Asian Shipbuilding Experts' Forum for International Maritime Technical Initiative (ASEF), 15th November 2007

Outline of the Draft Guidelines for the Development of the Inventory of Hazardous Materials

Takeshi Naruse

National Maritime Research Institute, Japan

Contents

1. Progress of Ship Recycling Discussion in IMO
2. Overview of the Draft Guidelines for the Development of the Inventory of Hazardous Materials
3. Trends of Environmental Regulation in Other Industries
4. Points of Discussion

Progress of Ship Recycling Discussion in IMO

- **MEPC 47** (March 2002)
  Establishment of the Ship Recycling WG in MEPC

- **ASSEMBLY 23** (December 2003)
  Adoption of the IMO Guidelines on Ship Recycling (A.962(23))

- **ASSEMBLY 24** (December 2005)
  Request MEPC to develop a new legally binding instrument on ship recycling (A.981(24))

- **MEPC 54** (March 2006)
  Start development of the new legally binding instrument on ship recycling

- **MEPC 55** (October 2006); **MEPC 56** (July 2007)
  Japan and Germany submitted "Draft Guidelines for the Development of the Inventory of Hazardous Materials"

“IMO Guidelines on Ship Recycling” A.962(23)

Problem

Co-existence of three different lists of hazardous materials which cover different materials and use different terminology for materials was confusing to users.

- Duplication of materials should be avoided.
- Is Appendix3 a list or a format?
- Threshold level for declaration should be needed.
- Classification by location must be more convenient.

etc.

The Three Different Lists of H.M. in A.962(23) (1)

Appendix 1: List of hazardous wastes and substances that are relevant to ship recycling (from the Guidelines of Basel Convention)

Table 1 Wastes and substances that may be inherent in the ship structure

Wastes	Possible waste-location on the ship
A1 Metal and metal-bearing wastes	
A1010 Metal wastes and waste consisting of alloys of any of the following:	
Antimony *	alloys with lead in lead-acid storage batteries, solder
Beryllium *	hardening agent in alloys, fuel containers, navigational systems
Cadmium *	bearings
Lead	connectors, couplings, bearings
Mercury	thermometers, bearing pressure sensors
Tellurium *	in alloys
A1020 Waste having as constituents or contaminants, excluding metal waste in massive form, any of the following:	
Antimony; antimony compounds *	fire retardation in plastics, textiles, rubber, etc.
Cadmium; cadmium compounds	batteries, anodes, bolts and nuts
Lead; lead compounds	batteries, paint coatings, cable insulation

Terminology in Basel Convention

Terminology in Basel Convention

The Three Different Lists of H.M. in A.962(23) (2)

Appendix 2: Potentially hazardous materials which may be on board ships delivered to recycling facilities (from Industry Code of Practice)

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 fluids
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 Stabilisers
14.	Solvents and Thinners
15.	Refrigerants (R12 or R22)
16.	HALON
17.	CO2 (in cylinders - engine room fire protection)
18.	Acetylene, Propane and Butane
19.	Hotel Services Cleaners

The Three Different Lists of H.M. in A.962(23) (3)

Appendix 3: Inventory of potentially hazardous materials on board (from Industry Code of Practice)

List or Format?

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	

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

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

What is the point of listing all the paints including these additives (except TBTs) for Recycling Yard?

1C. Plastic Materials

Type	Location	Approximate quantity/volume

・What is the point of listing all Plastic Materials?
・They are used in so many places.

The Three Different Lists of H.M. in A.962(23) (4)

Appendix 3: Inventory of potentially hazardous materials on board (from Industry Code of Practice)

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

Material	Location	Approximate quantity/volume

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

Type	Location	Approximate quantity/volume
Refrigerants (R12/R22)		
HALON		
CO2		

・What is the point of listing gases such as "CO2" at the construction stage of new ships?
・It is enough to be listed just before recycling.

The Three Different Lists of H.M. in A.962(23) (5)

Appendix 3: Inventory of potentially hazardous materials on board (from Industry Code of Practice)

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)		

-What is the point of listing these commodities (ex. Hotel Service Cleaner, Cleaning Agent) at the construction stage of new ships?
-Their amounts always change during operation. They should be listed just before recycling.

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		

-Lead and Mercury don't have any threshold levels.
-How much detailed information is required?

It is obvious that **The Lists of H.M. in A.962(23) should be revised** considering the burden of Shipyards and Suppliers.

Discussion with regard to the Inventory (1)

Clarification of “Single List” and “Inventory” (MEPC53/WP.2)

55. The Working Group … agreed to the following clarifications:

.1 the “single list” should serve as a guidance document providing information on the potentially hazardous materials …

.2 the Inventory of potentially hazardous materials … provides ship-specific information on the actual potentially hazardous material on board the ship, …

56. … the Working Group agreed that there might be a need for the development of:

.1 a standard format of the Inventory of potentially hazardous materials;

.2 common survey and inspection guidelines to check the Inventory; and

.3 criteria for the selection of the materials to be listed in the Inventory.”

Discussion with regard to the Inventory (2)

Challenge 1: Establishing the "Single List" with proper material selection and threshold

Proposal for a standard format of the Inventory of Potentially Hazardous Materials and criteria for the selection of the materials to be listed in the Inventory (submitted by Japan; MEPC54/3/1)

MEPC 54/3/1 Annex 1 (Excerpts) – Reference table on how materials are covered by the existing instruments

Items	Inventory[2]			Regulations[3]	IMO Guidelines				
	Part1	Part2	Part3		APPENDIX 1[3]	APPENDIX 2	APPENDIX 3[4]		
							Part1	Part2	Part3
Kerosene	x		x		○ A3020,A4060, Table3	○	○ 1F		○ 3B
White Spirit	x		x		○ A3020,A4060, Table3	○	○ 1F		○ 3B
Lubricating Oil	x	x	x		○ A3020,A4060, Table3	○	○ 1G	○	○ 3C
Hydraulic Oil	x	x	x		○ A3020,A4060, Table3	○	○ 1G	○	○ 3C
Anti-seize Compounds	x		x			○	○ 1F[1]		○ 3B
Fuel Additive	x		x						

Discussion with regard to the Inventory (3)

Challenge 2: Standard Format of the Inventory

Proposal for a standard format of the Inventory of Potentially Hazardous Materials and criteria for the selection of the materials to be listed in the Inventory (submitted by Japan; MEPC54/3/1)

MEPC 54/3/1 Annex 2 (Excerpts) – Draft format of inventory hazardous materials on board

1.1 Liquids sealed in ship's machinery and equipment

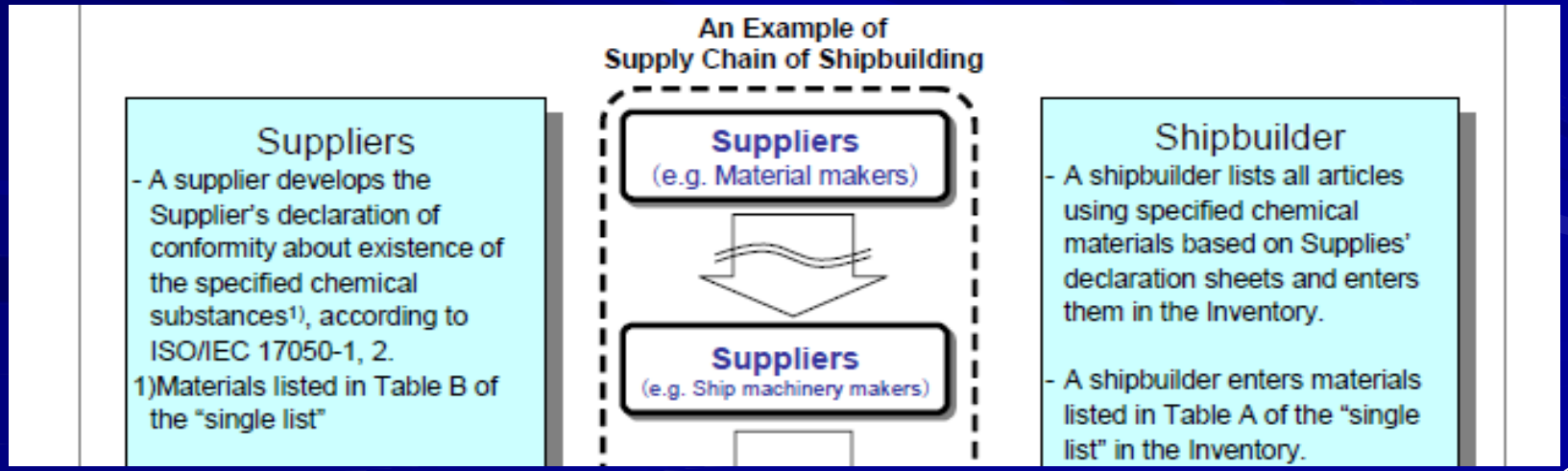
No.	Type of Liquids (Selection in the Single List)	Name of machinery or equipment	Location	Appx. Quantity		Remarks
1	Hydraulic Oil	Deck crane hydraulic oil pipe	Upper Deck	100	ltr	
		Deck machinery hydraulic oil pipe	Upper Deck and Bosun store	2000	ltr	
		Steering gear hydraulic oil pipe	Steering gear Room	500	ltr	
2	Lubricating Oil	Main engine pipeline	Engine Room	50	ltr	
3	Boiler Water Treatment	Boiler	Engine Room	10	ltr	

Discussion with regard to the Inventory (4)

Challenge 3: How to develop the Inventory

Proposal for the Guidelines for Survey and Inspection to verify the conformity of the Inventory of Potentially Hazardous Materials with the requirements of the new legally-binding instrument on recycling of ships (Submitted by Japan; MEPC54/3/7)

MEPC 54/3/7 Annex (Excerpts) – Flowchart of the System of Ensuring the Conformity of the “Inventory”



Proposal of the Draft Guidelines

Japan and Germany submitted “Draft Guidelines for the Development of the Inventory of Hazardous Materials” (MEPC55/3/1, MEPC56/3/2)

Philosophy of the development of the Guidelines

The Guidelines should provide essential requirements for practical and reasonable development of the Inventory.

In order to develop the Inventory, cooperation of all the players in shipbuilding supply chain is indispensable. Role of each player who comprises the supply chain should be clarified in the Guidelines.

- Material Declaration
- Supplier’s declaration of conformity
- Taking into account the special situation of existing ships

Contents of the Draft Guidelines

1 Introduction
2 Definition
3 Requirements for the Inventory
4 Requirements for development of the Inventory
5 Requirements to confirm the conformity of the Inventory
6 Material Declaration
7 Supplier's declaration of conformity
8 List of References

Appendix 1: Items to be listed in the Inventory of Hazardous Materials
Appendix 2: Standard Format of Inventory of Hazardous Materials
Appendix 3: Flow diagram for development of Part I of the Inventory for existing ships
Appendix 4: Typical example of development process for part I of the Inventory of existing ships
Appendix 5: Example form of Material Declaration
Appendix 4: Example form of Supplier's Declaration of Conformity
[Appendix 7: Details of Table A and Table B of Appendix 1 with CAS-numbers]

Materials to be listed in the Inventory

Table A is comprised of the materials listed in Appendix 1 of the Convention;

Table B is comprised of the materials listed in Appendix 2 of the Convention;

Table C (Potentially Hazardous Goods) is comprised of the goods which are potentially hazardous to the environment and human health of workers at ship recycling facilities

Table D (Regular Consumable Goods) is comprised of the goods which are not specific to a ship and are unlikely to be dismantled or treated at a ship recycling facility.

Table A

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

No.	Materials	
A-1	Asbestos	
A-2	Polychlorinated Biphenyls (PCBs)	
A-3	Ozone Depleting Substances	CFCs
		Halons
		Other fully halogenated CFCs
		Carbon Tetrachloride
		1,1,1-Trichloroethane (Methyl chloroform)
		Hydrochlorofluorocarbons
		Hydrobromofluorocarbons
		Methyl bromide
		Bromochloromethane
A-4	Organotin compounds	Tributyl Tins
		Triphenyl Tins
		Tributyl Tin Oxide (TBTO)

Table B

TABLE B: Materials Listed in Appendix 2 of the Convention
(Obligatory for New Ships and New Installations; voluntary for Existing Ships)

No.	Materials
B-1	Cadmium and Cadmium Compounds
B-2	Hexavalent Chromium and Hexavalent Chromium Compounds
B-3	Lead and Lead Compounds
B-4	Mercury and Mercury Compounds
B-5	Polybrominated Biphenyl (PBBs)
B-6	Polybrominated Dephenyl Ethers (PBDEs)
B-7	Polychloronaphthalanes (more than 3 chlorine atoms)
B-9	Certain Shortchain Chlorinated Paraffins (Alkanes, C10-C13, chloro)

Table C

TABLE C: Potentially Hazardous Goods

<Liquids>

Kerosene, Lubricating Oil, Hydraulic Oil, Anti-seize Compounds, Fuel Additive, Engine Coolant Additives, Antifreeze Fluids, etc.

<Gases>

Acetylene, Propane, Butane, Oxygen, CO2, Perfluorocarbons (PFCs), etc.

<Solids>

Dry Cargo Residues, Medical Waste/Infectious Waste, Incinerator Ash, Garbage, Fuel Tank Residues, Oily Solid Cargo Tank Residues, etc.

Table D

TABLE D: Regular Consumable Goods

No.	Properties	Example
D-1	Household appliances	Refrigerators, Freezers, Microwaves, Toasters, Fryers, Coffee machines, Other appliances used for cooking including Cutlery, Pans, Chinaware, Cups and Glasses, Washing machines, Clothes dryers, Dish washing machines, Irons, Vacuum cleaners, hairdryers
D-2	IT and telecommunications equipment	Personal computers, Notebook computers, Typewriters, Printers, Copying equipment, Pocket and desk calculators, Facsimile, Telephones, Remote controls
D-3	Consumer equipment	Radio sets, Television sets, Video cameras, Video recorders, Musical instruments, Gambling Machines,
D-4	Lighting equipment	Fluorescent lamps, Filament bulbs, lamps
D-5	Electrical and electronic tools	Drills, Saws, Sewing machines
D-7	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

Standard format of the Inventory

The Inventory should be developed using the standard format set out in Appendix 2 of the Guidelines.

Part1 HAZARDOUS MATERIALS CONTAINED IN THE SHIP'S STRUCTURE AND EQUIPMENT

1.1 Paints and Coating Systems containing materials listed in Table A and Table B of Appendix 1of the Guidelines

No.	Application of Paint	Name of Paint	Location	Materials (Classification in Appendix 1)	Appx. Quantity		Remarks
1	Anti-drumming compound	Primer, x xCo., xxprimer #300	Hull part	Lead	30	kg	
2	Antifouling	xx Co., xx coat #100	Underwater parts	TBT	20	kg	

1.2 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 of Use	Appx. Quantity		Remarks
1	Switch Board	Engine Control Room	Lead	Solder and electric contact	200	mg	
			Mercury	Heat gauge	10	mg	
2	~~Diesel Engine, xx Co., xx #150~~	~~Engine room~~	~~Cadmium~~	~~Bearing~~	~~100~~	~~mg~~	
3	Diesel Engine, xx Co., xx #150	Engine room	Cadmium	Bearing	50	mg	Revised by XXX on Oct. XX, 2008

Development of Part I of the Inventory of new ships

Part I of the Inventory of new ships should be developed at design and construction stage.

Check on the materials listed in Table A and Table B should be required during development of Part I.

These check should be based on "**Material Declaration**" provided in section 6 of the Guidelines.

Maintenance and update of the Inventory

Maintenance and update of Part I

Part I of the Inventory should be maintained and updated during operation, especially checking at trade, repair and conversion of a ship.

Development of Part II and Part III

Part II (Operationally generated wastes) and Part III (Stores) should be developed before final survey.

Regular consumable goods (Table D) should be listed in **Part III** of the Inventory. The check on the materials listed in Table A and Table B should not be applied.

Material Declaration

Suppliers on shipbuilding supply chain should identify and declare that their supplied products (e.g., machinery, equipment, materials and paints) contain materials listed in Table A and Table B.

Information required in the declaration

[.1 Date of declaration

.2 Company name of supplier

.3 Product name

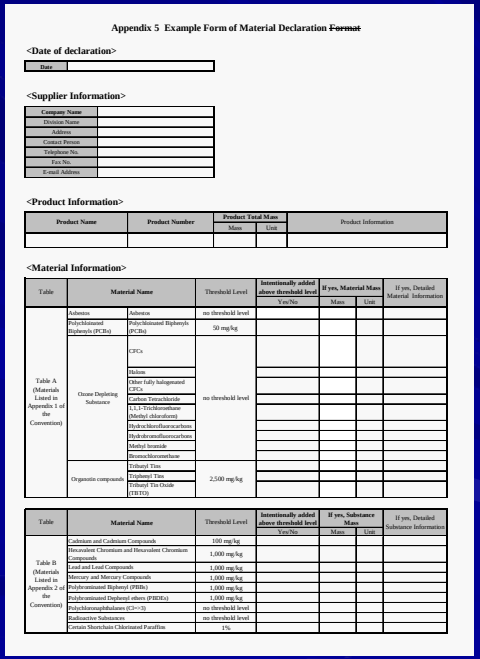
.4 Product number

.5 Product Total Mass

.6 Material name

.7 Declaration of “Intentionally added”

.8 Material mass]



Appendix 5 Example Form of Material Declaration ~~Format~~

<Date of declaration>

Date	

<Supplier Information>

Company Name	
Division Name	
Address	
Contact Person	
Telephone No.	
Fax No.	
E-mail Address	

<Product Information>

Product Name	Product Number	Product Total Mass		Product Information
		Mass	Unit	

<Material Information>

Table	Material Name		Threshold Level	Intentionally added above threshold level	If yes, Material Mass		If yes, Detailed Material Information
				Yes/No	Mass	Unit	
Table A (Materials Listed in Appendix 1 of the Convention)	Asbestos	Asbestos	no threshold level				
	Polychlorinated Biphenyls (PCBs)	Polychlorinated Biphenyls (PCBs)	50 mg/kg				
	Ozone Depleting Substance	CFCs	no threshold level				
		Halons					
		Other fully halogenated CFCs					
		Carbon Tetrachloride					
		1,1,1-Trichloroethane (Methyl chloroform)					
		Hydrochlorofluorocarbons					
		Hydrobromofluorocarbons					
		Methyl bromide					
		Bromochloromethane					
	Organotin compounds	Tributyl Tins	2,500 mg/kg				
		Diphenyl Tins					
		Tributyl Tin Oxide (TBTO)					

Table	Material Name	Threshold Level	Intentionally added above threshold level	If yes, Substance Mass		If yes, Detailed Substance Information
			Yes/No	Mass	Unit	
Table B (Materials Listed in Appendix 2 of the Convention)	Cadmium and 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				
	Polybrominated Biphenyl (PBBs)	1,000 mg/kg				
	Polybrominated Diphenyl ethers (PBDEs)	1,000 mg/kg				
	Polychloronaphthalenes (Cx>=3)	no threshold level				
	Radioactive Substances	no threshold level				
	Certain Shortchain Chlorinated Paraffins	1%				

Example form of Material Declaration

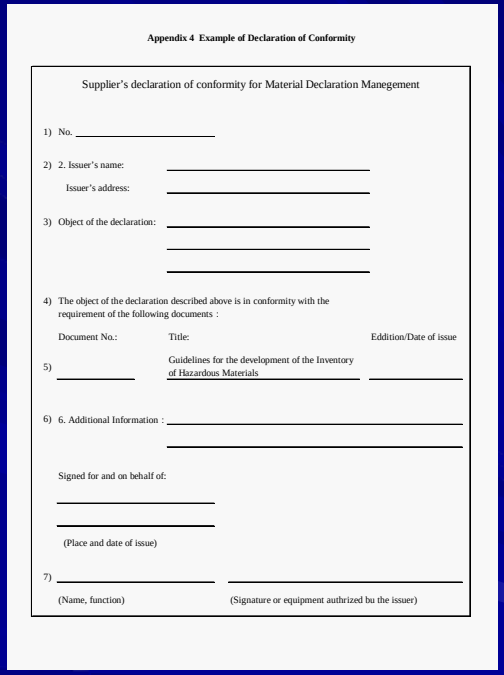
Supplier’s declaration of conformity

Conformity of Material Declaration should be confirmed by “**Supplier’s declaration of conformity**”.

Requirements*

1. Establishment of the company policy
2. Compliance with law
3. Clarification of the management and responsibility
4. Acquisition of information on chemical substance content
5. Notification of the revised information on the chemical substance contents
6. Documentation and its management
7. Internal audit of implementation
8. Review by management

*ISO9001 and ISO14001 certification can substitute with the requirements.



Appendix 4 Example of Declaration of Conformity

Supplier’s declaration of conformity for Material Declaration Manegement

1) No. _____

2) 2. Issuer’s name: _____

Issuer’s address: _____

3) Object of the declaration: _____

_____

_____

4) The object of the declaration described above is in conformity with the requirement of the following documents :

	Document No.:	Title:	Eddition/Date of issue
5)	_____	Guidelines for the development of the Inventory of Hazardous Materials	_____

6) 6. Additional Information : _____

_____

Signed for and on behalf of:

_____

_____

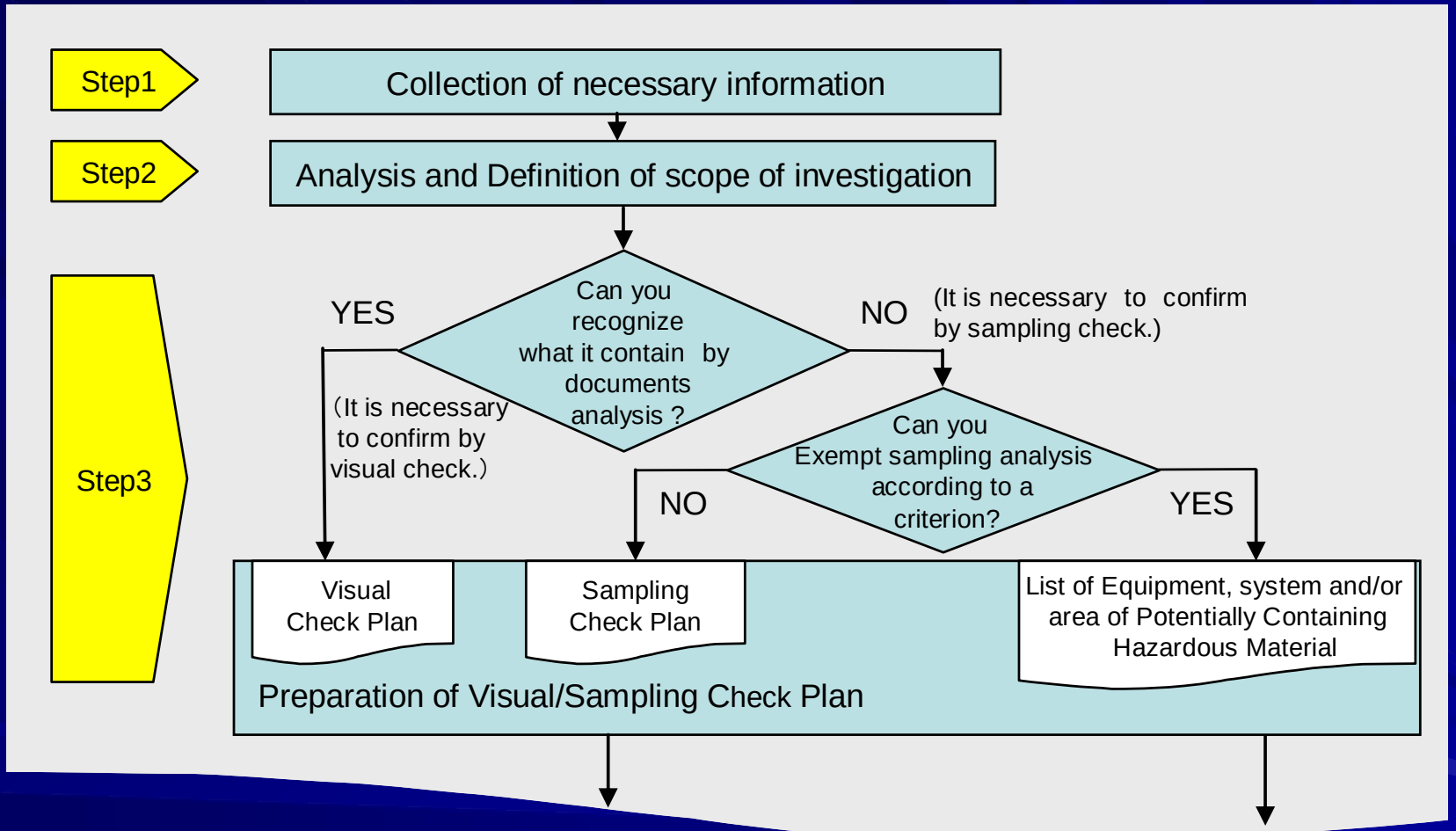
(Place and date of issue)

7) _____ _____

(Name, function) (Signature or equipment authrized bu the issuer)

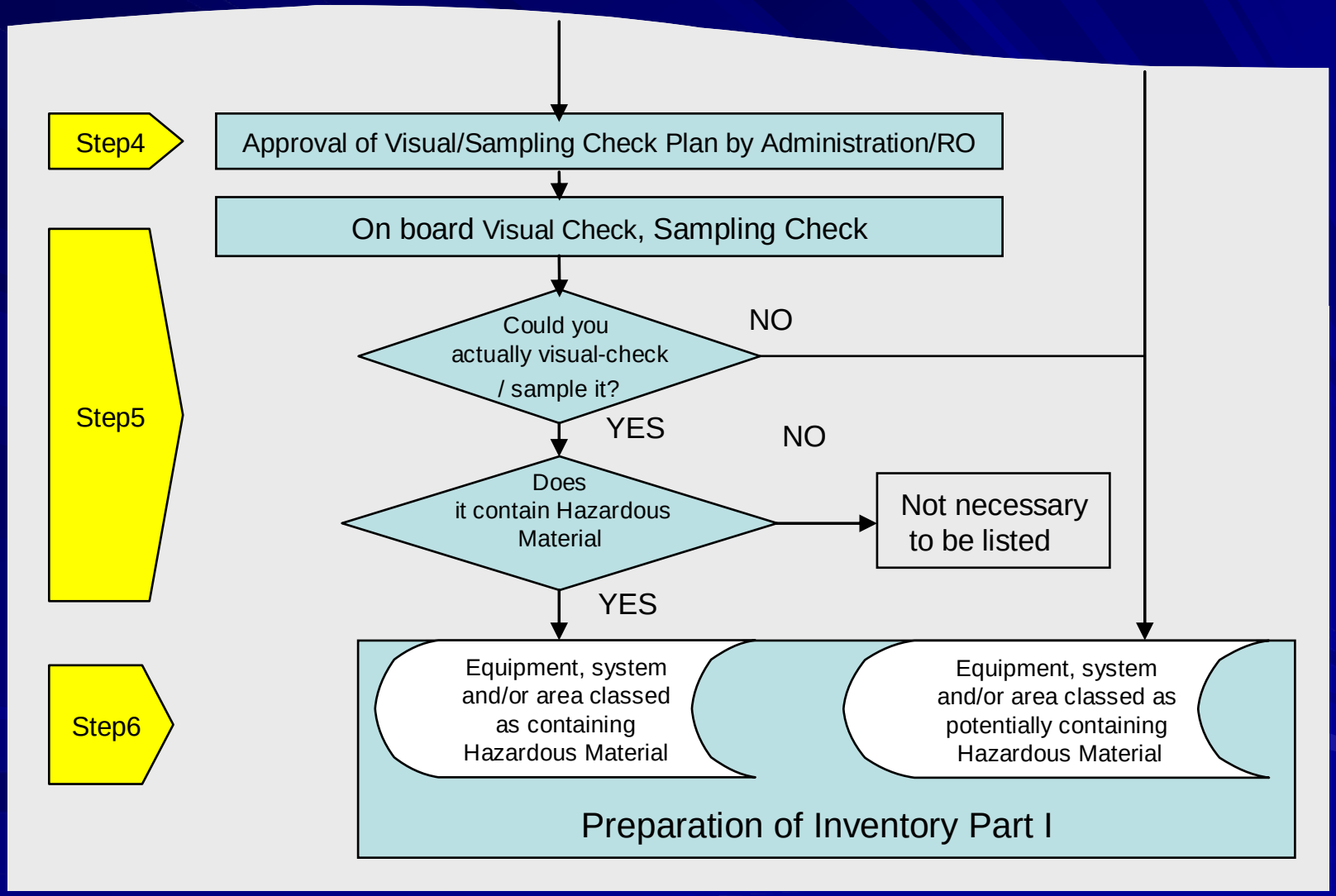
Example form of Supplier’s Declaration of Conformity

Development of Part I of the Inventory of existing ships (1)



Flow Diagram for Development of Part I of the Inventory for existing ships (1/2)

Development of Part I of the Inventory of existing ships (2)



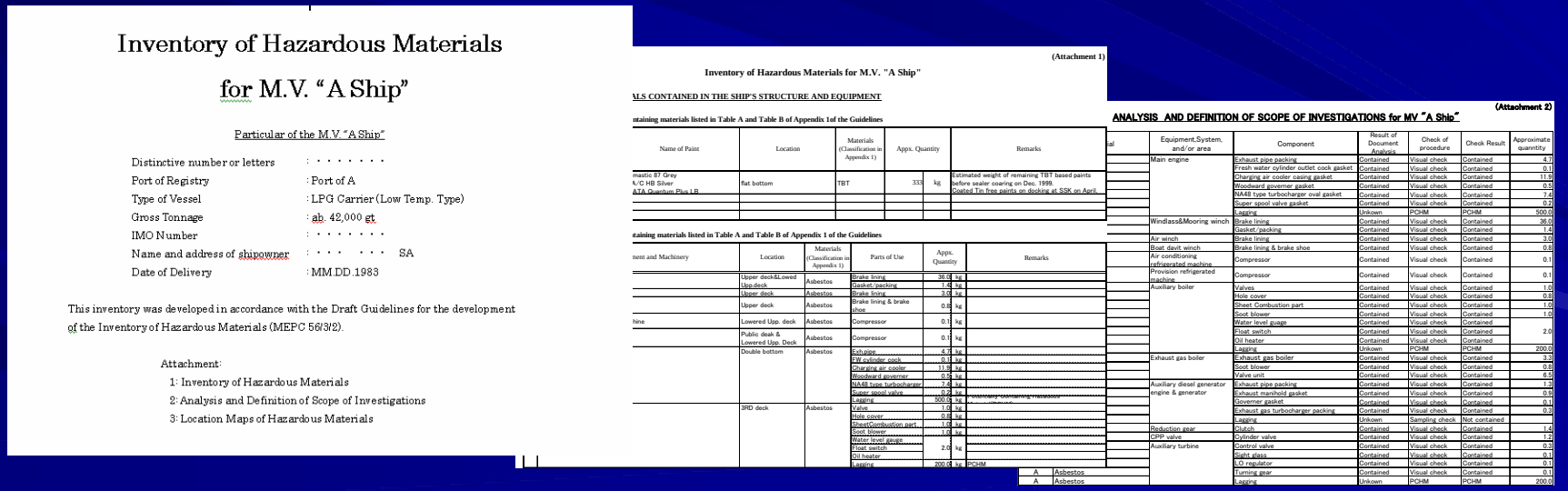
Flow Diagram for Development of Part I of the Inventory for existing ships (2/2)

A Sample of Part I of the Inventory for existing ships

Japan has tried to develop Part I of the Inventory for existing ships based on procedure provided in the draft guidelines.

- Completion of draft inventory: **About 4 weeks**
- Volume of the Inventory: **1 - 2 pages**

※ Part I of the Inventory for new ships are also trying to be developed.



Inventory of Hazardous Materials

for M.V. "A Ship"

Particular of the M.V. "A Ship"

Distinctive number or letters	: ・・・・・・・・
Port of Registry	: Port of A
Type of Vessel	: LPG Carrier (Low Temp. Type)
Gross Tonnage	: ab. 42,000 gt
IMO Number	: ・・・・・・・・
Name and address of shipowner	: ・・・ ・・・ SA
Date of Delivery	: MM.DD.1983

This inventory was developed in accordance with the Draft Guidelines for the development of the Inventory of Hazardous Materials (MEPC 56/3/2).

Attachment:

1: Inventory of Hazardous Materials
2: Analysis and Definition of Scope of Investigations
3: Location Maps of Hazardous Materials

(Attachment 1)

Inventory of Hazardous Materials for M.V. "A Ship"

ALS CONTAINED IN THE SHIP'S STRUCTURE AND EQUIPMENT

ntaining materials listed in Table A and Table B of Appendix 1of the Guidelines

Name of Paint	Location	Materials (Classification in Appendix 1)	Appx. Quantity		Remarks
mastic 87 Grey k/C HB Silver ATA Quantum Plus LB	flat bottom	TBT	333	kg	Estimated weight of remaining TBT based paints before sealer coaring on Dec. 1999. Coated Tin free paints on docking at SSK on April.

ntaining materials listed in Table A and Table B of Appendix 1 of the Guidelines

nent and Machinery	Location	Materials (Classification in Appendix 1)	Parts of Use	Appx. Quantity		Remarks
	Upper deck&Lowed Upp.deck	Asbestos	Brake lining	36.0	kg	
			Gasket/packing	1.4	kg	
	Upper deck	Asbestos	Brake lining	3.0	kg	
	Upper deck	Asbestos	Brake lining & brake shoe	0.8	kg	
hine	Lowered Upp. deck	Asbestos	Compressor	0.1	kg	
	Public deak & Lowered Upp. Deck	Asbestos	Compressor	0.1	kg	
	Double bottom	Asbestos	Exh.pipe	4.7	kg	
			F/W cylinder cock	0.1	kg	
			Charging air cooler	11.8	kg	
			Woodward governor	0.5	kg	
			NA48 type turbocharger	7.4	kg	
			Super spool valve	0.2	kg	
			Lagging	500.0	kg	
	3RD deck	Asbestos	Valve	1.6	kg	
			Hole cover	0.8	kg	
			Sheet/Combustion part	1.0	kg	
			Soot blower	1.0	kg	
			Water level gauge			
			Float switch	2.0	kg	
			Oil heater			
			Lagging	200.0	kg	PCHM
		A	Asbestos			
		A	Asbestos			

(Attachment 2)

ANALYSIS AND DEFINITION OF SCOPE OF INVESTIGATIONS for MV "A Ship"

al	Equipment,System, and/or area	Component	Result of Document Analysis	Check of procedure	Check Result	Approximate quantity
	Main engine	Exhaust pipe packing	Contained	Visual check	Contained	4.7
		Fresh water cylinder outlet cock gasket	Contained	Visual check	Contained	0.1
		Charging air cooler casing gasket	Contained	Visual check	Contained	11.8
		Woodward governer gasket	Contained	Visual check	Contained	0.5
		NA48 type turbocharger oval gasket	Contained	Visual check	Contained	7.4
		Super spool valve gasket	Contained	Visual check	Contained	0.2
		Lagging	Unkown	PCHM	PCHM	500.0
	Windlass&Mooring winch	Brake lining	Contained	Visual check	Contained	36.0
		Gasket/packing	Contained	Visual check	Contained	1.4
	Air winch	Brake lining	Contained	Visual check	Contained	3.0
	Boat davit winch	Brake lining & brake shoe	Contained	Visual check	Contained	0.8
	Air conditioning refrigerated machine	Compressor	Contained	Visual check	Contained	0.1
	Provision refrigerated machine	Compressor	Contained	Visual check	Contained	0.1
	Auxiliary boiler	Valves	Contained	Visual check	Contained	1.6
		Hole cover	Contained	Visual check	Contained	0.8
		Sheet Combustion part	Contained	Visual check	Contained	1.0
		Soot blower	Contained	Visual check	Contained	1.0
		Water level guage	Contained	Visual check	Contained	
		Float switch	Contained	Visual check	Contained	2.0
		Oil heater	Contained	Visual check	Contained	
		Lagging	Unkown	PCHM	PCHM	200.0
	Exhaust gas boiler	Exhaust gas boiler	Contained	Visual check	Contained	3.3
		Soot blower	Contained	Visual check	Contained	0.8
		Valve unit	Contained	Visual check	Contained	5.5
	Auxiliary diesel generator engine & generator	Exhaust pipe packing	Contained	Visual check	Contained	1.3
		Exhaust manihold gasket	Contained	Visual check	Contained	0.9
		Governer gasket	Contained	Visual check	Contained	0.1
		Exhaust gas turbocharger packing	Contained	Visual check	Contained	0.3
		Lagging	Unkown	Sampling check	Not contained	
	Reduction gear	Clutch	Contained	Visual check	Contained	1.4
	CPP valve	Cylinder valve	Contained	Visual check	Contained	1.2
	Auxiliary turbine	Control valve	Contained	Visual check	Contained	0.3
		Sight glass	Contained	Visual check	Contained	0.1
		LO regulator	Contained	Visual check	Contained	0.1
		Turning gear	Contained	Visual check	Contained	0.1
		Lagging	Unkown	PCHM	PCHM	200.0

A Sample of Part I of the Inventory for existing ships (excerpts)

Trends of Environmental Regulation in Other Industries (1)

Europe 

ELV Directive 

DIRECTIVE 2000/53/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 September 2000 on end-of life vehicles

Article 4 **Prevention**

2. (a) Member States shall ensure that materials and components of vehicles put on the market **after 1 July 2003** do not contain **lead**, **mercury**, **cadmium** or **hexavalent chromium** …

Trends of Environmental Regulation in Other Industries (2)

RoHS Directive

DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

Article 4 **Prevention**

1. Member States shall ensure that, **from 1 July 2006**, new electrical and electronic equipment put on the market does not contain **lead**, **mercury**, **cadmium**, **hexavalent chromium**, **polybrominated biphenyls (PBB)** or **polybrominated diphenyl ethers (PBDE)**.

Trends of Environmental Regulation in Other Industries (3)

Japan

J-MOSS The marking for presence of the specific chemical substances for electrical and electronic equipment (JIS C0950:2005)

Obligation to **provide information** on chemical substances contained in **home appliances and PCs** from **July 1, 2006**

Target chemical substances

lead, mercury, cadmium, chromium IV, PBB and PBDE

Target products

Home appliances and PCs

Trends of Environmental Regulation in Other Industries (4)

China

Measures for the Administration of the Control of Pollution by Electronic Information Products

Article 13

Producers and importers of electronic information products shall **mark the toxic or hazardous substances or elements** contained in the electronic information products that they launch in the market, …

Entry into Force: **March 1, 2007**

Target substances

lead, mercury, cadmium, chromium IV, PBB and PBDE and other toxic and hazardous substances or elements specified by the States

Target products: Electronic information products

Trends of Environmental Regulation in Other Industries (5)

Korea 

Act for Resource Recycling of Electrical and Electronic Equipment and Vehicles

Article 9

…manufacturers or importers … shall **comply with the concentration limits of such hazardous substances as heavy metals and flame retardants**, which are stipulated by the Presidential Decree and have high potential of environmental pollution,…

Entry into Force: **January 1, 2008**

Target substances

lead, mercury, cadmium, chromium IV, PBB and PBDE

Target products

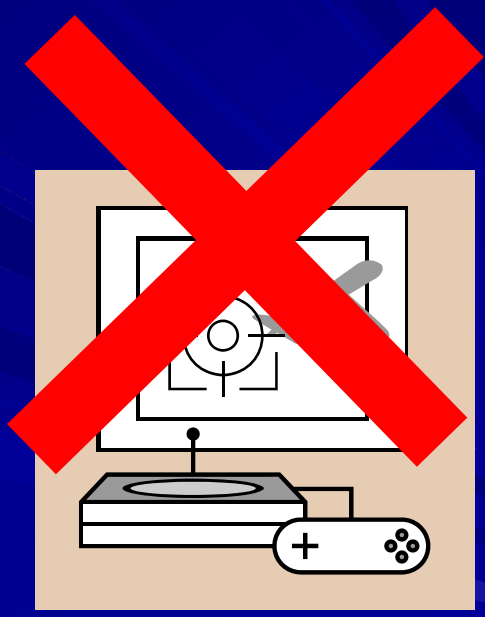
Electrical and Electronic Equipment and Vehicles

The Cost of Non-compliance

Sony Playstation seizure in Netherlands

On December 4th of 2001, CNN reported on the Netherlands government seizure of 1.3 million Sony Playstation game machines. The estimated value of the items seized was $162 million US. The reason: Cadmium in some of the cables.

(http://www.rohswell.com/News/rohs003.php)



Points of Discussion (1)

Point 1

Involvement from early stage of the discussion with manufacturer's points of view is very important for making a practicable and reasonable rule and its universal implementation.

MEPC Documents with regard to the Inventory submitted by Japan

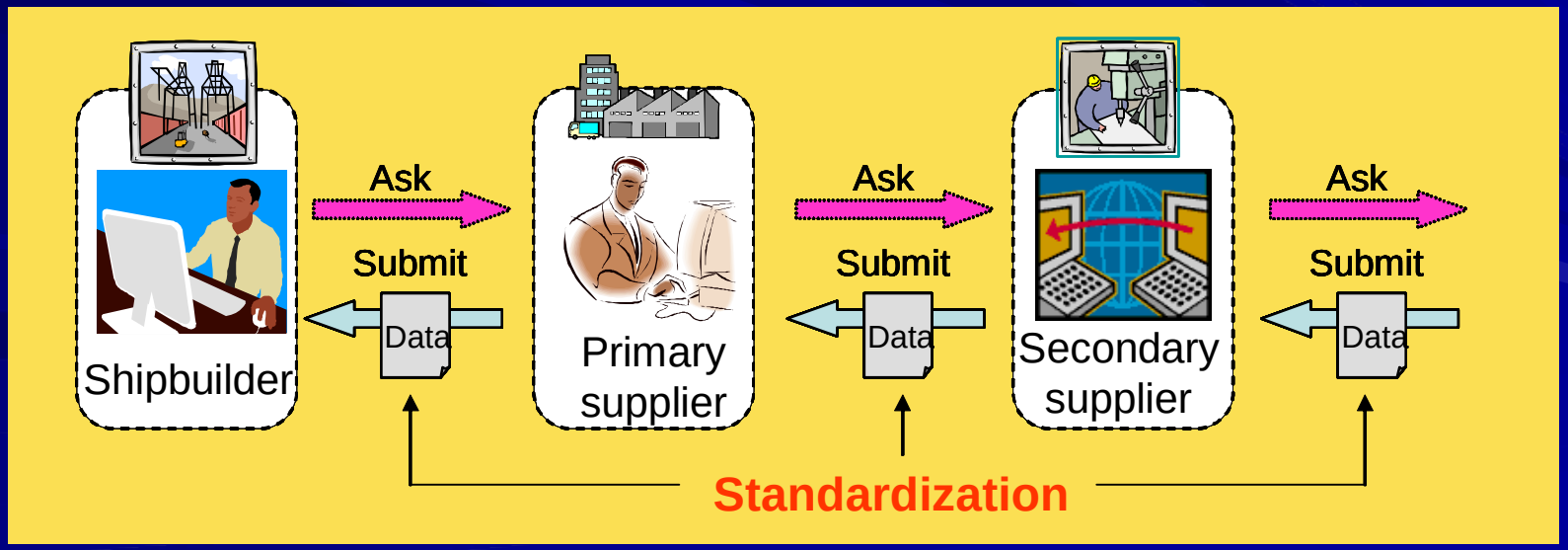
- Research on a system to facilitate the preparation of the Green Passport (MEPC52/3/8)
- Proposal for a standard format of the Inventory of Potentially Hazardous Materials and criteria for the selection of the materials to be listed in the Inventory (MEPC54/3/1)
- Draft Guidelines for the development of the Inventory of Hazardous Materials (MEPC55/3/1, Japan and Germany)
- Comments on regulation B-I-4 of the draft Convention regarding the Inventory of Hazardous Materials for existing ships (MEPC55/3/9)
- Draft Guidelines for the development of the Inventory of Hazardous Materials (MEPC56/3/2, Japan and Germany)
- Explanatory Notes: Development of the Inventory of Hazardous Materials (MEPC56/3/15)

Points of Discussion (2)

Point 2

Management system of chemical substances throughout shipbuilding supply chain, including data exchange of "Material Declaration", should be established in proper way.

Standardization of the method and format of data exchange in supply chain helps the development of the Inventory by assisting the suppliers' quick response and easy construction of a database.



Conclusion

IMO/MEPC has been developing “the draft International Convention for the Safe and Environmentally Sound Recycling of Ships”.

Japan and Germany submitted the draft text of the Guidelines for the development of the Inventory of Hazardous Materials.

Points of Discussion

(1) Involvement from early stage of the discussion with manufacturer’s points of view
(2) Management system of chemical substances throughout shipbuilding supply chain