

## COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS AND ON THE GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS

Sub-Committee of Experts on the Globally Harmonized System of Classification and Labelling of Chemicals

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Item 3 of the provisional agenda

### HAZARD COMMUNICATION ISSUES

Consideration of issues relevant to Safety Data Sheets (SDSs) by IMO Sub-Committee on Bulk, Liquids and Gases at its twelfth session (BLG 12)

Transmitted by the International Petroleum Industry Environmental Conservation Association (IPIECA)

#### Overview

1. IPIECA presents this informal document in response to the discussions at the 15th session of the Sub-Committee of Experts on the Globally Harmonized System of Classification and Labelling of Chemicals (UNSCEGHS) regarding Safety Data Sheet (SDS) requirements for MARPOL Annex I cargoes and marine fuel oils. For background, see document ST/SG/AC.10/C.4/2008/2 (IMO) and informal document UN/SCEGHS/15/INF.17 (IPIECA). In this informal document, IPIECA presents an approach for consideration by the GHS Sub-Committee to harmonize IMO SDS activity with the GHS framework, thereby addressing in GHS the hazard communication needs associated with MARPOL Annex I cargoes and marine fuel oils to protect seafarers' health and safety and the marine environment.

#### Concerns with IMO SDS requirements

2. The current draft of the MSC.150(77) resolution as amended by the IMO Bulk Liquids and Gases (BLG) Sub-Committee (BLGSC) at its 12<sup>th</sup> session from 4 to 8 February 2008 diverges from the hazard communication framework developed by the UNSCEGHS. The fact that two bodies of the UN (IMO BLGSC and UNSCEGHS) are taking divergent approaches to hazard communication is a serious concern.

3. MSC.150(77) significantly departs from the content of a standard SDS by requiring commercial, operational and product quality information on shipped liquids that does not pertain to crew safety considerations.<sup>1</sup>
4. The current draft of the MSC.150(77) resolution as amended by the IMO BLG Sub-Committee at its 12<sup>th</sup> session from 4 to 8 February 2008 is not aligned with the hazard communication framework developed by the UNSCEGHS. MSC.150(77) significantly departs from UNSCEGHS recommendations by not requiring standard content (some of which, when available, are important for fully communicating product hazards and controls) or by substituting non-standard requirements.

### **Need for UNSCEGHS to address hazard communication needs of MARPOL Annex I cargoes and marine fuel oils**

5. The UNSCEGHS has previously addressed MARPOL Annex II cargoes in development of the GHS "Guidance on the Preparation of Safety Data Sheets." IPIECA references the report of the Sub-Committee of Experts on its twelfth session" (ST/SG/AC.10/C.4/24) where the UNSCEGHS added an additional sub-section under section 14 of Annex 4 of the GHS to take into account the information requirements regarding transport of substances in bulk according to MARPOL Annex II and the related IBC Code, as proposed in document ST/SG/AC.10/C.4/2006/21. To ensure alignment across the UN and to achieve the benefits of harmonization, the UNSCEGHS needs to incorporate hazard communication needs of MARPOL Annex I cargoes and marine fuel oils in the GHS framework.

### **Applicability of GHS framework to MARPOL Annex I cargoes and marine fuel oils**

6. The GHS framework along with the IPIECA GHS guidance project UN/SCEGHS/16/INF.12 is sufficient to address hazards to the seafarer associated with MARPOL Annex I cargoes and marine fuel oils. While the GHS "Guidance on the Preparation of Safety Data Sheets" is considered suitable in all respects, additional guidance on benzene, sulphur, hydrogen sulphide and oil pollution characteristics may help ensure the adequacy of SDS information to address seafarer health and safety and the marine environment.
7. IPIECA product stewardship experts and toxicologists have carefully reviewed Annex II of MSC.150(77) and the various information papers and proposals provided to the IMO BLGSC by component authorities and organizations with IMO consultative status. IPIECA has identified four areas on the MSC.150(77) SDS where guidance is needed to ensure the adequacy of hazard communication information to address seafarers' health and safety and the marine environment: benzene, sulphur, hydrogen sulphide, and oil pollution characteristics. Below is suggested guidance for incorporation into the GHS framework. Subsequently, the rationale for the suggested guidance follows:

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<sup>1</sup> Examples include: heating and carriage temperatures; pour point temperature; cloud point temperature; Cetane index, carbon residue, ash, total sediment, vanadium, aluminum, silicon, zinc, phosphorus, calcium, kinematic viscosity at 50 deg C; asphaltene content; total acidity; aromatic content; identification of non-hazardous additives and their percentage in the shipped liquid; distillation % recovered at 200, 340 and 370 deg Celcius; and saturated vapor pressure at recommended carriage temperature.

### **Suggested guidance**

- (a) **Benzene:** The benzene concentration or concentration range should be indicated in Section 3 of the SDS (Composition/information on ingredients) if the MARPOL Annex I cargo or marine fuel oil exceeds 0.1% by weight or volume, even if benzene is a naturally occurring ingredient of the material (e.g. condensates);
- (b) **Sulphur:** The sulphur concentration or concentration range should be indicated in Section 3 (Composition/information on ingredients) and a hydrogen sulphide warning should be included in Section 2 (Hazard identification) if the MARPOL Annex I cargo or marine fuel oil contains greater than 0.5 % sulphur by weight or volume;
- (c) **Hydrogen sulphide:** A hydrogen sulphide (H<sub>2</sub>S) warning should be included in Section 2 (Hazard identification) if H<sub>2</sub>S is present in any concentration or if the material has a propensity to form H<sub>2</sub>S;
- (d) **Oil pollution characteristics:** The material should be identified as persistent oil or non-persistent oil in Section 14 (Transport) based on the definition adopted by the International Oil Pollution Compensation (IOPC) Fund.

### **Rationale**

- (e) **Benzene:** SDSs based on GHS will include information on benzene content, if benzene exposure can exceed relevant occupational exposure limits. Data is often reported in ranges taking into account the most conservative exposure estimates. However, as benzene is a known human carcinogen and a naturally occurring hydrocarbon, special mention is warranted. When benzene is naturally occurring in the petroleum liquid, it should still be listed on the SDS as an ingredient with its concentration (or concentration range).
- (f) **Sulphur:** SDSs based on GHS will include information on the concentration (or concentration range) of sulphur, if sulphur exposure can exceed relevant occupational exposure limits. Special mention is warranted as sulphur content is used to “identify” crude type (sweet vs. sour) and due to the relation between sulphur and hydrogen sulphide.
- (g) **Hydrogen sulphide:** SDSs based on GHS will include information on hydrogen sulphide hazards, if H<sub>2</sub>S exposure can exceed relevant occupational exposure limits. Nevertheless, additional guidance may be needed. A low concentration of H<sub>2</sub>S in the liquid may give a false sense of security and should not be used to predict the concentration of H<sub>2</sub>S in the headspace and potential exposure hazards. H<sub>2</sub>S evolution from liquid to vapour is a complex function of the oil's chemistry, affected by a number of factors such as the nature of the sulphur-containing components, tank liquid surface area, tank internal structure, temperature of the liquid, and movement within the tank. Cargoes and fuels are sometimes treated by stripping or scavenging to remove H<sub>2</sub>S from the liquid prior to shipment, but may subsequently liberate H<sub>2</sub>S to the headspace at concentrations that pose a significant exposure hazard. The use of personal H<sub>2</sub>S gas-

monitors with a pre-set alarm and availability of respiratory protection equipment is strongly recommended for all personnel engaged in oil cargo and bunker operations whenever the SDS contains an H<sub>2</sub>S warning and the potential for personnel exposure exists.

- (h) **Oil spill characteristics:** Some tanker operators have expressed the need to include more information on oil spill characteristics on SDSs; however, the justification is not clear. Vessel oil spill response plans and area contingency plans clearly define the roles, processes and resources needed to develop site-specific safety and environmental response plans. Our qualified individuals and oil spill response organizations do not agree that more SDS information is needed to ensure the effectiveness of these planning processes. Nonetheless, when the classification of the oil is not otherwise readily available, it may be useful for the SDS to indicate whether the oil is persistent or non-persistent based on the International Oil Pollution Compensation (IOPC) Fund definition: "A non-persistent oil is oil which, at the time of shipment, consists of hydrocarbon fractions, (a) at least 50% of which, by volume, distils at a temperature of 340°C (645°F) and (b) at least 95% of which, by volume, distils at a temperature of 370°C (700°F) when tested by the ASTM Method D86/78 or any subsequent revision thereof".

#### **Action requested of the UNSCEGHS**

8. IPIECA requests that the UNSCEGHS incorporate the guidance presented herein into the GHS text. IPIECA notes that at the 15<sup>th</sup> Session of the UNSCEGHS the Sub-Committee recognized that harmonization between UN and IMO hazard communication activities could be achieved through sector-specific guidance in the GHS text (see ST/SG/AC.10/C.4/30, report of the GHS Sub-Committee on its fifteenth session). At the desire of the GHS Sub-Committee, IPIECA can prepare draft guidance in the form of an Annex for the Sub-Committee to review at its next session.

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