

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 4 (c) of the provisional agenda

Implementation of the GHS:

Cooperation with other bodies or international organizations

Consideration of harmonization of International Maritime Organization (IMO) and GHS Safety Data Sheets (SDSs)

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

Introduction

1. To achieve alignment across the UN and to achieve the benefits of harmonization, the UN Sub-Committee of Experts on the GHS (UNSCGHS) needs to incorporate the hazard communication needs of MARPOL Annex I cargoes and marine fuel oils into the GHS framework. In this document, IPIECA:

(a) calls for the formation of a correspondence group tasked with accommodating the special needs of the maritime industry for MARPOL Annex I cargoes and marine fuel oils into the GHS; and

(b) suggests an approach to harmonize the IMO and UNSCEGHS SDS formats.

Overview

2. At its 86th session from 27 May to 5 June 2009, the IMO Maritime Safety Committee (MSC) approved resolution MSC.286(86) "Recommendations for Material Safety Data Sheets (MSDS) for MARPOL Annex I Oil Cargo and Oil Fuel." This resolution on recommendations for SDSs is not fully in line with the GHS SDS.

3. While GHS Annex 4 "Guidance on the preparation of Safety Data Sheets (SDS)" has been considered suitable for other sectors, IMO has adopted divergent SDS information requirements. Since the GHS SDS was developed to harmonize the minimum information elements in a SDS and to provide a single SDS covering the needs of all sectors, there is concern about the divergences of the IMO SDS requirements in resolution MSC.286(86).

Concerns with IMO SDS requirements

4. Rather than having sector-specific requirements for SDSs, most GHS experts consider that using a single SDS covering the needs of all sectors is important (See ST/SG/AC.10/C.4/34, paragraph 41). It is a serious concern that two bodies of the UN (IMO and UNSCEGHS) are taking divergent approaches to hazard communication, which is also counter to the fundamental GHS goal of harmonization. The UNSCEGHS has stated

that a harmonized SDS which meets the needs of all sectors should be the goal and has indicated that it is open to explore how specific IMO SDS requirements could be taken into account within the framework of the GHS SDS (See UN/SCEGHS/18/INF.21).

5. Global support for the GHS is based on the premise of having one set of harmonized SDS requirements. Divergence from the GHS SDS requirements will be confusing, burdensome, unworkable in practice, difficult to enforce, counter to the goals of GHS, and have financial implications for global industry.

Applicability

6. Section 1.4.3.6 of the GHS specifically mentions that workers on board ships need detailed hazard information, thereby confirming that seafarers are a GHS target audience requiring SDS information.

7. Paragraph 1.1.1.6 of the GHS outlines the principles of harmonization which include workers and the transport sector, hazard communication through the SDS, and having a single globally harmonized system.

8. GHS Section 1.1.3.1.5 on the building block approach further explains that where a system covers something that is in the GHS (for example SDS), and implements the GHS, that coverage should be consistent.

Need for GHS SDS to address the hazard communication needs of MARPOL Annex I Cargoes and Marine Fuel Oils

9. The UNSCEGHS has previously addressed MARPOL Annex II cargoes in development of the GHS when an additional sub-section was included under SDS section 14 to take into account the information requirements regarding transport of substances in bulk according to MARPOL Annex II and the related IBC Code.

10. In ST/SG/AC.10/C.4/2010/4 the IMO invites the UNSCEGHS to take action with respect to considering the inclusion of the special needs of the maritime industry in the GHS SDS requirements.

11. IPIECA supports a consistent and practical approach to hazard communication for all workers, including seafarers. The additional information included in IMO resolution MSC.286(86) will help ensure that SDSs adequately address seafarer health and safety and the marine environment. Information on benzene, sulphur, hydrogen sulphide, and oil pollution characteristics is important for the transport by sea of oil cargoes and fuel oils.

Proposal

12. This paper proposes to incorporate the information from IMO resolution MSC.286(86) into the GHS SDS. There may be information within the IMO resolution MSC.286(86) that should be further aligned with the GHS. These changes could be addressed through a correspondence group.

13. An Appendix for additional information from MSC.286(86) can be added to GHS Annex 4 “Guidance on the Preparation of Safety Data Sheets (SDS).”

14. The Annex to this paper provides an approach to incorporate into the GHS framework the MSC.286(86) SDS information, as an Appendix to Annex 4 of the GHS. Specifically, the Annex to this paper presents two options for consideration by the

UNSCEGHS. Option 1 places IMO information in appropriate GHS SDS sections, and Option 2 places information in GHS SDS sections as specified in IMO resolution MSC.286(86).

Actions requested of the UNSCEGHS

15. IPIECA requests that the UNSCEGHS considers the formation of a correspondence group tasked with accommodating the special needs of the maritime industry for MARPOL Annex I cargoes and marine fuel oils into the GHS. Ideally, a joint correspondence group between the IMO Bulk Liquids and Gases (BLG) Sub-Committee and UNSCEGHS would be the most effective approach to harmonize the IMO and GHS SDSs. Until such a joint correspondence group can be formed, IPIECA suggests that the UNSCEGHS itself forms a correspondence group to discuss how best to incorporate the IMO SDS provisions for MARPOL Annex I cargoes and marine fuel oils into the GHS SDS.

16. Members of the UNSCEGHS are invited to comment on the options for incorporating the IMO SDS provisions for MARPOL Annex I cargoes and marine fuel oils into the GHS SDS, as presented in the Annex to this paper.

Annex

Annex 4: Guidance on the preparation of Safety Data Sheets (SDS)

Appendix I

IMO SDS provisions for MARPOL Annex I Cargoes and Marine Fuel Oils

1. Included in this Appendix to Annex 4 is information from the IMO Maritime Safety Committee (MSC) resolution “Recommendations for Material Safety Data Sheets (MSDS) for MARPOL Annex I Oil Cargo and Oil Fuel” (MSC.286(86)). This information is required in order to have one harmonized SDS for maritime and non-maritime use and should be included on SDSs where appropriate for marine transport of MARPOL Annex I cargoes and marine fuel oils.
2. Approaches for incorporating the IMO Resolution MSC.286(86) SDS information into the GHS SDS

	<u>Option 1</u> Place IMO information in appropriate GHS SDS sections	<u>Option 2</u> Place information as specified in IMO resolution MSC.286 (86)
	This option generally aligns the IMO resolution MSC.286 (86) information with the appropriate GHS SDS section.	This option places the IMO resolution MSC.286 (86) information in the SDS section specified in the resolution.
1. Identification	<p>IMO resolution MSC.286 (86) SDS elements that go beyond the information in GHS Annex 4 could be moved to SDS Section 14. See Section 14.</p> <p><u>NOTE:</u> <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • Other means of identification. • Supplier's details (including name, address, telephone number, etc.). • Emergency telephone number. 	<p>In addition to the SDS information in GHS Annex 4, IMO resolution MSC.286 (86) includes the following information:</p> <ul style="list-style-type: none"> • Name of the category – see guidance in annex 2 for MARPOL Annex I type oil cargoes and oil fuels <ol style="list-style-type: none"> (1) crude oils; (2) fuel and residual oils, including ship's bunkers (ISO 8217, table 2); (3) unfinished distillates, hydraulic oils and lubricating oils; (4) gas oils, including ship's bunkers (ISO 8217, table 1); (5) kerosenes; (6) naphthas and condensates; (7) gasoline blending stocks; (8) gasolines and spirits; and (9) asphalt solutions. • The name of the substances. • Trade name of the substances. • Description on Bill of Lading (B/L), Bunker Delivery Note or other shipping document. <p>This information should be added in section 1 of an SDS for MARPOL Annex I cargoes and marine fuel oils.</p> <p><u>NOTE:</u> <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • Other means of identification. • Supplier's details (including name, address, telephone number, etc.). • Emergency telephone number.

	Option 1 Place IMO information in appropriate GHS SDS sections	Option 2 Place information as specified in IMO resolution MSC.286 (86)
2. Hazard(s) identification	<p>In addition to the SDS information in GHS Annex 4, IMO resolution MSC.286 (86) includes the following information:</p> <ul style="list-style-type: none"> • For the following provide appropriate hazards identification: <ul style="list-style-type: none"> - Benzene – if present $\geq 0.1\%$ by weight (even if naturally occurring ingredient of the material); - Hydrogen sulphide – if present at any concentration, in liquid and vapour phases, or if possible to accumulate in a tank’s vapour space; and - Total Sulphur – if present $\geq 0.5\%$ by weight warn of potential for hydrogen sulphide evolution. <p>This information should be added in Section 2 of an SDS for MARPOL Annex I cargoes and marine fuel oils.</p> <p>NOTE: <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>GHS classification of the substance/mixture and any regional information¹.</i> • <i>Other hazards which do not result in classification (e.g., hydrogen sulphide) or are not covered by the GHS. [Note that GHS Annex 4 provides the following statement: “Other hazards which do not result in classification.” GHS Annex 4 does not specifically provide hydrogen sulphide as an example].</i> 	<p>In addition to the SDS information in GHS Annex 4, IMO resolution MSC.286 (86) includes the following information:</p> <ul style="list-style-type: none"> • For the following provide appropriate hazards identification: <ul style="list-style-type: none"> - Benzene – if present $\geq 0.1\%$ by weight (even if naturally occurring ingredient of the material); - Hydrogen sulphide – if present at any concentration, in liquid and vapour phases, or if possible to accumulate in a tank’s vapour space; and - Total Sulphur – if present $\geq 0.5\%$ by weight warn of potential for hydrogen sulphide evolution. <p>This information should be added in Section 2 of an SDS for MARPOL Annex I cargoes and marine fuel oils.</p> <p>NOTE: <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>GHS classification of the substance/mixture and any regional information.²</i> • <i>Other hazards which do not result in classification (e.g., hydrogen sulphide) or are not covered by the GHS. [Note that GHS Annex 4 provides the following statement: “Other hazards which do not result in classification.” GHS Annex 4 does not specifically provide hydrogen sulphide as an example].</i>

¹ The GHS reference specified in MSC.286 (86) is to GHS Rev 2, not Rev 3.

² The GHS reference specified in MSC.286 (86) is to GHS Rev 2, not Rev 3.

	<u>Option 1</u> Place IMO information in appropriate GHS SDS sections	<u>Option 2</u> Place information as specified in IMO resolution MSC.286 (86)
3. Composition/information on ingredients	<p>In addition to the SDS information in GHS Annex 4, IMO resolution MSC.286 (86) includes the following information:</p> <ul style="list-style-type: none"> • For the following provide appropriate composition/information on ingredients: <ul style="list-style-type: none"> - Benzene – if present $\geq 0.1\%$ by weight (even if naturally occurring ingredient of the material); - Hydrogen sulphide – if present at any concentration, in liquid and vapour phases, or if possible to accumulate in a tank’s vapour space; and - Total Sulphur – if present $\geq 0.5\%$ by weight, identify.³ <p>This information should be added in Section 3 of an SDS for MARPOL Annex I cargoes and marine fuel oils.</p> <p><u>NOTE:</u> <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Common name, synonyms, etc.</i> • <i>Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substances.</i> • <i>The chemical identity and concentration or concentration ranges of all ingredients which are hazardous within the meaning of GHS and are present above their cut-off levels.</i> <p><i>IMO resolution MSC.286 (86) contains the following information that is not in GHS Annex 4 and that is not totally aligned with the GHS Rev 3.</i></p> <ul style="list-style-type: none"> • <i>Cut-off level for reproductive toxicity, carcinogenicity and category 1 mutagenicity is 0.1%. Cut-off level for all other hazard classes is 1%.⁴</i> 	<p>In addition to the SDS information in GHS Annex 4, IMO resolution MSC.286 (86) includes the following information:</p> <ul style="list-style-type: none"> • For the following provide appropriate composition/information on ingredients: <ul style="list-style-type: none"> - Benzene – if present $\geq 0.1\%$ by weight (even if naturally occurring ingredient of the material); - Hydrogen sulphide – if present at any concentration, in liquid and vapour phases, or if possible to accumulate in a tank’s vapour space; and - Total Sulphur – if present $\geq 0.5\%$ by weight, identify. <p>This information should be added in Section 3 of an SDS for MARPOL Annex I cargoes and marine fuel oils.</p> <p><u>NOTE:</u> <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Common name, synonyms, etc.</i> • <i>Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substances.</i> • <i>The chemical identity and concentration or concentration ranges of all ingredients which are hazardous within the meaning of GHS and are present above their cut-off levels.</i> <p><i>IMO resolution MSC.286 (86) contains the following information that is not in GHS Annex 4 and that is not totally aligned with the GHS Rev 3.</i></p> <ul style="list-style-type: none"> • <i>Cut-off level for reproductive toxicity, carcinogenicity and category 1 mutagenicity is 0.1%. Cut-off level for all other hazard classes is 1%.⁵</i>

³ Another option could be to include the Total Sulphur content in SDS Section 9 as a physical property/product specification instead of in Section 3.

⁴ In GHS Rev 3, the cut-off level for skin/respiratory sensitization (Categories 1 and 1A = 0.1%) does not agree with the cut-off levels given in IMO resolution MSC.286(86) SDS Section 3.

⁵ In GHS Rev 3, the cut-off level for skin/respiratory sensitization (Categories 1 and 1A = 0.1%) does not agree with the cut-off levels given in IMO resolution MSC.286(86) SDS Section 3.

	<u>Option 1</u> Place IMO information in appropriate GHS SDS sections	<u>Option 2</u> Place information as specified in IMO resolution MSC.286 (86)
4. First-aid measures	<p>IMO resolution MSC.286 (86) does not contain information which goes beyond GHS Annex 4.</p> <p><u>NOTE:</u> <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Description of necessary measures, subdivided according to the different routes of exposure, i.e. inhalation, skin and eye contact and ingestion.</i> • <i>Most important symptoms/effects, acute and delayed.</i> • <i>Indication of immediate medical attention and special treatment, if necessary.</i> 	<p>IMO resolution MSC.286 (86) does not contain information which goes beyond GHS Annex 4.</p> <p><u>NOTE:</u> <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Description of necessary measures, subdivided according to the different routes of exposure, i.e. inhalation, skin and eye contact and ingestion.</i> • <i>Most important symptoms/effects, acute and delayed.</i> • <i>Indication of immediate medical attention and special treatment, if necessary.</i>
5. Fire-fighting measures	<p>IMO resolution MSC.286 (86) does not contain information which goes beyond GHS Annex 4.</p> <p><u>NOTE:</u> <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Suitable extinguishing media.</i> • <i>Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products).</i> • <i>Special protective equipment and precautions for fire-fighters.</i> 	<p>IMO resolution MSC.286 (86) does not contain information which goes beyond GHS Annex 4.</p> <p><u>NOTE:</u> <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Suitable extinguishing media.</i> • <i>Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products).</i> • <i>Special protective equipment and precautions for fire-fighters.</i>
6. Accidental release measures	<p>IMO resolution MSC.286 (86) does not contain information which goes beyond GHS Annex 4.</p> <p><u>NOTE:</u> <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Personal precautions, protective equipment and emergency procedures.</i> • <i>Environmental precautions.</i> • <i>Methods and materials for containment and clean-up.</i> 	<p>IMO resolution MSC.286 (86) does not contain information which goes beyond GHS Annex 4.</p> <p><u>NOTE:</u> <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Personal precautions, protective equipment and emergency procedures.</i> • <i>Environmental precautions.</i> • <i>Methods and materials for containment and clean-up.</i>
7. Handling and storage	<p>IMO resolution MSC.286 (86) does not contain information which goes beyond GHS Annex 4.</p> <p><u>NOTE:</u> <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Precautions for safe handling.</i> • <i>Conditions for safe storage, including any incompatibilities.</i> 	<p>IMO resolution MSC.286 (86) does not contain information which goes beyond GHS Annex 4.</p> <p><u>NOTE:</u> <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Precautions for safe handling.</i> • <i>Conditions for safe storage, including any incompatibilities.</i>

	Option 1 Place IMO information in appropriate GHS SDS sections	Option 2 Place information as specified in IMO resolution MSC.286 (86)
8. Exposure controls/personal protection	<p>IMO resolution MSC.286 (86) does not contain information which goes beyond GHS Annex 4.</p> <p>NOTE: <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Control parameters (e.g., occupational exposure limit values).</i> • <i>Individual protection measures, such as personal protective equipment.</i> • <i>Appropriate technical precautions. [Note that GHS Annex 4 provides the following statement: “Appropriate engineering controls”].</i> 	<p>IMO resolution MSC.286 (86) does not contain information which goes beyond GHS Annex 4.</p> <p>NOTE: <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Control parameters (e.g., occupational exposure limit values).</i> • <i>Individual protection measures, such as personal protective equipment.</i> • <i>Appropriate technical precautions. [Note that GHS Annex 4 provides the following statement: “Appropriate engineering controls”].</i>
9. Physical and chemical properties	<p>In addition to the SDS information in GHS Annex 4, IMO resolution MSC.286 (86) includes the following information:</p> <ul style="list-style-type: none"> • <i>pour point</i> <p>IMO resolution MSC.286 (86) includes some modifications to the information in GHS Annex 4 in accordance by requiring the following:</p> <ul style="list-style-type: none"> • <i>vapour pressure (Reid vapour pressure (RVP) when appropriate), where the GHS specifies vapour pressure;</i> • <i>kinematic viscosity, where the GHS specifies “viscosity”</i> • <i>boiling range, where the GHS specifies initial boiling point and boiling range; and</i> • <i>density, where the GHS specifies relative density.</i> <p>This information should be added in Section 9 of an SDS for MARPOL Annex I cargoes and marine fuel oils.</p> <p>NOTE: <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>appearance (physical state, colour, etc.);</i> • <i>odour;</i> • <i>flashpoint;</i> • <i>upper/lower flammability or explosive limits;</i> • <i>vapour density;</i> • <i>auto-ignition temperature</i> 	<p>In addition to the SDS information in GHS Annex 4, IMO resolution MSC.286 (86) includes the following information:</p> <ul style="list-style-type: none"> • <i>pour point</i> <p>IMO resolution MSC.286 (86) includes some modifications to the information in GHS Annex 4 in accordance by requiring the following:</p> <ul style="list-style-type: none"> • <i>vapour pressure (Reid vapour pressure (RVP) when appropriate), where the GHS specifies vapour pressure;</i> • <i>kinematic viscosity, where the GHS specifies “viscosity”</i> • <i>boiling range, where the GHS specifies initial boiling point and boiling range; and</i> • <i>density, where the GHS specifies relative density.</i> <p>This information should be added in Section 9 of an SDS for MARPOL Annex I cargoes and marine fuel oils.</p> <p>NOTE: <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>appearance (physical state, colour, etc.);</i> • <i>odour;</i> • <i>flashpoint;</i> • <i>upper/lower flammability or explosive limits;</i> • <i>vapour density;</i> • <i>auto-ignition temperature</i>

	Option 1 Place IMO information in appropriate GHS SDS sections	Option 2 Place information as specified in IMO resolution MSC.286 (86)
10. Stability and reactivity	<p>IMO resolution MSC.286 (86) does not contain information which goes beyond GHS Annex 4.</p> <p>NOTE: <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Chemical stability.</i> • <i>Possibility of hazardous reactions.</i> • <i>Conditions to avoid (e.g., static discharge).</i> 	<p>IMO resolution MSC.286 (86) does not contain information which goes beyond GHS Annex 4.</p> <p>NOTE: <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Chemical stability.</i> • <i>Possibility of hazardous reactions.</i> • <i>Conditions to avoid (e.g., static discharge).</i>
11. Toxicological information	<p>In addition to the SDS information in GHS Annex 4, IMO resolution MSC.286 (86) includes the following information:</p> <ul style="list-style-type: none"> • <i>For the following provide appropriate toxicological information:</i> <ul style="list-style-type: none"> - Benzene – if present $\geq 0.1\%$ by weight (even if naturally occurring ingredient of the material) - Hydrogen sulphide – if present at any concentration, in liquid and vapour phases, or if possible to accumulate in a tank's vapour space - Total Sulphur – if present at $\geq 0.5\%$ by weight, warn of potential for hydrogen sulphide evolution. <p>This information should be added in Section 11 of an SDS for MARPOL Annex I cargoes and marine fuel oils.</p> <p>NOTE: <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Concise but complete and comprehensible description of the various toxicological (health) effects and the available data used to identify those effects, including:</i> <ul style="list-style-type: none"> - Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact); - Symptoms related to the physical, chemical and toxicological characteristics; - Delayed and immediate effects and also chronic effects from short- and long-term exposure. • <i>Numerical measures of toxicity (such as acute toxicity estimates).</i> 	<p>In addition to the SDS information in Annex 4, IMO resolution MSC.286 (86) includes the following information:</p> <ul style="list-style-type: none"> • <i>For the following provide appropriate toxicological information:</i> <ul style="list-style-type: none"> - Benzene – if present $\geq 0.1\%$ by weight (even if naturally occurring ingredient of the material) - Hydrogen sulphide – if present at any concentration, in liquid and vapour phases, or if possible to accumulate in a tank's vapour space - Total Sulphur – if present at $\geq 0.5\%$ by weight, warn of potential for hydrogen sulphide evolution. <p>This information should be added in Section 11 of an SDS for MARPOL Annex I cargoes and marine fuel oils.</p> <p>NOTE: <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Concise but complete and comprehensible description of the various toxicological (health) effects and the available data used to identify those effects, including:</i> <ul style="list-style-type: none"> - Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact); - Symptoms related to the physical, chemical and toxicological characteristics; - Delayed and immediate effects and also chronic effects from short- and long-term exposure. • <i>Numerical measures of toxicity (such as acute toxicity estimates).</i>

	<u>Option 1</u> Place IMO information in appropriate GHS SDS sections	<u>Option 2</u> Place information as specified in IMO resolution MSC.286 (86)
12. Ecological information	<p>IMO resolution MSC.286 (86) SDS elements that go beyond the information in GHS Annex 4 could be moved to SDS Section 14. See Section 14.</p> <p><u>NOTE:</u> <i>The following IMO resolution MSC.286 (86) SDS information is already in GDS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Ecotoxicity (aquatic and terrestrial, where available).</i> • <i>Persistence and degradability.</i> • <i>Bioaccumulation potential.</i> • <i>Mobility in soil.</i> • <i>Other adverse effects.</i> 	<p>In addition to the SDS information in GHS Annex 4, IMO resolution MSC.286 (86) includes the following information:</p> <ul style="list-style-type: none"> • Persistent or non-persistent oil as per the International Oil Pollution Compensation (IOPC) Fund definition*** <p>***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 D-86/78 or any subsequent revision thereof”.</p> <p>This information should be added in Section 12 of an SDS for MARPOL Annex I cargoes and marine fuel oils.</p> <p><u>NOTE:</u> <i>The following IMO resolution MSC.286 (86) SDS information is already in GDS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Ecotoxicity (aquatic and terrestrial, where available).</i> • <i>Persistence and degradability.</i> • <i>Bioaccumulation potential.</i> • <i>Mobility in soil.</i> • <i>Other adverse effects.</i>
13. Disposal considerations	<p>In addition to the SDS information in GHS Annex 4, IMO resolution MSC.286 (86) states that the information should be in line with MARPOL requirements.</p> <p>This information should be added in Section 13 of an SDS for MARPOL Annex I cargoes and marine fuel oils.</p> <p><u>NOTE:</u> <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Description of waste residues and information on their safe handling and methods of disposal.</i> 	<p>In addition to the SDS information in GHS Annex 4, IMO resolution MSC.286 (86) states that the information should be in line with MARPOL requirements.</p> <p>This information should be added in Section 13 of an SDS for MARPOL Annex I cargoes and marine fuel oils.</p> <p><u>NOTE:</u> <i>The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</i></p> <ul style="list-style-type: none"> • <i>Description of waste residues and information on their safe handling and methods of disposal.</i>

	<p style="text-align: center;"><u>Option 1</u></p> <p style="text-align: center;">Place IMO information in appropriate GHS SDS sections</p>	<p style="text-align: center;"><u>Option 2</u></p> <p style="text-align: center;">Place information as specified in IMO resolution MSC.286 (86)</p>
14. Transport information	<p>In addition to the SDS information in GHS Annex 4, IMO resolution MSC.286 (86) includes the following information:</p> <ul style="list-style-type: none"> • Note that this product is being carried under the scope of MARPOL Annex I. <p>This information should be added in Section 14 of an SDS for MARPOL Annex I cargoes and marine fuel oils.</p> <p>Add to SDS Section 14 the IMO resolution MSC.286 (86) identification elements proposed in the resolution for inclusion in SDS Section 1.</p> <ul style="list-style-type: none"> • Name of the category – see guidance in annex 2 for MARPOL Annex I type oil cargoes and oil fuels <ul style="list-style-type: none"> (1) crude oils; (2) fuel and residual oils, including ship’s bunkers (ISO 8217, table 2); (3) unfinished distillates, hydraulic oils and lubricating oils; (4) gas oils, including ship’s bunkers (ISO 8217, table 1); (5) kerosenes; (6) naphthas and condensates; (7) gasoline blending stocks; (8) gasolines and spirits; and (9) asphalt solutions. • The name of the substances. • Trade name of the substances. • Description on Bill of Lading (B/L), Bunker Delivery Note or other shipping document. <p>This information should be added in Section 14 of an SDS for MARPOL Annex I cargoes and marine fuel oils.</p> <p>Add to SDS Section 14 the IMO resolution MSC.286 (86) elements proposed in the resolution for inclusion in SDS Section 12.</p> <ul style="list-style-type: none"> - Persistent or non-persistent oil as per the International Oil Pollution Compensation (IOPC) Fund definition*** <p>***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 D-86/78 or any subsequent revision thereof”.</p>	<p>In addition to the SDS information in Annex 4, IMO resolution MSC.286 (86) includes the following information:</p> <ul style="list-style-type: none"> • Note that this product is being carried under the scope of MARPOL Annex I. <p>This information should be added in Section 14 of an SDS for MARPOL Annex I cargoes and marine fuel oils.</p>

	<u>Option 1</u> Place IMO information in appropriate GHS SDS sections	<u>Option 2</u> Place information as specified in IMO resolution MSC.286 (86)
	This information should be added in Section 14 of an SDS for MARPOL Annex I cargoes and marine fuel oils.	
	<p><u>NOTE:</u> The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</p> <ul style="list-style-type: none"> • UN number, where applicable. • UN Proper shipping name, where applicable. • Transport Hazard class(es), where applicable. • Special precautions which a user needs to be aware of or needs to comply with in connection with transport (e.g., heating and carriage temperatures). [Note: A similar statement is included in GHS Annex 4, but “heating and carriage temperatures” is not provided as an example.] 	<p><u>NOTE:</u> The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</p> <ul style="list-style-type: none"> • UN number, where applicable. • UN Proper shipping name, where applicable. • Transport Hazard class(es), where applicable. • Special precautions which a user needs to be aware of or needs to comply with in connection with transport (e.g., heating and carriage temperatures). [Note: A similar statement is included in GHS Annex 4, but “heating and carriage temperatures” is not provided as an example.]
15. Regulatory information	<p>IMO resolution MSC.286 (86) does not contain information which goes beyond GHS Annex 4.</p> <p><u>NOTE:</u> The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</p> <ul style="list-style-type: none"> • Safety, health and environmental regulations specific for the product in question. 	<p>IMO resolution MSC.286 (86) does not contain information which goes beyond GHS Annex 4.</p> <p><u>NOTE:</u> The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</p> <ul style="list-style-type: none"> • Safety, health and environmental regulations specific for the product in question.
16. Other information including information on preparation and revision of SDS	<p>In addition to the SDS information in GHS Annex 4, IMO resolution MSC.286 (86) includes the following information:</p> <ul style="list-style-type: none"> • Issuing source. <p>This information should be added in Section 16 of an SDS for MARPOL Annex I cargoes and marine fuel oils.</p> <p><u>NOTE:</u> The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</p> <ul style="list-style-type: none"> • Version No. • Date of issue. 	<p>In addition to the SDS information in GHS Annex 4, IMO resolution MSC.286 (86) includes the following information:</p> <ul style="list-style-type: none"> • Issuing source. <p>This information should be added in Section 16 of an SDS for MARPOL Annex I cargoes and marine fuel oils.</p> <p><u>NOTE:</u> The following IMO resolution MSC.286 (86) SDS information is already in GHS Annex 4:</p> <ul style="list-style-type: none"> • Version No. • Date of issue.