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SAFETY DATA SHEETS FOR CHEMICAL TANKERS

An Information Paper for Industry

Introduction & Scope

Safety Data Sheets (SDS) or Material Safety Data Sheets (MSDS) are documents which convey hazard information to anyone who may be involved in the preparation, handling, use and/or carriage of substances or mixtures that may be hazardous or may contain hazardous ingredients. These could be workers, health and safety professionals, emergency personnel, governmental and non-governmental agencies, transport personnel and anyone else that may require this information.

This information paper has been compiled to assist anyone (Seafarers, Manufacturers, Shippers, Port State Control Officers, National and International Authorities) associated with the carriage of liquids in bulk (chemicals and other products subject to the International code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk – the IBC Code).

It aims to provide the reader with an overview of the regulatory environment which mandates the provision of information in the form of Safety Data Sheets as well as providing an overview of the structure of the Data Sheets. The information in this document is a brief overview; readers should refer to the regulations and other resource documents for detailed information on the requirements for Safety Data Sheets.

Requirements for Chemical Tankers

Regulation 16.2.2 of the IBC Code (which is mandatory for chemical tankers under both SOLAS and MARPOL) states that the product name listed in chapter 17 or 18 of the Code or the latest edition of the MEPC.2/Circ must be included on the shipping document for any cargo offered for shipment in bulk.

For practical purposes, the shipping document is normally the Bill of Lading (B/L), however, the IMO has developed an 'optional shipping document' as described in BLG.1/Circ.18 of 24 May 2006 which may be used in circumstances where the B/L does not show the product name as per the IBC code.

Regulations 16.2.6 and 16.2.9 of the IBC code make reference to requirements for viscosity and/or melting point information that must accompany certain cargoes. Where this requirement appears in column "o" of the IBC code this information must be provided on the shipping document.

It is not the responsibility of the ship's Master to verify cargo identification or specifications. Loading should not commence before the ship's Master is satisfied that the Shipper has provided the necessary information for safe handling of the cargo and it is available to the personnel involved.

Regulation 16.2.3.1 of the IBC Code states that information shall be on board and available to all concerned, giving the necessary data for the safe carriage in bulk. IMO Circulars, MSC/Circ. 1100 and MEPC./Circ.407, state that in addition to the provisions of paragraph 16.2 of the IBC Code, any cargo offered for shipment in bulk which is subject to chapters 17 and 18 of the IBC Code should be accompanied by safety data sheets based on the format contained in chapter 1.5 of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

The Contents of a Safety Data Sheet

An SDS/MSDS provides hazard information on substances or mixtures and should be structured in a clear, concise and consistent manner. It should be compiled by the manufacturer of the substance or mixture and provided to the ship by the shipper.

The length and content of the SDS/MSDS will depend on the nature of the substance or mixture and the associated hazards. It is important however, that the language used in the document is simple, clear and precise and should avoid the use of jargon, acronyms and abbreviations. Vague phrases such as "no health effects", "may be dangerous", "safe under most conditions of use" or "harmless" should not be used without additional content or information.

Information in an SDS/MSDS should be presented in the recommended 16-section format and in the order given below. The length of an SDS/MSDS is not fixed and is commensurate with the hazards of the substance and the information available. The pages of the SDS/MSDS should be numbered and the end of the document should be indicated (e.g. "page 3 of 3").

Section 1: **Identification –** The name/identity of the product or the mixture (GHS Identifier). Includes the manufacturer's or shipper's tradename and may include the product name as it appears in the IBC code or most recent edition of the MEPC.2/Circ.

If this "GHS identifier" is different from the product name as required by the shipment document which requires that the name should be in accordance with lists of product names given in either Chapters 17 or 18 of the IBC Code or in the latest edition of the IMO's MEPC.2/Circular, then this product name should be stated in sub-section 14.7 of the SDS/MSDS. See guidance for Annex II under sub-section 14 below.

This section should also include the Manufacturer's or Distributor's name, address, phone number, emergency phone number, recommended use and any restrictions on use.

Section 2: **Hazard(s) identification –** Includes all designated hazards for the product.

Section 3: **Composition/information on ingredients –** Includes information on hazardous chemical ingredients; may include water content. Hazardous ingredients such as inhibitors, denaturing agents, etc. must be listed.

Section 4: **First-aid measures –** Includes important symptoms and effects, including acute symptoms, delayed symptoms; recommended or required treatment.

Section 5: **Fire-fighting measures –** Includes information on suitable extinguishing media and techniques, equipment and specific chemical hazards arising from fire.

Section 6: **Accidental release measures –** Includes emergency procedures; protective equipment; appropriate methods of containment and cleanup.

Section 7: **Handling and storage –** Includes precautions for safe handling and storage; may include incompatibilities with other cargoes/products (e.g. as per USCG Compatibility Chart).

Section 8: **Exposure controls/personal protection –** Includes Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); means of vapour detection; appropriate controls and personal protective equipment (PPE).

Section 9: **Physical and chemical properties –** Includes physical and chemical characteristics of the substance, including, where appropriate, information on viscosity and melting point .

Section 10: **Stability and reactivity –** Includes chemical stability and potential hazardous reactions.

Section 11: **Toxicological information –** Includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

Section 12: **Ecological information –** Includes ecotoxicity; persistence and degradability; bioaccumulation potential; mobility in soil.

Section 13: **Disposal considerations -** Includes description of wastes and information on safe handling and methods of disposal.

It should be noted that Annex II of MARPOL 73/78 also regulates the discharge of residues for chemical liquids transported in bulk.

Section 14: **Transport information –** Includes Dangerous Goods or Hazardous Materials shipping information.

For cargoes transported by Sea, in bulk, the information provided should include the information for any of the following applicable regulations:

- **Annex I of MARPOL 73/78** – transport information includes: a statement that the product is being carried under the scope of MARPOL Annex I. This classification covers the transport of oil cargoes and oil fuels. Indication of this information in the SDS/MSDS is mandatory when cargoes are intended to be carried in bulk under MARPOL Annex I.
- **Annex II of MARPOL 73/78 and the IBC code** – transport information includes: Product Name; Ship Type; Pollution Category; Special Precautions. This information covers transport of bulk liquids, other than oils, in tank ships, by sea. Indication of this information in the SDS/MSDS is mandatory when cargoes are intended to be carried in bulk under MARPOL Annex II.

Section 15: **Regulatory information -** Includes safety, health and environmental regulations specific to the product for a designated region.

Section 16: **Other information -** Includes the date of preparation or last revision.

The Regulatory Environment

SOLAS Convention

Under the provisions of Regulation VII-B/10 of SOLAS all chemical tankers must comply with the provisions of the IBC Code. The IBC Code has also been extended to cover marine pollution aspects for the implementation of Annex II to the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78).

IBC Code

The provisions of Chapter 16 of the IBC Code require that any cargo offered for bulk shipment under the carriage requirements of chapter 17 or 18 of the IBC Code (or in the latest edition of the IMO's MEPC.2/Circular) will require information from the shipper and/or producer to ensure the safe carriage of the cargo.

This information should be provided in the form of an SDS/MSDS. In addition, information on properties and emergency measures should be provided in the specific sub-sections of the SDS/MSDS (e.g. viscosity if required by IBC Code 16.2.6 in SDS/MSDS sub-section 9).

IMO and UN Guidance

The IMO agreed to the standardisation of information provided in SDS/MSDS through circulars issued by the Maritime Safety Committee (MSC/Circ.1100) and the Marine Environment Protection Committee

(MEPC/Circ.407). These circulars state that the SDS/MSDS should be based on Chapter 1.5 of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) – The link to this being:

http://www.unece.org/trans/danger/publi/ghs/ghs_rev04/04files_e.html

For cargoes that are shipped in accordance with Annex II of MARPOL 73/78 and the IBC Code, Section A 4.3.14.7 of Annex 4 (Guidance on the Preparation of Safety Data Sheets) of the GHS provides guidance on the provision of the correct product name and carriage information.

This guidance is outlined as below:

"Provide the product name (if name is different to that given in A4.3.1.1) as required by the shipment document and in accordance with the name used in the lists of product names given in Chapters 17 or 18 of the IBC Code or in the latest edition of the IMO's MEPC.2/Circular. Indicate ship type required and pollution category"

The link to Annex 4 of this document which provides detailed guidance on the preparation of an SDS/MSDS is:

http://www.unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev02/English/08e_annex4.pdf

Transport in bulk according to Annex I of MARPOL 73/78

It should also be noted that chemical tankers may sometimes carry oil cargoes which are subject to Annex I of the MARPOL Convention.

In these instances, the SDS/MSDS, under Section 14 – Transport Information (content) should contain a notation that the product is being carried under the scope of MARPOL Annex I.

The IMO's Maritime Safety Committee adopted guidance which clarified that, as from 1 July 2009, Material Safety Data Sheets (MSDS) are to be provided to ships carrying MARPOL Annex I cargoes, and to all ships when receiving bunkers. The format of this SDS/MSDS is described in IMO Resolution MSC.286(86).

This guidance is mandatory in accordance with SOLAS regulation VI/5-1.

EU Legislation

Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (known in short as "REACH") is the system for controlling chemicals in the European Union (EU. It became law in the - EU on 01 June 2007. In Annex II of REACH, as amended by Regulation (EU) 453/2010, "Requirements for the Compilation of Safety Data Sheets" it sets requirements for SDS compilation consistent with the GHS. The link to Annex II, as amended, can be found at:

http://ec.europa.eu/enterprise/sectors/chemicals/documents/reach/review-annexes/index_en.htm#h2-3

SDS/MSDS in the European Economic Area (EEA – namely the EU, Norway, Iceland and Lichtenstein) should be in compliance with the new prescribed format. The requirements for the structure and content of Safety Data Sheets under these regulations are the same as that under the UN-GHS system.

US Legislation

In the US, the Occupational Safety and Health Administration (OSHA) provide a Recommended Format for SDS/MSDS.

OSHA's Hazard Communication Standard (HCS) specifies certain information that must be included on SDS/MSDS and now requires that the GHS format be followed in presenting this information (see 29 CFR 1910.1200 (g)). Previously, in order to promote consistent presentation of information, OSHA recommended that SDS/MSDS follow the 16-section format established by the American National Standards Institute (ANSI) standard for preparation of SDS/MSDS.

References and Further Reading

- **SOLAS –** The International Convention for the Safety of Life at Sea
- **The IBC Code** - The International code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk
- **MEPC.2/Circ. –** Provisional Categorisation of Liquid Substances (This circular is issued annually in accordance with Regulation 6.3 of MARPOL Annex II and reference should be made to the latest edition)
- **MEPC/Circ.407** – Recommendation for the use of a standard format for the cargo information required by Chapter 16 of the IBC Code
- **MSC/Circ.1100** – Recommendation for the use of a standard format for the cargo information required by Chapter 16 of the IBC Code
- **BLG/Circ.17** – Use of the Correct Product Name in offering Bulk Liquid Cargoes for Shipment
- **BLG/Circ.18** – Example of an optional shipping document for the purposes of MARPOL Annex II and the IBC Code.
- **IMO Resolution MSC.286(86) –** Recommendations for Material Safety Data Sheets (MSDS) for MARPOL Annex I Oil Cargo and Oil Fuel
- **MARPOL Annex II** – Control of pollution by noxious liquid substances
- **REACH Regulations** – EU. The website for links to the EU REACH regulations, as amended, is - http://ec.europa.eu/enterprise/sectors/chemicals/documents/reach/review-annexes/index_en.htm#h2-1
- **US Department of Labour** – Occupational Safety and Health Administration Website – for the Hazard Communication Standard, as amended 2012

  (http://www.osha.gov/dsg/hazcom/index.html)
- **UN Publication** - Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

  (http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html)

The Authors

INTERTANKO (www.intertanko.com)

The world's largest association of "independent" tanker owners and operators of oil and chemical tankers, the association represents the oil and chemical tanker fleet of some 3,400 ships totalling approximately 285 million dwt. INTERTANKO is a forum where the industry meets, policies are discussed and statements are created. It is a valuable source of first-hand information, opinions and guidance. In pursuit of its vision of a professional, efficient and respected industry that is dedicated to achieving safe transport, cleaner seas and free competition INTERTANKO provides leadership in the development and implementation of industry standards and practices, and international regulations for maritime safety and environmental protection.

IPTA (www.ipta.org.uk)

IPTA was established in 1987 to represent the interests of the specialised chemical/parcel tanker fleet and has since developed into an internationally acknowledged representative body for ship owners operating IMO classified chemical/parcel tankers. IPTA is recognised as a focal point through which regulatory authorities and trade organisations may liaise with such owners. In recognition of its expertise in the chemical/parcel tanker sector IPTA was granted consultative status as a Non-Governmental Organisation to the International Maritime Organization (IMO) in 1997 and is wholly supportive of the IMO as the as the only organisation to determine the need for, introduce and monitor compliance with international maritime legislation impacting on the chemical/parcel tanker fleet

CDI (www.cdi.org.uk)

The Chemical Distribution Institute (CDI) was formed in 1994 by the chemical industry and is funded by the Chemical Industry as a Not for Profit Foundation. The membership of CDI currently consists of 70 Major chemical companies. CDI is responsible for the international accreditation of CDI inspectors and auditors to provide inspection and audit reports on Chemical and LPG Tankers, Bulk Chemical Terminals and the Marine Packed Cargo supply chain for use in the chemical industry risk assessment process. CDI aims to constantly improve the safety, security and quality performance of marine transportation and storage for the chemical industry.

CEFIC (www.cefic.be)

CEFIC, the European Chemical Industry Council, is the Brussels-based organisation of the chemical industry in Europe, representing 29,000 large, medium-sized and small companies that employ 1.3 million people and account for one third of the world's chemicals production.

DGAC (www.dgac.org)

The Dangerous Goods Advisory Council (DGAC), formerly known as the Hazardous Materials Advisory Council, is an international, educational, nonprofit organization representing shippers, carriers, forwarders, packaging manufacturers and reconditioners, emergency response services and responders, dangerous goods trainers and consultants, and affiliates providing services or supplies for dangerous goods compliance, as well as dangerous goods honorees, retirees and students.