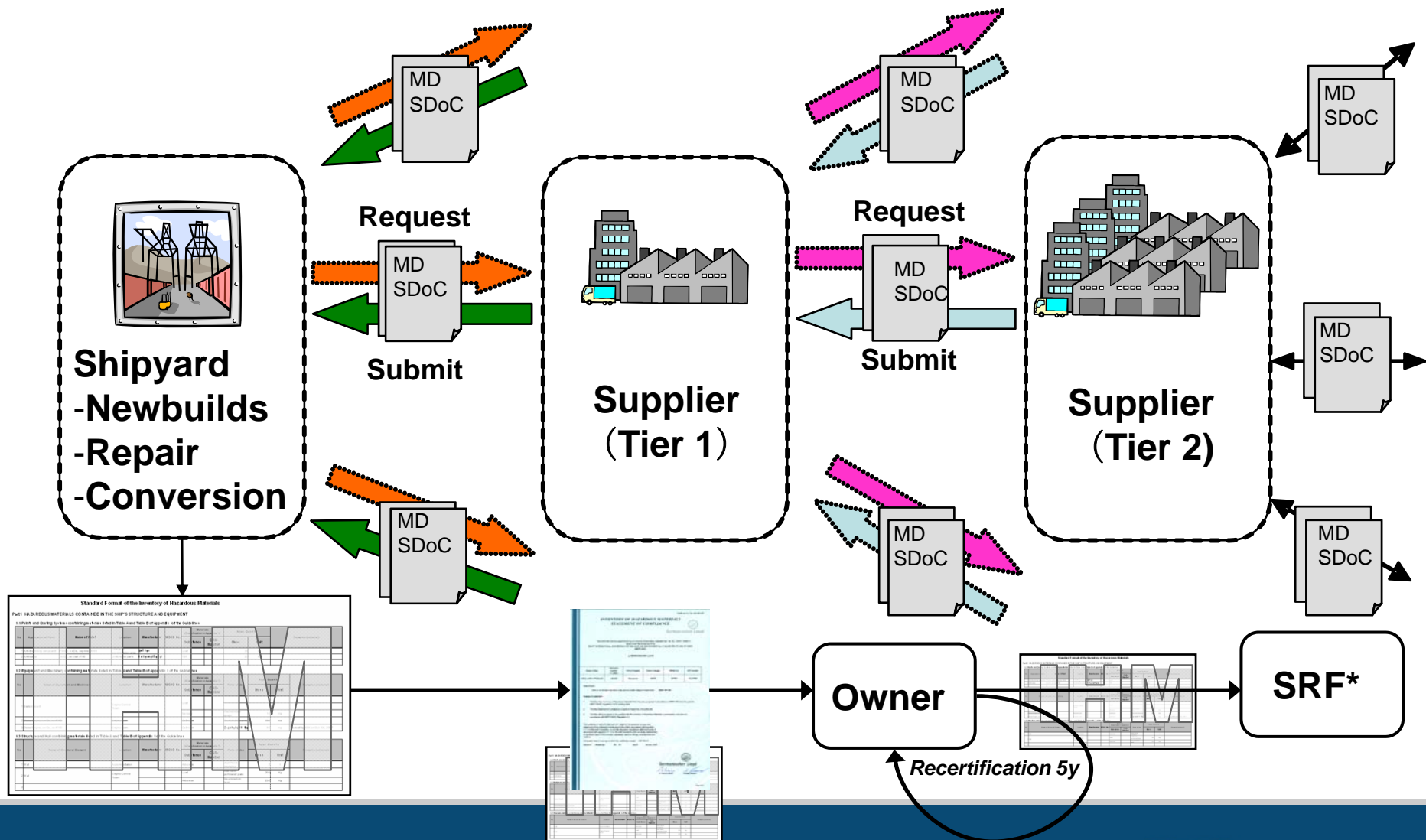
- Global availability of experts essential
- HazMat Expert plays key role for allowing safe and environmentally sound shiprecycling



Thank you for your attention!



# Information from Supply Chain (MD SDoC)



\*SRF = Ship Recycling Facility



# Suppliers Declaration of Conformity (SDoC)

*(for new ships and new installations)*

- legal statement to be prepared by Supplier
- specifies object of MD declaration
- lists organizational measures assuring correct MD-preparation (e.g. ISO Certification)
- if applicable SDoC of supplier should contain statement on RoHS conformity, MD still has to be provided!
- the SDOC must be valid as long as “the product lives on board”
- **No handwritten SDoCs**

**Supplier's Declaration of Conformity**  
**for Material Declaration Management**

1) SDoC No.: \_\_\_\_\_

2) Issuer's name: \_\_\_\_\_  
Issuer's address: \_\_\_\_\_

3) Object(s) of declaration: 1) \_\_\_\_\_  
2) \_\_\_\_\_  
3) \_\_\_\_\_  
4) \_\_\_\_\_

4) The object(s) of the declaration described above is/are in conformity with the following documents:

5) Applicable Regulations or other stipulated requirements and documents

Document No.	Title	Edition	Date of issue
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

---

6) Additional Information:

Signed for and on behalf of: \_\_\_\_\_

Place of issue \_\_\_\_\_

Date of issue \_\_\_\_\_

7) \_\_\_\_\_  
Name, function \_\_\_\_\_ Signature \_\_\_\_\_

# Material Declaration (MD)

*(for new ships and new installations)*

- To be provided to shipyard by Tier 1 Supplier
- Documentation of Hazardous Materials in supplied components
- Content of MD impacts the ships IHM
- **No handwritten MDs**

**Material Declaration**

<Date of declaration>  
 Date: 2008-02-25

<MD ID number>  
 MD-ID-No.: 0035-2008

<Supplier (respondent) information>

Company name	Suppliercompany Ltd.
Division name	Manufacturing Line Machines
Address	Musterstrasse 99
Contact person	Peter Muslemann
Telephone number	0049-123456789
Fax number	0049-987654321
E-mail address	peter.muslemann@suppliercompany.ltd.com
SDS-C ID-No.	NAM-002-2008

<Other information>

Remark 1	
Remark 2	
Remark 3	

<Product information>

Product name	Product number	Delivered unit		Product information
		Amount	Unit	
Mastereengine Type 44-10	09909-2008-01	10,000	kg	

<Material information>

This materials information shows the amount of hazardous materials contained in

Table	Material name	Threshold level	Present above threshold level		If yes, material mass		If yes, information on where it is used
			Yes/No	Mass	Unit		
Table A Invariable listed in appendix 1 of the Convention	Asbestos	no threshold level	NO				
	Polychlorinated biphenyls (PCBs)	no threshold level	Yes	100	g	COBLES	
	Ozone depleting substance	Chlorofluorocarbons (CFCs)	no threshold level	NO			
		Halons		NO			
		Other fully halogenated CFCs		NO			
		Carbon tetrachloride		NO			
		1,1,1-Trichloroethane		NO			
		Hydrochlorofluorocarbons		NO			
	Hydrobromofluorocarbons	NO					
		Methyl bromide	NO				
Bromochloromethane		NO					
Anti-fouling systems containing organotin compounds as a biocide	2,500 mg total tin/kg	NO					

Table	Material name	Threshold level	Present above threshold level		If yes, material mass		If yes, information on where it is used
			Yes/No	Mass	Unit		
Table B Invariable listed in appendix 2 of the Convention	Cadmium and cadmium compounds	100 mg/kg	Yes	200	g		
	Hexavalent chromium and hexavalent chromium compounds	1 g/kg	NO				
	Lead and lead compounds	1 g/kg	Yes	5,000			
	Mercury and mercury compounds	1 g/kg	NO				
	Polychlorinated biphenyl (PCBs)	1 g/kg	Yes				
	Polychlorinated diphenyl ethers (PCDEs)	1 g/kg	NO				
	Polychlorinated biphenyls (Cl = 3)	no threshold level	NO				
	Radioactive substances	no threshold level	Yes	50			
Certain short-chain chlorinated paraffins	10 g/kg	NO					

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# Material Declaration (MD)

*(for new ships and new installations)*

- Documentation of presence of Hazardous Materials of table A and B
  - homogenous material criteria for threshold levels
  - RoHS – conform electronic components
    - Materials of B1-B6 restricted by RoHS – documentation has to be at hand
    - Materials of B7-B9 to be investigated in detail
  - if YES: mass of the HazMats and “location / part of use” and its “mass” is required
  - if NO: MD still has to be prepared and provided to customer



# Inventory of Hazardous Materials (IHM)

Table A: Structure and equipment (IHM Part I, 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

# Inventory of Hazardous Materials (IHM)

Table B: Structure and equipment  
(IHM Part I, mandatory for new ships and new installations)

**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