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REVIEW OF THE RECOMMENDATION FOR MATERIAL SAFETY DATA SHEETS FOR MARPOL ANNEX I CARGOES AND MARINE FUELS

Submitted by INTERTANKO

SUMMARY

Executive summary: This document addresses the reasons given as basis for the revision of the standard MSDS format as set in resolution MSC.150(77) and aims to demonstrate that the current MSDS format is in line with the MSDS formats as required in GHS, ISO 11014, US ANSI & OSHA standards

Action to be taken: Paragraph 13

Related documents: BLG 11/16; MSC 83/28, MSC 83/10/3 and resolution MSC.150(77)

Introduction

1 As invited by BLG 11, MSC 83 agreed to a new work item for the review of resolution MSC.150(77) for material safety data sheets (MSDS) for MARPOL Annex I cargoes and marine fuels. The decision for revision was based on submissions by IBIA at both BLG 11 and MSC 83 which, in the main seems to disagree with the current standard format for the MSDS as outlined in resolution MSC.150(77) on two terms: (a) harmonization with the ISO 11014 and US OSHA (paragraphs 2 and 3 in MSC 83/10/3), (b) IBIA suggests MSDS contains *generic* information rather than the *actual* data on the cargoes and the bunkers delivered to ships.

2 At BLG 11, Norway and INTERTANKO made a statement that, in their opinion there is no need or justification to conduct a review of resolution MSC.150(77). The current MSDS standard format was developed and it is fully aligned with ISO 11014. The current MSDS adequately addresses the best practices of health, safety and environmental protection. *Generic* information is completely inadequate due to the deviations that do occur to the relevant physical properties of Annex I type cargo and bunkers delivered to ships. However, the standard format makes distinction on data required for cargoes and data required for bunkers, limiting it to the relevant information only. The annex to this document indicates information required for various MARPOL Annex I cargo categories and for fuel oils.

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Resolution MSC.150(77) as related to GHS, ISO 11014, US ANSI & OSHA standards

3 The currently agreed version of the MSDS as stated in resolution MSC.150(77) is identical to the UN standardized format of an MSDS as formatted for the Globally Harmonized System (GHS) of classification and labelling of chemicals so far as the 16 point paragraph headings are concerned. In document BLG 12/INF.3, INTERTANKO has made a comparison between the MSDS standard format in MSC.150(77) and the MSDS standard formats in GHS, ISO 11014, in the American National Standard for Hazardous Industrial Chemicals – MSDS Preparation (ANSI Z-400.1-2004) and the U.S. OSHA MSDS as required for in 29 CFR 1910.1200, HAZCOM. This may assist the Sub-Committee to follow the similarities between all these formats (also reference to the US Department of Labour, Occupational Safety & Health Administration publication “A Guide to the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) – <http://www.osha.gov/dsg/hazcom/ghs.html>).

4 The format of the MSDS conforms to the GHS format which is replicated in ISO 11014 for Chemical cargoes. Since ISO 11014 was issued for chemical cargoes, IMO (BLG and MSC) agreed to (a) use the GHS format as model but (b) adapt it for the equivalent specifics of the oils and bunkers physical properties, e.g., pH cannot be measured for an oil and thus replaced with Acid Number. The new physical parameters in Annex 2 of MSC.150 (77) that refer to MARPOL Annex I cargoes and bunkers delivered to ships were considered in detail in order to limit the extent of data required for each specific type of cargo category and thus reduce the burden of analysis as the specific parameters needed to be determined for the actual cargo being loaded and not on a generic basis.

5 The GHS format is ratified and currently in the process of implementation for standard usage in at least 65 countries (including EU countries by way of Directives 94/55/EC for road transport, 96/49/EC for rail transport, and the European Inland waterways agreement (ADN)) as well as other UN bodies e.g., ICAO, FAO, WHO, UN Recommendations on the Transport of Dangerous Goods, and the Basel Convention (reference – www.unece.org/trans/danger/publi/ghs/implementation_e.html). According to information provided by EU on these regulations – http://ec.europa.eu/enterprise/reach/ghs_en.htm – *The proposed regulation requires companies to classify, label and package appropriately their substances and mixtures before placing them on the market. It aims to protect workers, consumers and the environment by means of labelling which reflects possible hazardous effects of a particular chemical.*

Generic versus Actual data

6 All international and national legislations consider the cargoes regulated by MARPOL Annex I as “hazardous” and that requires safety information for the proper handling and transporting of these cargoes and for the protection of the environment. Following that logic, it is quite natural to require that persons handling and transporting such cargoes need to receive information similar to that which is required to be provided for MARPOL Annex II cargoes and for any other hazardous materials transported on road and on aeroplanes.

7 INTERTANKO members have extensive experience with the current production of MSDSs. If and when made available, these utilize a variety of differing and diverse *generic* formats that create, in the main, unreliable and unusable documents for the purposes of safety of crews, ships and the protection of the maritime environment for the transportation of MARPOL Annex I type cargoes and marine bunkers. It is for this very reason that the proposed UN GHS format for MSDS, as given in MSC.150(77), is used in order to standardize the current diversity of information and create a document that is usable for ships’ crews to fulfil their ISM Code obligations.

8 By selecting and utilizing the UN GHS format as compiled by over 200 experts, including those of the UN Committee of Experts on the Transportation of Dangerous Goods (CETDG) (reference: www.ilo.org/public/english/protection/safework/chemsfty/ghs.htm), INTERTANKO believes that the fundamental requirements for the production of an internationally standardized document that meets the best safety and environmental outcome, for the objectives as set, is achieved.

9 Hydrocarbon cargoes covered by the categories in Appendix 1 of Annex I to MARPOL are far from pure and contain a large mixture of diverse hydrocarbon substances that vary from shipment to shipment of the same commodity, notwithstanding the fact that each shipment should meet the nominated commercial specification. Due to these variations that can be significant, particularly for crude oils of the same name, the MSDS standard format needs to give the *actual* data for each cargo and bunker as supplied to ships. This is the only means to ensure information for the purposes of safety of crews, ships and the protection of the maritime environment for the transportation of MARPOL Annex I type cargoes and of marine bunkers. A *generic* format could supply totally misleading information due to variations in cargo or bunker quality.

10 There have been comments that it “can be impractical” to provide *actual* data on each cargo and bunker delivered to ships because:

- a) the required MSDS cannot be compiled and delivered to a ship in its mandated form and style; or
- b) the information recorded on the document is of an impractical nature for use by seafarers and others for the transportation of MARPOL Annex I type cargoes and marine bunkers.

11 Each of these issues is addressed as follows:

INTERTANKO finds difficulty with such reasoning. The mandated form and style for the proposed MSDS are those as prescribed for the internationally standardized GHS type MSDS for chemicals and their mixtures. If these same documents are being compiled and supplied elsewhere for persons operating on chemical tankers for their cargoes (chapter 16, paragraphs 16.2.3, 16.2.4 and 16.2.6 of the IBC Code) and for other forms of transport and uses them, there should not be any reason why Annex I tankers and shipping should be excluded from having access to the same type of documents. If the impracticality relates to time constraints with the supply of particulars declared on the defined form of the MSDS then it can be stated that the specifics of a cargo of hydrocarbon product is normally known a day if not several days before it is loaded on to a ship. The data on a specific cargo has to be known for sale contract purposes and it is reflected by the Quality Certificate of the cargo, this being a crucial document for the completion of the sale of the goods. Some of these Certificates of Quality are very extensive in their scope of description of the goods, as they must comply with the prevailing scope of descriptions required by the relevant international standards e.g., DERD 2494 for Jet fuel quality. If this can be regularly achieved for commercial purposes, INTERTANKO can find no reasoning as to why an additional document (an MSDS) cannot also be completed in the same timeframe for delivery to the ship for their advice for safety and environmental protection especially as similar documents are mandated for the transportation of such goods by road (the orange diamond mark on the rear of tank lorries); and

- b) INTERTANKO is very concerned with the assertion that the current MSDS format would be impractical as an information tool for tanker crews when GHS format MSDS is currently used for all Annex II type cargoes. To the contrary, the current format places safety and environmental protection as a priority when undertaking the transportation of hydrocarbons by sea. The scope of information required for completion of an MSDS is defined by the GHS format for chemical substances and their mixtures. Given that the MSDS, as required, is for the diverse types of hydrocarbon cargoes, corresponding information to that specified by the GHS format has been developed as it relates specifically to the range of hydrocarbon types. This translation can be seen in the annex to this paper which indicates that the data required is quite limited for each type of MARPOL Annex I oil cargoes.

12 INTERTANKO therefore believes that Annex I to resolution MSC.150(77) does already meet all the requirements for a fully internationally agreed version of a required MSDS for Annex I cargoes and bunkers and therefore its current format is adequate to the intent of the document.

Action requested of the Sub-Committee

13 The Sub-Committee is invited to consider the reasons presented above and agree with INTERTANKO that, in conducting the review of resolution MSC.150(77), there is no need to make any changes to the resolution.

ANNEX

COMPARISON OF PARAMETERS

| GHS MSDS Parameters | Cat. 1 Crude Oil | Cat. 2 Fuel Oil | Cat. 3 Unfinished distillates | Cat. 4 Gas Oils | Cat. 5 Kerosene | Cat. 6 Naphtha & Condensates | Cat. 7 Gasoline Blend Stokes | Cat. 8 Gasoline & Spirits | Cat. 9 Asphalt Solutions |
|--|---|---|---|--|---|---|---|---|--|
| Appearance | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required |
| Odour¹ | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required |
| Odour Threshold | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required |
| pH | Not required | Not required | Not required | Not required | Total acidity | Total acidity | Not required | Total acidity | Not required |
| Melting / Freezing Pt. | Pour & Cloud Pt. | Pour Pt. | Pour & Cloud Pt | Pour & Cloud Pt. | Not required | Not required | Not required | Not required | Pour Pt. |
| Initial Boiling Point & Boiling Range | Distillation %recovered at 200, 340 and 370°C² | Distillation %recovered at 200, 340 and 370 °C² | Distillation %recovered at 200, 340 and 370°C² | Distillation %recovered at 200, 340 and 370°C² | Distillation % recovered at 200, 340 and 370°C² | Distillation % recovered at 200, 340 and 370°C² | Distillation % recovered at 200, 340 and 370°C² | Distillation % recovered at 200, 340 and 370°C² | Distillation %recovered at 200, 340 and 370°C² |
| Flash Point | Not required | Flash Point | Flash Point | Flash Point | Flash Point | Flash Point | Flash Point | Not required | Flash Point |
| Evap. rate | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required |
| Flammability | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required |
| Upper/Lower Flammability; Explosive limit | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required |
| Vapour Pressure | Sat. Vapour Pressure at carriage temp.³ + RVP⁴ | Saturated Vapour Pressure at carriage temp³ | Sat. Vapour Pressure at carriage temp³+ RVP⁴ | Saturated Vapour Pressure at carriage temp³ | Saturated Vapour Pressure at carriage temp³ | Saturated Vapour Pressure at carriage temp³ + RVP³ | Saturated Vapour Pressure at carriage temp³ + RVP⁴ | Saturated Vapour Pressure at carriage temp³ + RVP⁴ | Saturated Vapour Pressure at carriage temp³ |
| Vap. Density | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required |
| Relative Dens. | at 15°C | at 15°C | at 15°C | at 15°C | at 15°C | at 15°C | at 15°C | at 15°C | at 15°C |
| Solubilities | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required |

¹ All Hydrocarbons have the same distinctive smell.

² For Environmental protection evaluation for “Non Persistent” oils as per guidelines for IOPC Fund.

³ See section 14 for transport information including transport heating criterion.

⁴ RVP is Reid Vapour Pressure – a standard hydrocarbon test method and differs from Saturated Vapour Pressure due to Liquid to Vapour ratio and test temperature criteria.

| GHS MSDS Parameters | Cat. 1 Crude Oil | Cat. 2 Fuel Oil | Cat. 3 Unfinished distillates | Cat. 4 Gas Oils | Cat. 5 Kerosene | Cat. 6 Naphtha & Condensates | Cat. 7 Gasoline Blend Stokes | Cat. 8 Gasoline & Spirits | Cat. 9 Asphalt Solutions |
|--|---|--|--|--|---|---|--|---|---|
| Partition Coeff.: <i>n</i>- octanol/water | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required |
| Auto-ignition temperature | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required |
| Decomposition temperature | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required | Not required |
| Section 3 – Impurities, additives and hazardous substances | Benzene & Hydrogen Sulphide content | Benzene & Hydrogen Sulphide content; Additives | Benzene & Hydrogen Sulphide content; Additives | Benzene & Hydrogen Sulphide content; Additives | Benzene & Hydrogen Sulphide content; Additives | Benzene & Hydrogen Sulphide content; Additives | Benzene & Hydrogen Sulphide content | Benzene & Hydrogen Sulphide content; Additives | Benzene & Hydrogen Sulphide content; Additives |
| Sections 11/12 Toxicological, Ecological and Ecotoxicity on aquatic enviro. | | | | | Aromatic Content | Aromatic Content | Aromatic Content | Aromatic Content | Aromatic Content |
| Section 15 Regulatory information, IMO Publications and Guidelines | Kinematic Viscosity at 20 & 50°C; Asphaltene content⁵ | Kinematic Viscosity at 50°C & Asphaltene content⁵; Carbon Residue, Ash, Water, Sulphur, Vanadium, Total Sediment Potential Aluminium Silicon⁶ | Kinematic Viscosity at 20 & 40°C and Asphaltene content⁵ | Kinematic Viscosity at 40°C & Asphaltene content⁵; Cetane index, Carbon Residue, Ash, Total Sediment Existent, Water, Vanadium, Al., Silicon⁶ | No parameters required | No parameters required | No parameters required | No parameters required | Asphaltene content⁵ |

⁵ IMO Publication – Manual on Oil Pollution, Section IV, Combating Oil Spills – Chapter 3, Fate of Oil Spills in the Marine Environment.

⁶ To comply with the Requirements of MARPOL Annex VI Regulation 18.