

Current Situation on Ship Recycling in Korea

- Matters related with shipbuilders -



2007. 11. 15

KSA (DSME)

The House of Wisdom & Innovation[®]

Ship recycling

Main Topics

- IMO Activities
 - IMO Guidelines
 - Development of international Convention
- Activities in Korea





Ship recycling



Ship Scrapping, Breaking Industry

- Typical 3-D job
- Low cost, very poor environment
- Disregard of health & safety of workers
- Dangerous
- Environmental Pollution



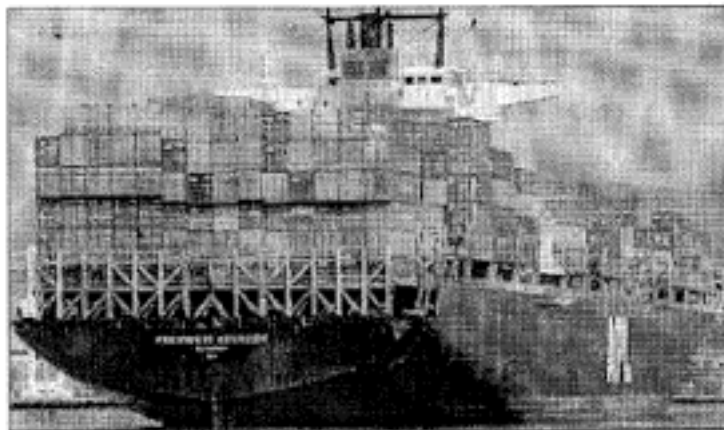


Adoption of Guideline

- Growing concerns about environmental safety, health and welfare matters in the ship scrapping industry
- MEPC 42(1998), Ship recycling was first brought to the attention of the IMO
- MEPC 44(2000), Agenda was renamed as Ship recycling from scrapping and establish Correspondence Group
- MEPC 49(2003), finalized “IMO Guidelines on Ship Recycling”
- Adopted at 23rd session of the Assembly (2003) by resolution A.962(23)

Adoption of Guideline

Green passport mooted for ships



"Green passports" listing all potentially hazardous materials used in a ship's construction are envisaged

The concept of a "Green Passport" for ships has been included in draft guidelines on ship recycling currently under discussion at IMO. It is envisaged that such a document, containing an inventory of all materials potentially hazardous to human health or the environment used in the construction of a ship could accompany the ship throughout its working life. Produced by the shipyard at the construction stage and passed to the purchaser of the vessel, the document would be in a format that would enable any subsequent changes in materials or equipment to be recorded. Successive owners of the ship would maintain the accuracy of the Green Passport and

incorporate into it all relevant design and equipment changes, with the final owner delivering it, with the vessel, to the recycling yard.

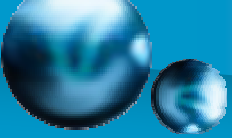
Draft IMO Guidelines on ship recycling were discussed in detail at the 48th session of the Marine Environment Protection Committee in October, with a view to producing a final draft for adoption by the next IMO Assembly in 2003.

The draft guidelines note 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 etc. Furthermore, new steel production from recycled steel requires only one third of the energy used for steel production from raw materials. Recycling makes a positive contribution to the global conservation of energy and resources and, in the process, employs a large, if predominantly unskilled, workforce. Properly handled, ship recycling is, without question, a "green" industry.

However, the guidelines recognize that, while the principle of ship recycling may be sound, the working practices and environmental standards in the yards often leave much to be desired. While ultimate responsibility for conditions in the yards has to lie with the countries in which they are situated, other stakeholders must be encouraged to contribute towards minimising potential problems in the yards.

The guidelines have been developed to give advice to all stakeholders in the recycling process, including administrations of ship building and maritime equipment supplying countries, flag, port and recycling states, as well as intergovernmental organizations and commercial bodies such as shipowners, ship builders, repairers and recycling yards.



Outline of Guidelines

- Voluntary Guidelines
- To encourage recycling as the best means to dispose of ships at the end of their operating lives
- Major Contents
 - Identification of potentially hazardous materials
 - Green Passport
 - Procedures related to Ship Recycling
 - Preparations for Ship recycling



IMO Guidelines



Green Passport - Outline

- A documents providing information with regard to materials known to be potentially hazardous used in the construction of the ship, equipment and systems.
- To reduce environmental and safety risks and health and welfare
- Maintain the accuracy of the Green Passport throughout its operating life
- Final owner deliver the document to the recycling facility with the ship





Green Passport - Contents

▪ **GP consists of mainly two categories ;**
Ship information and Inventory of Potentially hazardous materials on Board

I. Ship details

- .Flag, Port,
- .Registered & de-registered Dates,
- .Ship's identification number (IMO number), Hull number,
- .Ship name, Type of the ship,
- .Ship owner,
- .Class, Shipbuilder,
- .Ship's main particulars



Green Passport - Contents

■ **II. Inventory of Potentially hazardous materials :**

with Location and approximate quantity/volume

- Part 1 - Potentially hazardous materials in the ship's structure and equipment (Construction & Conversion)
- Part 2 - Operationally generated wastes
- Part 3 - Stores

■ **Preparation & update :**

- Part 1 usually prepared by Ship yard
- Part 2 & 3 should be prepared by the ship owner prior to the final voyage



Hazardous Materials

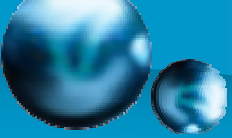
▪ **Definition** : harm to human health or the environment identified in the **IMDG Code**, the **Basel Convention**, or other international authorities or instruments.

▪ **List of hazardous materials by Recycling industry Code (Appendix 2 of IMO Guidelines)**

A. Operational Substances and Consumables (30 categories)

- .Cargo & Dry tank Residues,
- .Fuel oil, L.O, Greases & Anti-seize Compounds
- .Evaporator Dosing and Descaling Acid
- .Paints and Rust Stabilizers
- .Refrigerants (R12 or R22), HALON, CO2

-continued-



Hazardous Materials

- .Acetylene, Propane and Butane
- .Lead-acid Batteries
- .PCB and/or PCT and/or PBB
- .Mercury
- .Radio-active Material i.e. liquid level indicators
- .Miscellaneous Medicines & Chemicals
- .Plastics as covered by MARPOL
- .Perfluorocarbons (PFCs)

B. Toxic Materials (as part of the ship's structure)

1. Asbestos
2. Lead-based Paint Coatings on Ship.s Structure
3. Tin-based Anti-fouling Coatings on Ship.s Bottoms
4. Others



IMO Guidelines



Inventory of Hazardous Materials

Appendix 3 of IMO Guideline

PART 1 - POTENTIALLY HAZARDOUS MATERIALS IN THE SHIP'S STRUCTURE AND EQUIPMENT

1A. Asbestos (Note: All asbestos containing materials (ACMs) or presumed asbestos containing materials (PACMs) should be prominently labelled as such).

Type of Asbestos Materials (Board, Pipe lagging, Contained)	Location	Approximate quantity/volume
	Engine Room/Machinery Rooms	
	Steam supply piping and hangers (General)	
	Steam exhaust piping and hangers (General)	
	Relief & safety valves (General)	
	Miscellaneous piping outer covering and hangers (General)	
	Water pipes and hangers (General)	
	HP Turbine Insulation (General)	
	Boiler drums & casings (General)	
	Heaters, Tanks etc. (General)	
	Other (General)	
	Specific Machinery Locations e.g. Pump Room, Boiler Room	
	Accommodation	
	Sanitary & Commissary spaces (General)	
	Interior decks – including underlay (General)	

Caution!! Asbestos containing material (ACM) may be found underneath materials that do not contain asbestos.



IMO Guidelines



Inventory of Hazardous Materials

1B. Paint (on vessel's structure) - Additives

Additive (Lead, Tin, Cadmium, Organotins (TBTs), Arsenic, Zinc, Chromium, Strontium, Other)	Location

1C. Plastic Materials

Type	Location	Approximate quantity/volume

1D. Materials containing PCBs, PCTs, PBBs at levels of 50mg / kg or more

Material	Location	Approximate quantity/volume



IMO Guidelines



Inventory of Hazardous Materials

1E. Gases sealed in ship's equipment or machinery

Type	Location	Approximate quantity/volume
Refrigerants (R12/R22)		
HALON		
CO2		
Acetylene		
Propane		
Butane		
Oxygen		
Other (Specify)		

1F. Chemicals in ship's equipment or machinery

Type	Location	Approximate quantity/volume
Anti-seize Compounds		
Engine Additives		
Antifreeze Fluids		
Kerosene		
White Spirit		
Boiler/Water Treatment		
De-ioniser Regenerating		
Evaporator Dosing and Descaling Acids		
Paint/Rust Stabilisers		
Solvents/Thinners		
Chemical Refrigerants		
Battery Electrolyte		
Hotel Service Cleaners		
Other (Specify)		



IMO Guidelines



Inventory of Hazardous Materials

1G. Other Substances inherent in ship's machinery, equipment or fittings

Type	Location	Approximate quantity/volume
Lubricating Oil		
Hydraulic Oil		
Lead Acid Batteries		
Alcohol		
Methylated Spirits		
Epoxy Resins		
Mercury		
Radioactive Materials		
Other (Specify)		

Part 1. completed by		Date	



Development of New Convention

- 23rd Assembly, When adopting Guidelines, the issue making Guidelines mandatory was raised
- MEPC 51(2004), Establish C.G on Ship recycling
- MEPC 53(2005), Agreed develop a new mandatory instrument on recycling
- Assembly 24th(2005), Adopted resolution A.981(24) on New Legally Binding Instrument on Ship Recycling
- With this Res. MEPC was requested to develop a mandatory instrument
- MEPC 54(2006), Draft text submitted by Norway



General

- MEPC 54 ,55 & 56 Working Group on ship recycling discussed and further developed the draft text
- Proposed title of the Convention is the “International Convention for the Safe and Environmentally Sound Recycling of Ships”
- Target completion date is year of 2008 and will be adopted 2009 by diplomatic conference
- 100th Council (2008) will endorse data for diplomatic conference



General –Structure of Convention

Convention will consists of Articles, Annex & Appendix

- **Articles : 21 Articles**

- **Annex (Regulation)**

- Chapter 1: General Provisions
- Chapter 2: Requirements for Ships
 - .1 Part A : Design, Construction, Operation and Maintenance of Ships
 - .2 Part B : Preparation for Ship recycling
 - .3 Part C : Surveys and Certification
- Chapter 3: Requirements for Ship Recycling Facilities
- Chapter 4: Reporting Requirements

- **Appendix**



Convention - Articles

■.2 Definition :

- Hazardous material : liable to create hazards to human health and the environment
- Ship : a vessel of any type whatsoever operating or having operated in [an international voyage in] the marine environment

■.3 Application :

- Ships, ship recycling facilities
- Shall not apply to any ships less than 500 GT [and solely engaged in domestic voyages and recycled in the state]

■.8 Inspection of ships :

- Verifying that there is onboard a valid International Certificate for on Inventory of Hazardous Materials

■.17 Entry into force : No text is presented because should reflect the total content of a Convention



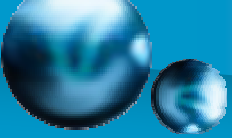
General - Regulation

▪ **New ship (Reg. 1) :**

- Contracted on or after the entry into force of the Convention
- Delivery on or after [30][12] months after the entry into force of the Convention

▪ **Inventory of Hazardous Materials (Reg. 5) :**

- New ship shall have onboard an Inventory
- Approved by the Administration
- Specific to each ship
- Identify as Part 1, hazardous materials listed in Appendix 1 & 2, their location and approximate quantities
- Prior to recycling incorporate Part II, Part III and be verified
- Existing ships shall prepare Part 1 as far as practicable not later than 5 years after the entry into force of the Convention



General - Regulation

- **Preparation for ship recycling (Ch II, Part B)**
 - Only be recycled at authorised recycling facilities
 - Minimize the amount of cargo residues, bunker residues and wastes
 - Complete the Inventory
 - Provide all available information to the recycling facility for the development of the ship recycling plan
 - Ship recycling plan must be developed (by the recycling facility)
 - Certified as ready for recycling by the Administration



General - Regulation

▪ **Surveys and certification (Ch II, Part C)**

- Initial, Periodical, Additional and Final survey
- Initial survey
 - .Before the ship is put in service
 - .Verify Part 1 of Inventory
 - .International Certificate on Inventory of Hazardous Materials shall be issued
- Periodical survey : Verify Part I of inventory at intervals not exceeding 5 years
- Final Survey :
 - .Verify that the Inventory of Hazardous materials and Ship recycling plan
 - .International Ready for Recycling Certificate shall be issued after a final survey



General Status

▪Involved Organization

- Legal matters : Korea Coast Guard, Ministry of Marine Affairs & Fisheries
- Ship builder : Korea Ship builders' Association
- Ship Owner : Korea Ship Owners' Association
- Vendors : Marine Equipment research institute
- Recycling Facility : No Recycling Facility in Korea

▪Major Activities

- IMO Working Group participation
- ISO TC8 Working Group 1
- New ship Owners' request on Green passport
- Korea ship yards' TFT on Ship Recycling & DSME preparation



Activities in Korea -Ship Recycling TFT

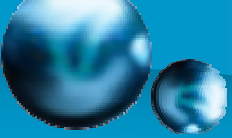


TFT Members

- DSME (Leading Company), SamSung, HanJin, Hyundai MiPo, Hyundai SamHo, HHI, STX, DSEC, KSA, KR
- Leader : Mr. W.H. Shin (DSME)
Secretary : Mr. I.G. Lee (DSME)
- E-mail Communication, Work Shop

TFT Target / Goals

- Standard Format of Green passport
- Review of Ship Recycling Plan
- Monitoring & Understanding of Mandatory IMO Convention
- Job Procedure & Process



Outcome of TFT

- Review and Understanding of IMO Guideline (A962.(23)) & New IMO Convention
- Review and Understanding of Ship Recycling Plan
- Develop Standard Green Passport format – applicable for all Korean ship yards
- Green Passport Job Procedure & Process review :
 - Set up Ship recycling related works, Role of each party, Vendor involvement
- Detail Provision for application : Vendor request Letter, Requesting Format, Involved cost, Key person



Introduction of TFT Output

■ **Standard Green Passport Format**

- Based on Appendix 3 of IMO Guideline A.962(23)
- Reflected output from IMO MEPC
- Set up documents contents : Vessel Identification, Introduction, Ship Executive Summary, Inventory, History

■ **Green Passport Job Procedure & Process**

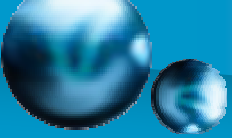
Set up various ship recycling related works

- Key person, Specification description
- Design Consideration
- Role of each party : Yard, Owner, Vendor
- Vendor involvement
- Detail Provision for preparation : Vendor request Letter, Vendor requesting Format, Internal guideline (procedure, activities and time)
- Involved cost evaluation : M/H, Classification fee



Green passport Statistics

- Number of ships prepared Green Passport in Korea :
about 65 vessels
- Ship Owners : KOTC, WALLENIOUS, EXMAR, VELA,
T&H, ANANGEL, AP MOLLER, BERGESEN, SHELL,
KRISTEN, BWSHIPPING, TEEKAY, NITC,
STARTANKER, LAURITZEN KOSAN A/S,
OLDENDORFF, GEM, GEDEN, SAMCO, THENAMARIS,
OOCL, EURONAV, ...
- Type of vessels : Crude Oil Tanker, Product Carrier, Ro-
Ro, LPGC, LNGC, Container, Bulk Carrier
- Number of ships applying GP, DSME
 - Completed : 23 vessels
 - On going & near future : 26 vessels



Remarks on preparation GP

- PCB : Polychlorinated biphenyl, not Print Circuit Board
- Some vendor record Asbestos as used material : to be checked whether misunderstanding or SOLAS permitted cases
- Some sub-contractor's sub-contract may refuse to inform used material. They consider it is kind of business confidential
- DNV CLEAN notation : DNV environmental notation CLEAN requires Green passport (Contracted after Jan, 2006)
- Classification fee is different from each Classes, to be checked. Fee for series vessel is different from first vessel.



Remarks on preparation GP

- Starting time of making Inventory : Keel laying – 2 months
- Completion of draft inventory : K/L – 1 month
- Volume of Inventory : about 25~30 page, 300~350 items
- Problem and unclear aspect of preparing GP
 - Minimum contents of material to be reported is not clear (MEPC 56/3/2 may be referred to, but materials are different)
 - List of material to be listed in Part 1 is not clear in the IMO guidelines.
- The first GP in the world approved by class(LR) is MV GRANATINA built in DSME for SHELL (2004)
- Quality of inventory need to be improved and getting improving due to experience of vendors.



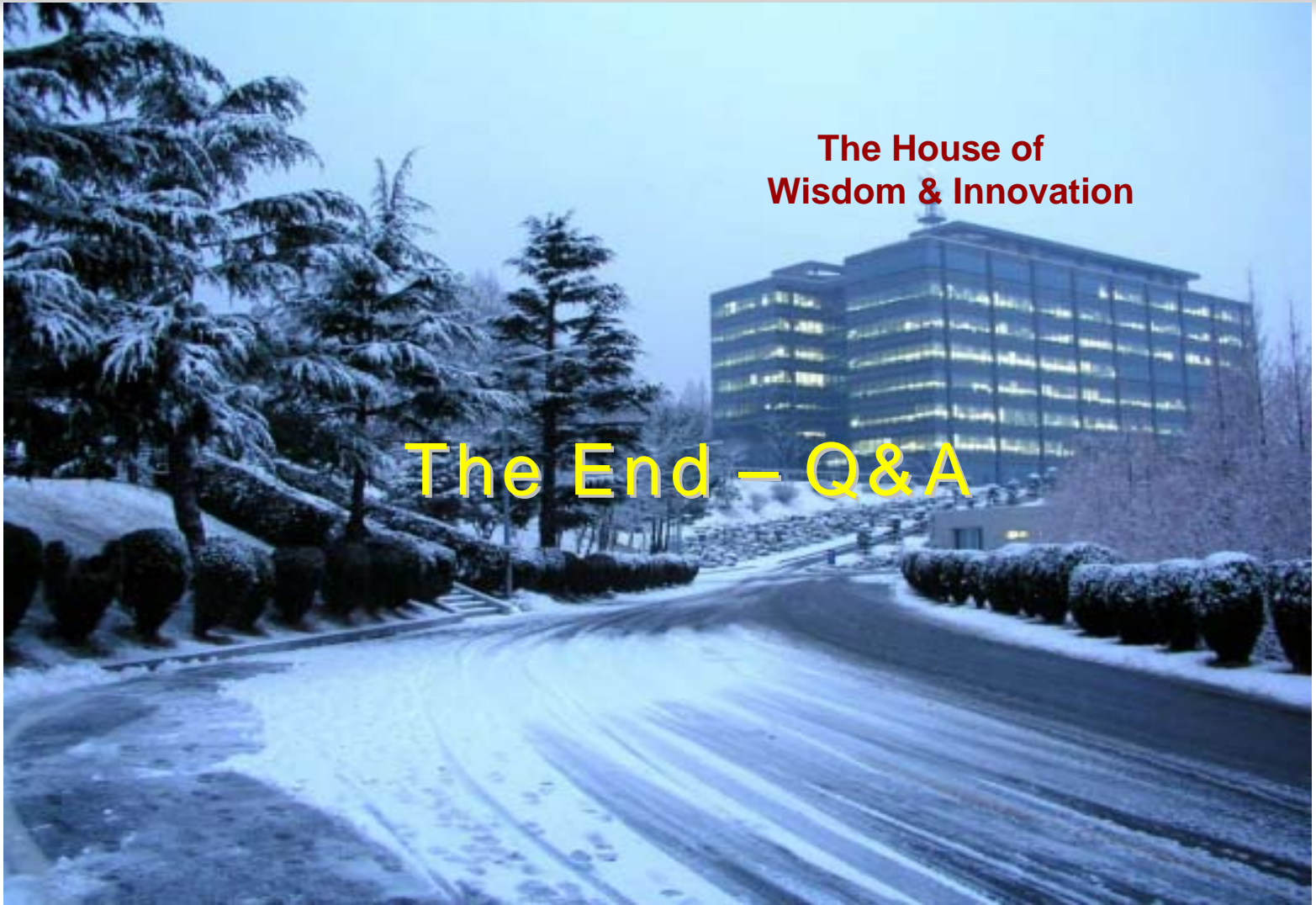
DSME Future Preparation

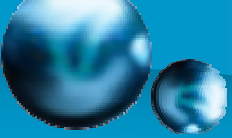
- Introduction of TFT result incl. GP format to outside
- Application of Standard Green passport format
- Feedback & Improvement of involved works
- Enhance involvement of Vendor & improve quality
- Make GP as routine usual work
- Continuous monitoring and review IMO activity
- Participation of IMO WG if necessary
- Readily applicability before Convention adoption
- Reasonable & Acceptable service to clients at early stage



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The End – Q&A





Ship Recycling TFT – Task of Parties



Ship Yard

- Identification of Hazardous material
 - Minimize the use of Hazardous materials
 - Preparation of the Green passport (Part I)
 - Ensure reliable Inventory of hazardous materials
 - Deliver “International Certificate for on Inventory of Hazardous Materials” (After Convention)
 - Design facilitating removal of Hazardous materials & recycling*
 - Limiting the use of materials difficult to recycle*
 - Enhance involvement of Vendor
- *It is not clear those design requirements will be included in the Convention



Ship Recycling TFT – Task of Parties



Ship Owner

- Updating & Preparation of Green passport (Especially Part II, III of the Inventory)
- Carrying “International Certificate on Inventory of Hazardous Materials” (After Convention)
- Update Certificate according to rule requirement
- Minimization of the use of potentially hazardous substances
- Minimization of waste generation
- Selection of the recycling facility & Contracting
- Provide ship information to the recycling facility
- Preparation of Recycling & Recycling Plan
- Preparations to prevent pollution
- Get the “International Ready for Recycling Certificate” (After Convention)

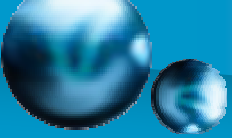


Ship Recycling TFT – Task of Parties



Vendor

- Identification of Hazardous material
 - Minimize the use of Hazardous materials
 - Design facilitating removal of Hazardous materials & recycling *
 - Limiting the use of materials difficult to recycle*
 - Preparation of Inventory of hazardous materials used in the equipment and include it in the V/D DWG
 - Ensure reliable Inventory of hazardous materials
 - Enhance involvement of sub-contractor
 - List up all used materials in the drawing
 - Declaration of conformity for Hazardous materials
- * Unclear in the Convention



Job Procedure - Internal

- Standard Spec. description : “Green Passport (Inventory of Potentially hazardous materials on board) according to IMO Res. A.962(23)”
- Cost evaluation : Classification fee, M/H
- Restrict use of hazardous materials prohibited in the MARPOL & other IMO convention such as Asbestos, TBT, PCB and ODS
- Key Man : Project Leader (Design)
- Initiate of Job : General term or independent request to Vendors at the K/L – 2 months
- Vendor requesting : Standard request letter, standard format for vendors, Brief introduction
- Hazardous materials : Materials mentioned in IMO Guidelines + Appendix 1 & 2 of draft convention



Requirements to Vendors

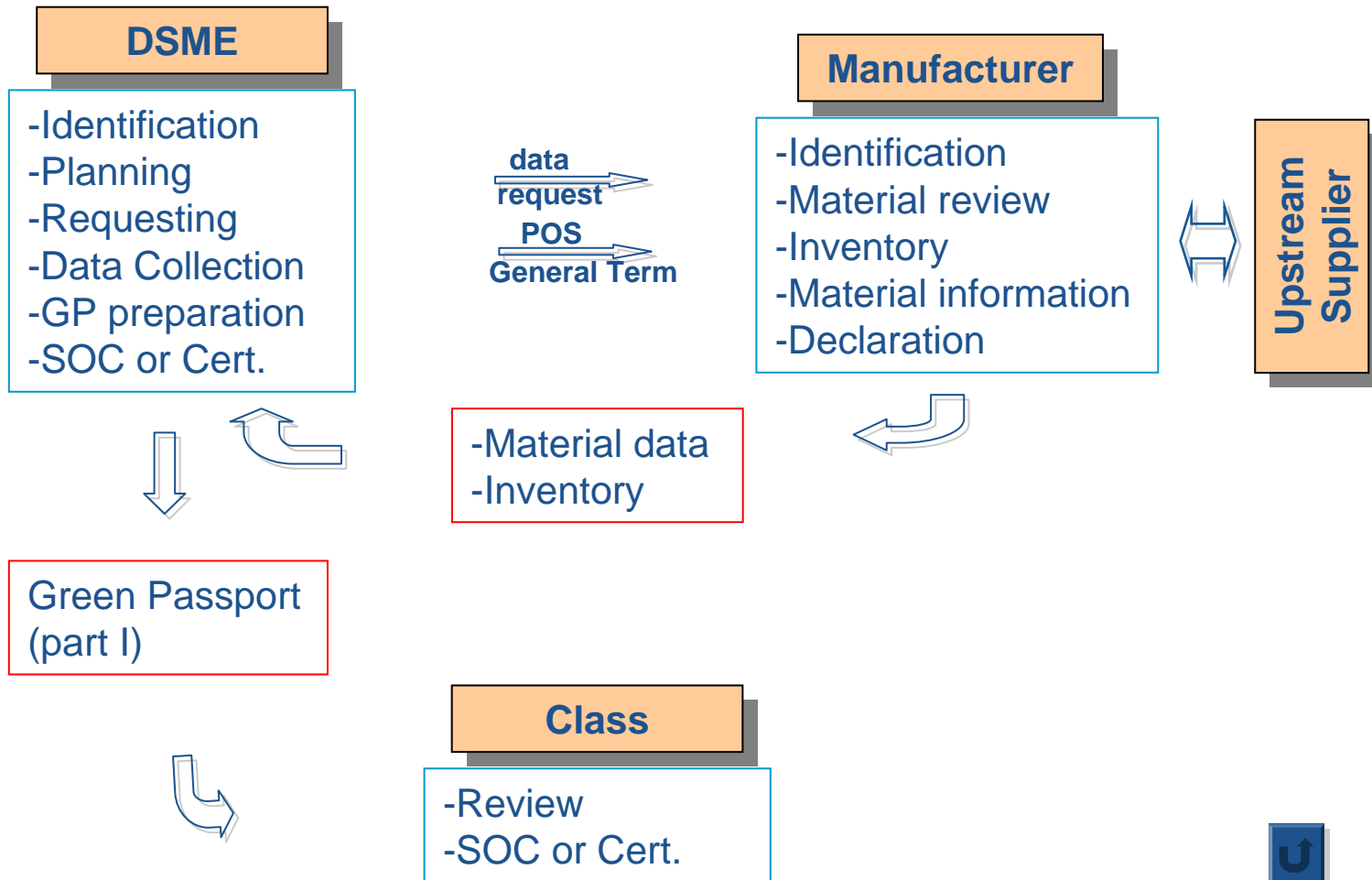
- General Term : Will be required in purchasing order specification to prepare inventory of Hazardous materials according to A.962(23) in General term if used
- Will be required to include Inventory in the V/D DWG
- Will be required to describe used material detail in the V/D DWG
- DSME requires Declaration of conformity by vendor (Vendor requesting format includes vendor's declaration)



Ship Recycling DSME



Green Passport Process





Standard GP format - Contents

- **Vessel Identification**
- **Introduction**
- **Potentially hazardous materials, which may be on board vessels delivered to recycling yards** (based on Appendix 2 of IMO A.962(23), & IMO draft Guideline for the development of Inventory by Japan & Germany)
- **Inventory of Potentially hazardous materials on Board**
 - Executive Summary
 - Part 1. Potentially dangerous materials in the ship's structure and equipment
 - Part 2. Operationally generated wastes
 - Part 3. Stores
- **Record of Changes**

Ship Recycling DSME

Standard GP format - Inventory

1B. Paint (on vessel's structure) - Additives

Additive (Lead, Tin, Cadmium, Organotins (TBTs), Arsenic, Zinc, Chromium, Strontium, Other)	Location

1C. Plastic Materials

Type	Location	Approximate quantity/volume



1B. Paint – Additives on vessel's structure



Name of Paint	Specified chemical substances	Location	Approximate Quantity
Anti fouling TIN Free AF		Under water (Flat bottom & side)	24,000 Liters

1C. Plastic Materials

Type	Location	System / Machinery	Approximate Quantity/Volume	Remarks
Garbage Bin	A Deck(Exposed Area)		7/24L	
C – PUC Pipe	(All Deck)		547Kg	



Ship Recycling DSME



Standard GP format – for vendors

Format for vendors

"GREEN PASSPORT"

Inventory of potentially hazardous materials

(In accordance to IMO resolution A.962(23) IMO Guidelines on Ship Recycling)

Vessel Identification

- IMO Number :
- Hull Number :
- Name of Vessel :
- Type of Ship :
- Port of Registry :
- Name of the Ship owner :
- Classification Society :
- Main Particular
 - Length overall : m
 - Breadth (Moulded) : m
 - Depth (Moulded) : m
- Name of the Shipbuilder : Daewoo Ship Building & Marine Engineering Co. Ltd.

Introduction

The green passport (Inventory of potential hazardous materials) for ships is a document facilitating the application of the Guidelines for Ship's Recycling, providing information with regard to materials known to be potentially hazardous utilized in the construction of the ship, its equipment and system.

Main reference is made to IMO Resolution A.962(23) "IMO Guidelines on Ship Recycling".

Further reference is made to the "Industry Code of Practice on Ship Recycling" and complement other international guidelines addressing this issue; notably those produced by the Conference of Parties to the Basel Convention on the Control of Trans boundary Movements of Hazardous Wastes and their Disposal focusing on issues related to ship recycling facilities.

The Green Passport should accompany the ship throughout its operating life.

Successive owners of the ship should maintain the accuracy of the Green Passport and incorporate into it all relevant design and equipment changes, with the final owner delivering the document, with the ship, to the recycling facility.

To this end, we kindly request you to complete the attached form, writing the details in the applicable columns when the components or equipment supplied by your company have any of the materials listed in the attached form. For details please refer to attached form.

POTENTIALLY HAZARDOUS MATERIALS WHICH MAY BE ON BOARD SHIPS DELIVERED TO RECYCLING FACILITIES

(Appendix 2 of A.962(23) based on Annex 1 to the "Industry Code of Practice on Ship Recycling, August, 2001")

This list is intended to be used for the identification of potentially hazardous materials.

- A. Operational Substances and Consumables
 - 1. Cargo Residues including Slops
 - 2. Dry tank Residues
 - 3. Fuel oil, Diesel oil, Gas Oil, Lubricating oil, Greases & Anti-seize Compounds
 - 4. Hydraulic oil
 - 5. Waste oils(contents of sludge tank)
 - 6. Antifreeze fluid
 - 7. Kerosene and White Spirit
 - 8. Boiler and Feed Water Treatment Chemicals
 - 9. Boiler and Feed Water Test Re-agents
 - 10. De-ioniser Regenerating Chemicals
 - 11. Evaporator Dosing and Descaling Acid
 - 12. Domestic Water Treatment Chemicals
 - 13. Paints and Rust Stabilizers
 - 14. Solvents and Thinners
 - 15. Refrigerants(R12 or R22)
 - 16. HALON
 - 17. CO2(in cylinders – engine room fire protecting)
 - 18. Acetylene, Propane and Butane
 - 19. Hotel Services Cleaners
 - 20. Lead-acid Batteries
 - 21. Battery Electrolyte
 - 22. PCB and / or PCP and / or PBB at levels of 50mg / kg or more.
 - 23. Mercury
 - 24. Radio-active Material i.e. liquid level indicators
 - 25. Miscellaneous Medicines
 - 26. Insecticide Spray
 - 27. Miscellaneous Chemicals such as Alcohol, Methylated Spirits, Epoxy Resins, etc.
 - 28. Plastics as covered by MARPOL
 - 29. Raw and Treated Sewage
- B. Toxic Materials (as part of the part ship's structure)
 - 1. Asbestos
 - 2. Lead-based Paint Coatings on Ship's Structure
 - 3. Tin-based Anti-fouling Coatings on Ship's Bottoms.
 - 4. Others.

Ship Recycling DSME



Standard GP format – for vendors

Items to be listed in the Inventory of Hazardous Materials (according to draft International convention for the safe and environmentally sound recycling of ships)

MEPC 56/3/2
ANNEX
Page 11

Appendix 1

Items to be listed in the Inventory of Hazardous Materials

TABLE A¹⁾ Materials Listed in Appendix 1 of the Convention
Obligatory for New and Existing Ships

No.	Materials	Inventory			Threshold level (to be developed)
		Part 1	Part 2	Part 3	
A-1	Asbestos	x			no threshold level
A-2	Polychlorinated Biphenyls (PCBs)	x			50 mg/kg
A-3	Ozone Depleting Substances	CFCs	x		no threshold level
		Halons	x		
		Other fully halogenated CFCs	x		
		Carbon Tetrachloride	x		
		1,1,1-Trichloroethane (Bethyl chloroform)	x		
		Hydrochlorofluorocarbons	x		
		Hydrobromofluorocarbons	x		
		Methyl bromide	x		
A-4	Organotin compounds	Bromochloromethane	x		2500 mg/kg
		Tributyl Tin	x		
		Tripentyl Tin	x		
		Tributyl Tin Oxide (TETO)	x		

TABLE B²⁾ Materials Listed in Appendix 2 of the Convention
Obligatory for New Ships and new installations; voluntary for Existing Ships

No.	Materials	Inventory			Threshold level (to be developed)
		Part 1	Part 2	Part 3	
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			1,000 mg/kg
B-6	Polybrominated Diphenyl Ethers (PBDEs)	x			1,000 mg/kg
B-7	Polychlorinated Biphenyls (more than 3 chlorine atoms)	x			no threshold level
B-8	Radioactive Substances	x			no threshold level
B-9	Certain Short-chain Chlorinated Paraffins (Alkanes, C10-C13, chloro)	x			1%

1) Items in Table A and Table B are identical with those of Appendix 1 and Appendix 2 of the Convention respectively.
Items in these tables are obliged to be listed in the inventory by Regulation 7 of the Annex of the Convention.

INVENTORY OF POTENTIALLY HAZARDOUS MATERIALS ON BOARD (Based on Paragraph 5 and Appendix 3 of IMO Res. A.962(23) as applicable)

Equipment name/description:	XXXXX	Material description reference no.:	
Manufacturer:	"Name"	Date:	
Contact Person:		Signed:	
Telephone no.:		E-mail address:	
Fax and cell no.:	XXXXX		
Signature/Declaration:	We declare whether our product contains materials mentioned in the A.962 and Appendix 1 & 2 of draft international convention for the safe and environmentally sound recycling of ships as below:		
Notes:	<p>A. Please enter Name, Type of material, location and quantity if your system/components have materials listed below.</p> <p>B. Please put a "0" in the box, or make other identification, when the identified potential dangerous material is not present.</p> <p>C. Entries in this box are offered for guidance as example only, please add or correct as applicable.</p>		

PART 1 POTENTIALLY DANGEROUS MATERIALS IN THE SHIP'S STRUCTURE AND EQUIPMENT

1A. Asbestos (Write if your system/components have Asbestos materials. If do not have, mark "n/a")

Type of Asbestos	Application	Location	Approximate Quantity
Not Applicable			

Caution: Asbestos containing material (ACM) may be found underneath materials that do not contain asbestos, also may be found as a parts and/or joints in the machinery.

1B. Paint - Additives on vessel's structure (Write Paint applied on vessel's structure with not nullifying)

Name of Paint	Specified chemical substances	Location	Approximate Quantity
Anti-fouling TBN Free AF	Zinc	Flat bottom & side	34,000 Lbms

1C. Plastic Materials (Write Location, System/Equipment and weight in kg if your system/components have following type of Plastic materials)

Type	Location	System / Machinery	Approximate Quantity/Volume	Remarks
Gastage Bin	A-Deck/Chopped Area		1104L	
C - PVC Pipe	1st Deck		847kg	
PVC				
GE/EP				
THERMOPLASTIC ELASTOMER				
POLYURETHANE FOAM				
ETHYLENE PROPYLENE RUBBER				
BUTYL RUBBER				
VISCOELASTIC				
NITRIL BUTADIENE RUBBER				
PTE				
VINYL				
MISCELLANEOUS PLASTIC (Specify)				