



# Speaker

**Henning Gramann**

## Positions

- Managing Owner GSR Services GmbH
- Officially Appointed and Sworn Expert "IHM - Hazardous Material Data for Ships"
- Project Leader for ISO 30003 & 30005
- Guest-Professor WMU
- ...

## Experience (20+ years)

- Germanischer Lloyd - Global Head of Practice - Ship Recycling ('05 - '10)
- AIDA Cruises - Environmental Officer aboard "AIDAblu" ('03 - '04)
- GAUSS gem.mbH - Project-Manager ('00 - '03)



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# GSR Services

## Experts for HKC- and EU-SRR-compliance

- IHM development for new and existing ships
- IHM-Maintenance & MD-Management
- Compliance & Improvement Projects
- Sustainable Recycling Planning for maritime assets
- Supervision
- ...



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## Public / political views

- Conditions of ship recycling unacceptable
  - Health & Safety, Environmental Protection lacking
  - Increasing public awareness
- Growing pressure on & demand for Ship Recycling
- No existing practicable international legislation

2005 2010 2015 2020 2025 2030 2035

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## Legislation

- IMO: “Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships\*”
- EU: “Regulation of the European Parliament and of the Council on ship\* recycling ...”



"**ship**" means 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), as well as a vessel stripped of equipment or being towed

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# HKC / EU: Cradle to Grave-Approach



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# Requirements for Ships

## Inventory of Hazardous Materials - IHM -

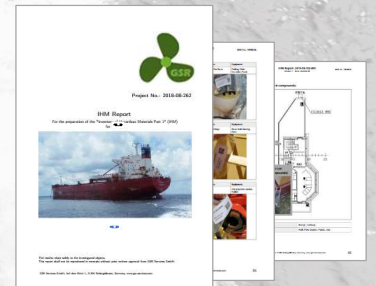


# Key-Requirement for ships



“Ships to have a certified and maintained IHM”

- When visiting an EU-port (regardless of flag)
- If EU-flagged (regardless of port)
- Responsibility of shipowner
- On hand of supplier documents



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# IHM-Guidelines



- Res.MEPC.269(68) – IHM-Guideline
- EMSA Best Practice Guidance (guidance only)



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# Preparation of IHM for Ships

Inventory of Hazardous Materials	Building & Operation	Prior to Recycling	
	Part I Structure & Equipment	Part II Hazardous Wastes	Part III Stores
<b>Table A Materials</b> Mandatory for all ships & installations	✓		
<b>Table B Materials</b> Mandatory for new ships & installations, voluntary for existing ships	✓		
<b>Table C Materials</b> Potentially Hazardous Items		✓	✓
<b>Table D</b> Regular consumer (household) products	Excluded items		✓

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# Hazardous Materials of concern

Annex	Material Name	Threshold level		
EU-Annex 1	Asbestos	Asbestos	0.1 %*	
	PCB's	Polychlorinated Biphenyls (PCBs)	50 mg/kg**	
	Ozone depleting substances	Chlorofluorocarbons (CFC's)	No threshold level	IMO Table A
		Halons		
		Other fully Halogenated CFC's		
		Carbon Tetrachloride		
		1,1,1-Trichloroethane		
		Hydrochlorofluorocarbons		
		Hydrobromofluorocarbons		
	Methyl Bromide			
Bromochloromethane				
Anti-fouling systems containing organotin compounds as a biocide		2,500 mg total tin/kg		
Perfluorooctane sulfonic acid (PFOS) <i>EU-only</i>		10 mg/kg		
EU-Annex 2	Cadmium & Cadmium 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	
	Polybromated Biphenyl (PBB's)		50 mg/kg	
	Polybrominated Diphenyl Ethers (PBDE's)		1,000 mg/kg	
	Polychloronapthalenes (Cl>=3)		50 mg/kg	
	Radioactive substances		No thr.level	
	Certain Shortchain Chlorinated Paraffins		1%	
	Brominated flame retardants (HBCDD) <i>EU-only</i>		100 mg/Kg	

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# HKC & EU: IHMs for New Ships

Responsibility of shipyard

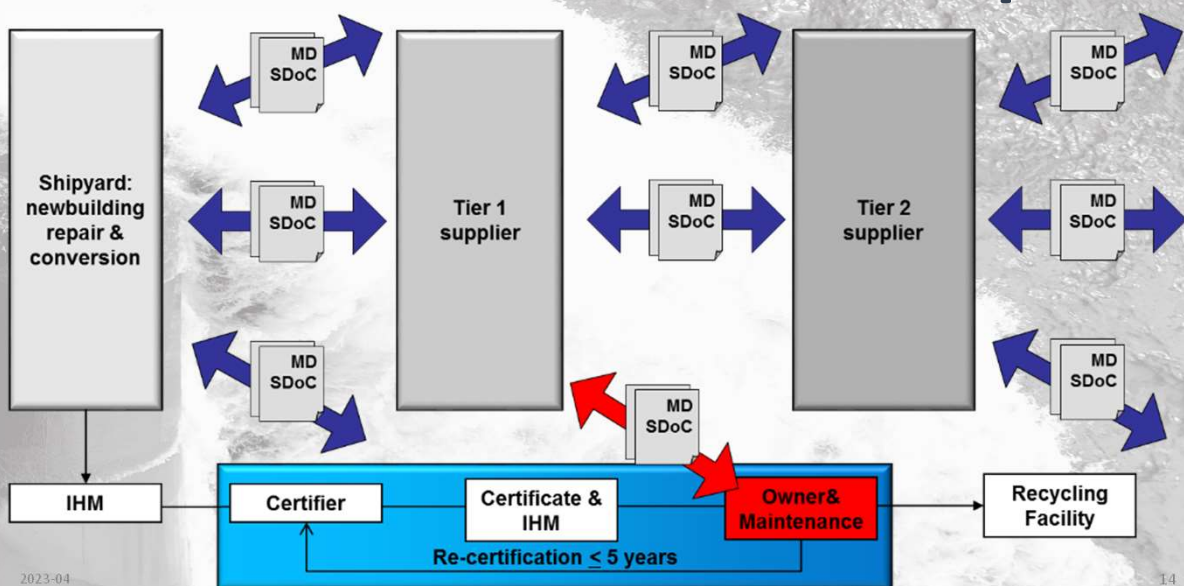
- Based on information from suppliers
  - Suppliers Declaration of Conformity (SDoC)
    - Company specific legally relevant statement
  - Material Declaration (MD)
    - Product specific statement
    - Suppliers depend on information from own suppliers



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# HKC & EU: IHMs for New Ships

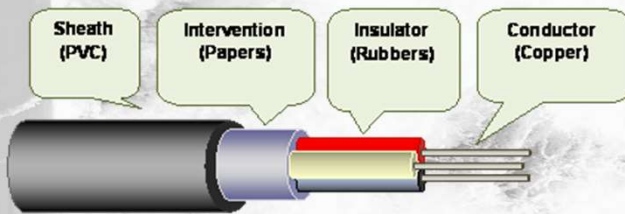


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# Supplier Documents: SDoC & MD

- HazMats of Annex 2
- Homogenous material relevant
  - Above threshold: specification of “location / part” and mass
  - Below threshold: MD still required



**MATERIAL DECLARATION**  
Type 1: SELF DECLARATION

City of origin: \_\_\_\_\_ Supplier identification:  
 Date: \_\_\_\_\_ Company name: \_\_\_\_\_  
 IEC number: \_\_\_\_\_ Material name: \_\_\_\_\_  
 MD/SDC: \_\_\_\_\_ Address: \_\_\_\_\_  
 Other information (e.g. class, supplier, see 10.1 applicable): \_\_\_\_\_ Contact person: \_\_\_\_\_  
 Remarks: \_\_\_\_\_ Tel No: \_\_\_\_\_  
 Fax No: \_\_\_\_\_  
 E-mail address: \_\_\_\_\_  
 SDC No: \_\_\_\_\_

Product name: \_\_\_\_\_ Product number: \_\_\_\_\_ Original use: \_\_\_\_\_ Product information: \_\_\_\_\_  
 Material: \_\_\_\_\_ State: \_\_\_\_\_

This material information shows the amount of hazardous materials contained in \_\_\_\_\_ kg

Table A	Material Name	Threshold level	Declaration		If YES, information on Annex 2 is used
			Present	Not present	
Table A	Asbestos	10 mg/kg	<input type="checkbox"/>	<input type="checkbox"/>	
	Polychlorinated Biphenyls (PCB)	100 mg/kg	<input type="checkbox"/>	<input type="checkbox"/>	
	Polycyclic aromatic hydrocarbons (PAH)	100 mg/kg	<input type="checkbox"/>	<input type="checkbox"/>	
	Mercury	100 mg/kg	<input type="checkbox"/>	<input type="checkbox"/>	
	Lead	100 mg/kg	<input type="checkbox"/>	<input type="checkbox"/>	
	Cadmium	100 mg/kg	<input type="checkbox"/>	<input type="checkbox"/>	
	Chromium VI	100 mg/kg	<input type="checkbox"/>	<input type="checkbox"/>	
	Hexavalent chromium	100 mg/kg	<input type="checkbox"/>	<input type="checkbox"/>	
	Polycyclic aromatic hydrocarbons (PAH)	100 mg/kg	<input type="checkbox"/>	<input type="checkbox"/>	
	Other hazardous materials	As specified in the Declaration	<input type="checkbox"/>	<input type="checkbox"/>	

NOTE: The object of declaration described above is in conformity with the IMO Guidelines for the development of inventory of Hazardous Materials (Resolution MEPC.205(63) dated 20 October 2004) and the ECU Code (EMSA's Best Practice Guidance on the Inventory of Hazardous Materials).  
 \* Blank is to be used as 'Present' by reporting zero mg/kg only. NOTE: All new materials are to be listed on any PCBs.  
 \*\* Additional materials to be listed are: in Annex 1 and Annex 2 of the IECU Ship Recycling Regulation.

(Date) \_\_\_\_\_ (Signature and Company Stamp) \_\_\_\_\_

IMPORTANT NOTICE: Any significant change in material content may render this declaration invalid.

# IHM Part I for existing ships

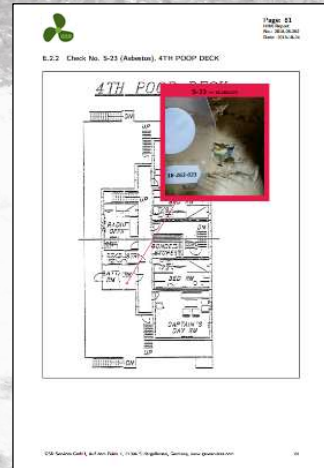
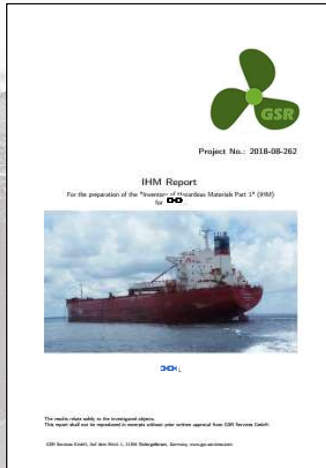
Shipowner responsible

- IHM Part I
  - Development
  - Maintenance
- Prior to recycling
  - IHM Part I, II & III





# FIS-IHM-Development



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# FIS-IHM-Development

IHM Part I only reflects identified HazMats, not scope of investigation!

I-1 Paints and coating systems containing materials listed in Table A and Table B of appendix 1 of the Guidelines

No.	Sample No.	Application of paint	Name of paint	Location	Materials (classification in appendix 1)	Approx. quantity	Remarks
1	10	Wall coating	Wall coating	Deck 6 - Superstructure	Asbestos (amphibole) PCB	i.e.* kg	Assumption: all identical wall coatings contain amphibole Asbestos and PCB [mg/kg]: 20,5, outside, minor concentration & impact for recycling
2							
3	69	Floor coating	Floor coating green	Deck 2 – Heli Deck	Asbestos (amphibole)	i.e.* kg	Assumption: the complete green coating of Heli Deck contains amphibole Asbestos, damages to be monitored due to high air turbulences
4	20	Floor coating	Floor coating, red	Deck 6 - Superstructure	PCB	i.e.* kg	Concentration [mg/kg]: 82,9, all red coatings to be considered PCB-containing, correlates with sample No. 123, medium concentration, special attention for recycling required
5	123	Floor coating	Floor coating, red	Main Deck	PCB	i.e.* kg	Concentration [mg/kg]: 6,06, Minor concentration & impact for recycling, high quantity, correlates with sample No. 20
6	130	Deck Coating	Floor coating white	Deck 1 - Superstructure	PCB	i.e.* kg	Concentration [mg/kg]: 13,000, Extreme concentration, very special attention for recycling required

\*: = later estimation possible

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## Some experiences



## Some experiences

- Example: 1.5 year old ship (6 sisters):
  - 11 sources of asbestos identified
  - Sister ships = other asbestos containing materials
  - No systematic use = individual decontamination



# Accuracy of IHMs

The accuracy of an IHM depends on:

- Planning
- Expertise on sample locations (materials - indicative lists)
- Number of samples taken
- Detail of documentation
- Laboratory standards & expertise
- Interpretation of laboratory results



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# IHM-Incompliances

- No IHM
- IHM not reflecting materials onboard
- Not certified or re-certified
- No maintenance procedure
- Not properly maintained

**200 k€  
& 2 years**



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# What is IHM-Maintenance?

## EU-SRR Art. 5.6 & 12.4

4. The inventory of hazardous materials shall be properly maintained and updated throughout the operational life of the ship, reflecting new installations containing hazardous materials referred to in Annex II and relevant changes in the structure and equipment of the ship, taking into account the exemptions and transitional arrangements applicable to those materials under international law.

## HKC Reg. 5

3 Part I of the Inventory of Hazardous Materials shall be updated throughout the operational life of the ship, reflecting new installations containing Hazardous Materials listed in Appendix 2 and relevant changes in ship structure and equipment, taking into account the guidelines developed by the Organization.

## EMSA IHM Guidelines 4.3.2

It should be noted that the IHM should be updated according to the requirements for new ships as stipulated in the relevant provisions of the IMO guidelines and in chapter 5.1 of this guidance. The respective changes to the IHM should be made accordingly and all the relevant documentation (e.g. MD, SDoC, in case of machinery, equipment is added or removed, reports, test certificates, etc.) should be collected and stored in the ship's archive.<sup>18</sup>

## IHM-Guidelines 4.3.2

### 4.3.2 Updating of part I of the inventory in the event of new installation

When new equipment is added to a ship, the inventory should be updated to reflect the requirements for new installations. Updates are required if identical parts or materials are used.

## IHM-Guidelines 5.2

Suppliers to the shipbuilding industry should identify and declare whether or not the materials listed in table A or table B are present above the threshold value specified in appendix 1 of these guidelines. However, this provision does not apply to chemicals which do not constitute

# Tracking changes of Hazardous Materials in structure & equipment of ships on hand of supplier documents

## IHM Maintenance

1. Categorize order items
2. Relevant item: request to supplier
3. Monitoring & check suppliers' documents
4. Segregate "Positive" & "Zero MDs"
5. Track "positive items" onboard
6. Update IHM & Report 24/7/365



# Supplier to provide

- Suppliers Declaration of Conformity (SDoC)
- Material Declaration (MD)
  - Suppliers need information from sub-suppliers
    - Chain of information = chain of liability
  - Time-consuming!



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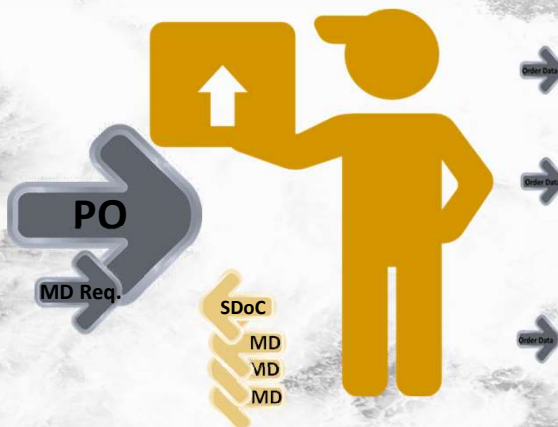
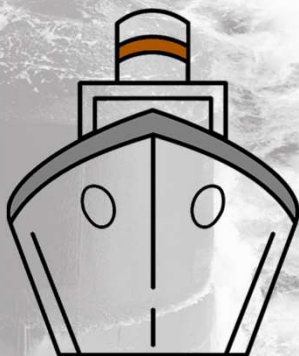
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# Data Flow

Shipowner

Supplier

Sub-Suppliers



PO

MD Req.

SDoC

MD

MD

MD

SDoC

MD

MD

MD

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# Risks for Suppliers

- “MD valid as long as product exists onboard”

- False information **50 k€\***

- Gross-negligence/  
wilful misconduct **800k€ & 3 years ban**

\* EU Supply Chain Directive  
(applies also to Non-EU companies trading with EU)

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# Current practices

1. (Mis-) Interpretations
2. Extensive requests
3. Converter platform

**A good intention, with a  
bad approach, often  
leads to a poor result.**

THOMAS EDISON

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# 1. (Mis-) Interpretations



## A service supplier declares as “myths“:

- Suppliers can give MD and SDoC in their own format.
- All alloys are exempted.
- Consumables do not require MD and SDoC.
- Updating is not required for identical parts in any case.
- It is alright if suppliers do not give MD and SDoC.

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## 2. Extensive requests

PO	PRODUCT NAME
753113-0	MIXING VALVE RADA 88
724262-0	BICYCLE INTERIOR TUBES
753999-0	TOILET FLUSH VALVE
#29	Makita driller
GOY/O0283/PO18	All Items
P620-0005-4709	All Items
P621-0002-3357	All Items
P821-0001-9044	All Items



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## 2. Extensive requests



Performance	4.837 order items	
MD Requests	2.893 (59,8%)	228 (4,7%)
MDs collected	36 (4 relevant)	226 (2 missing)
Unnecessary MD Requests	92%	-/-
Compliance level	0,18%	99,12%

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## 3. Converter platform



- Supplier creates account and uploads PO via template

The platform generates the Material Declaration and Suppliers Declaration of Conformity – **PERORDER PER ITEM** basis for the purchase orders within few clicks and under a minute!

5.000 suppliers

150.000 declarations

2.000 ships

80 shipping companies

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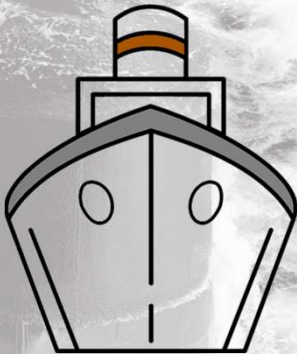
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### 3. Converter platform

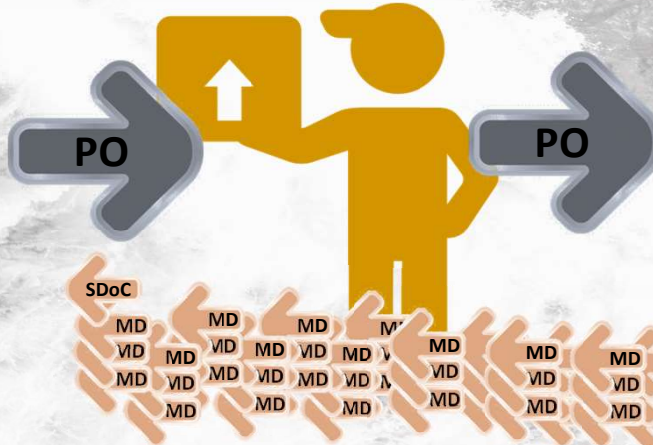


Shipowner



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Supplier



Platform



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## The Industry Guidance: Why

*“Shipowners and service providers ... make **MD requests ... in excess of what is required...** Placing a considerable **administrative burden** on suppliers and **making the maintenance of IHM** by the owner **significantly more complicated.**”*

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## The Industry Guidance: Who



# IACS



# BIMCO



**ECSA**  
European Community  
Shipowners' Associations



**I H M A**  
International HazMat Association

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## The Industry Guidance: How

- Providing support for all involved
  - Shipowners
  - Suppliers
  - PSC & Classes



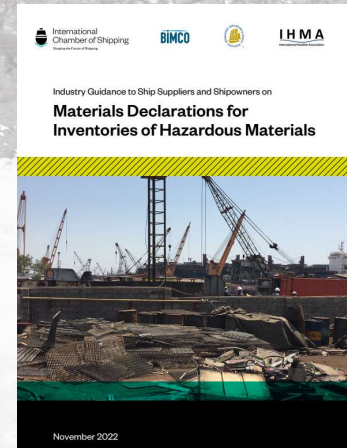
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## The Industry Guidance: How

- ✓ Identifies best practice for all involved
  - ✓ Legislation & Guidelines
  - ✓ Quality standards & norms
  - ✓ GSRs' approach & practices
    - Fully incorporated!



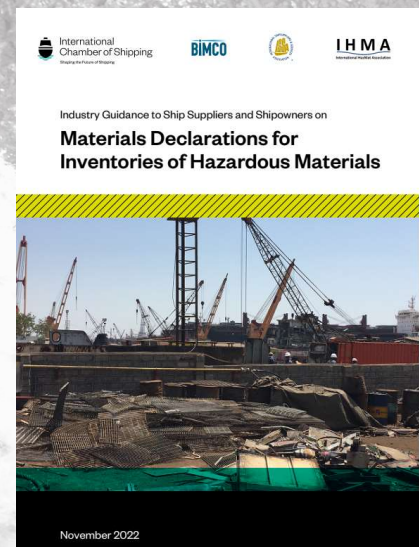
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## The Industry Guidance

- ✓ Background & Purpose
- ✓ Statutory Framework
  - ✓ Responsibility of shipowner
  - ✓ Role of IHM Service Providers
  - ✓ Responsibility of supplier
- ✓ Dialogue and Reporting
- ✓ Common mistakes

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# The Industry Guidance: Focus

1. Categorize order items (100%)
2. Relevant: requests to **suppliers** (<5%)
3. Monitoring & check documents
4. Segregate "Positive" & "Zero MDs"
5. Track "positive items" onboard (<0,05%)
6. Update IHM & Report 24/7/365

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# The Industry Guidance: Focus

1

Purchasing



100%

2

Categorization



< 5%

3

Follow-up

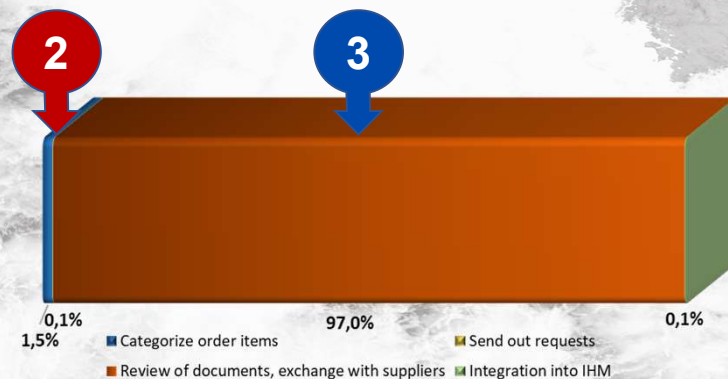


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## The Industry Guidance: Focus

- ✓ IHM-Compliance is only achievable with a proper categorization



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## The Industry Guidance: Results

- ✓ Helps owners to identify IHM-tasks
  - ✓ Relevant order items & supplier documents
  - ✓ No shifting of responsibilities
- ✓ Identifies malpractices
- ✓ Eases IHM-Compliance for all involved



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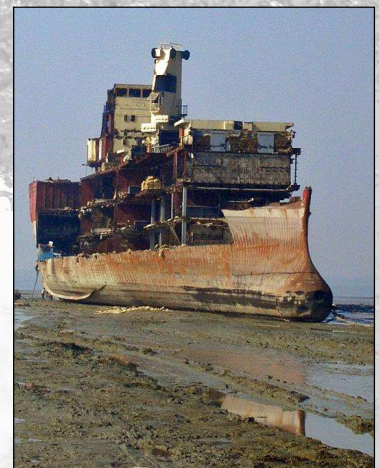
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# Why an IHM?



## HKC & EU: IHMs

- To be used for Identification of suitable Ship Recycling Facility (SRF)
- Fundamental responsibility of seller
- Enables the recycler to plan HSE-compliant ship recycling



# Recycling Planning

## 1. Compliance Concept

Identification of legal, organizational and technical requirements

## 2. Planning of Recycling

Identification of Hazardous Materials & specific requirements, Selecting recycling yard (vetting), Contracting

## 3. Last Voyage

Schedule, Ex-Im-Clearance, Delivery Arrangements, and other activities

## 4. Ship Recycling & Supervision

Supervision of ship recycling process, waste disposals, reporting ...

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# Thank You!

GSR Services GmbH

Auf dem Brink 1

21394 Südergellersen



[www.gsr-services.com](http://www.gsr-services.com)

henning.gramann@gsr-services.com

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# Responsibility. In Business.

Efficient compliance ensured!



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## - Values over Commerce -

We ensure compliance with ship recycling & IHM regulations by providing customized solutions to all stakeholders.



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# Scope of our Services

## Manufacturing Manufacturers & Shipyards

### MD-Development

- IHM Relevancy check
- Requests & Support to suppliers
- Document Verification
- Development of MDs

### Newbuilding IHMs

- Relevancy Checks
- Requests & Support to suppliers
- Check of documents
- Good A&S & standards
- Finalized IHM & Report

### Cradle 2 Cradle

## Operations Suppliers & Shipowners

### MD-Management

- IHM Relevancy check
- Requests & Support to suppliers
- Document Verification
- Development of MDs

### Existing Ship IHMs

- Impact on A. sampling
- Calculate analyze
- Finalizing IHM & IHM-Report
- Exchange with class

## Maintenance Suppliers & Shipowners

### 1st Aid Service

- I. MD-Request
- I. MCH & Revisions
- I. Service
- Review of MD Business
- Block/fixation of unnecessary requests
- & legal justification for objections

### IHM-Maintenance

- MCH Relevancy Checks
- Requests & Contact to suppliers
- Treatment of documents
- Updating of IHM and Report

### IHM-Emergency Service

- Got caught for IHM-Incompliance?
- We get you out!

**24/7** +49 172 4286861  
emergency@gsr-services.com

## Recycling Shipowners & Recyclers

### Recycling Facilities

Improvement / Procedures  
Equipment / HSE / Training  
Productivity / Certification

### Recycling Planning

Strategy / Planning / Writing  
Selection / Contracting / Ship  
Preparations / Supervision



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# Services

**MSG**  
Marine Stores Guide  
IHM relevancy check



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### IHM-Conflicts?

Involve an officially appointed and sworn expert!

Certified and maintained Inventory of Hazardous Materials (IHM) is obligatory in EU since beginning of 2021 for ships above 500 GT. The content & quality of these ship-specific Technical Files, including investigation and statements on asbestos, can lead to various risks and disputes. A substantiated evaluation by an officially appointed and sworn expert clarifies the factual situation.

**Heinrich Gramann** (Dipl.-Ing. Umwelttechnik) (PH)  
Officially appointed and sworn expert "IHM - Hazardous Material Data for Ships"  
by Industrie und Handelskammer Lüneburg-Verlängerung

Auf dem Brink 3  
21394 Südergerresen - Germany  
heinrich.gramann@gsr-services.com  
+49 (0)4135 3178900

Gutachten

### Responsibility Ship Recycling

efficient solutions for maritime assets

FROM BASIC ENTRY LEVEL REQUIREMENTS TO THE MOST COMPLEX OBLIGATIONS

<ul style="list-style-type: none"> <li>• IHM Services</li> <li>• IHM &amp; A&amp;S, ICHM</li> <li>• Services from an experienced</li> </ul>	<ul style="list-style-type: none"> <li>• IHM Audits</li> <li>• IHM &amp; A&amp;S, ICHM</li> <li>• IHM &amp; A&amp;S, ICHM</li> </ul>
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Contractual services for ensuring responsible solutions:

- Strategic guidance
- Address on financial and contractual aspects
- Development of IHM
- IHM handling & maintenance
- Planning of ship recycling process
- Used alignment requirements
- Address on financial and contractual aspects
- Last stage guidance
- Supervision & maintenance
- Heat reporting

SR-Brokering

### Responsibility. In Business.

Compliance solution II

#### Recycling Planning and Supervision for Owners

The growing demand on environmental, social and corporate governance (ESG) criteria, knowledge and expertise is required for ensuring accountability for various sectors. This not only leads to better business but also encourages by large owners, charterers, banks and investors. The process comprises services to Owners for the recycling of marine assets in a responsible, safe and environmentally sound manner.

Services are supported for achieving fully compliant recycling of marine assets and include, but not limited to: development of IHM, strategic guidance, development of compliance services, identification of best practice like Recycling Facilities, transparent due diligence requirements, planning of the ship recycling process, but voyage guidance, and finally supervision of the recycling operations including reporting.

GSR Services has a vast experience in all the recycling related issues, from cradle to grave. Having Gramann, Shipping Owner of GSR Services, has been awarded the development of IHM and Guidelines of IHM since 2020. Since then the IHM implementation projects for the requests from various class societies, GSR and the specific owner have been successful. GSR Services assist on requirement and compliance aspects for recycling, from assets and vessels side.

GSR Services for selection of the right recycling yard and analysis, evaluation of an operation, marine infrastructure and much more. The assets to be recycled are to be considered as well. The cooperation in the same spirit for recycling onshore-related asset and will also be offered. GSR Services for compliance quality and control also in other recycling facilities. We act as guide for recycling operations as well as "one stop" off-activities.

Being active in both areas:

- IHM Projects for Facilities
- Supervision Projects
- Guidelines & Audits
- Non-compliance assessment & advice
- Site
- ICHM
- ICHM
- ICHM

Solutions for responsible and compliant recycling of marine assets is provided by the most competent and experienced partner. It covers the implementation of IHM and GSR also on the level of the most sophisticated expert companies.

Ships and IHM compliance by providing independent third-party audit and evidence, clear recycling routes, involvement and to bring the courts, being one of our responsibilities.

GSR Services GmbH  
Südengraben 100a D-21394 Südergerresen - Germany  
info@gsr-services.com

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SR-CashBuying

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