



**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 Transport
of Dangerous Goods****Fifty-sixth session**

Geneva, 2-11 December 2019

Item 10 (f) of the provisional agenda

**Issues relating to the Globally Harmonized System
of Classification and Labelling of Chemicals:****Miscellaneous****Sub-Committee of Experts on the Globally Harmonized
System of Classification and Labelling of Chemicals****Thirty-eighth session**

Geneva, 11-13 December 2019

Item 3 (b) of the provisional agenda

Hazard communication:**Improvement of annexes 1 to 3 and further
rationalization of precautionary statements****Proposed changes to Annex 1 of the GHS****Transmitted by the expert from the United Kingdom on behalf of the
informal working group on improving annexes 1, 2 and 3 of the GHS*****Background**

1. In line with its mandate for the 2019-2020 biennium the informal working group has taken forward work under its focus area (a): “to develop proposals to rationalise and improve the comprehensibility of hazard and precautionary statements for users, while taking into account usability for labelling practitioners.”
2. This document presents the outcome of work on item 6 in the group’s workplan (informal document INF.25, thirty-sixth session) where the issue is: “review the GHS and TDG pictograms and the use of notes in Annex 1 to ensure consistent and helpful presentation across the hazard classes and categories”.

Discussion

3. The purpose of this work item was to review the pictograms and notes in Annex 1 of the GHS to remove inconsistencies, provide greater clarity and improve the readability and presentation of the tables.
4. The informal working group identified some errors and inconsistencies in the tables and notes in Annex 1, including:

* In accordance with the programme of work of the Sub-Committee for 2019-2020 approved by the Committee at its ninth session (see ST/SG/AC.10/46, paragraph 14 and ST/SG/AC.10/C.4/72, Annex II).



(a) **Table A1.1 (Explosives):**

- (i) Table A1.1 contains Model Regulations' divisions that currently do not appear in any of the other tables in Annex 1. However, for consistency and clarity it could be argued that Model Regulations classification, where applicable, should also be included in all the tables in Annex 1. In addition, GHS covers consumers, workplace and transport and since the Model Regulations pictograms are already provided in the tables, it would also be consistent to provide the relevant Model Regulations classification in the tables of Annex 1;
 - (ii) The signal word for hazard categories "unstable explosives" and "Divisions 1.1 to 1.3" are the same and the individual signal word entries have been merged into one box containing the word "Danger". This is inconsistent with the format of the other tables in Annex 1 which repeat identical text or pictogram entries in adjacent boxes. However, it illustrates how the information in the tables could be provided in a clearer, simpler and less cluttered format;
 - (iii) Although the Division 1.1, 1.2 and 1.3 transport pictograms are available to be used, an alternative pictogram is available in Section 5.2.2.2 of the Model Regulations for these divisions and the use of which in Table A1.1 would assist in providing a clearer, simpler and less cluttered table;
 - (iv) The second sentence in the note beneath Table A1.1 starting with "The pictogram for Divisions 1.1 1.2 and 1.3..." provides unnecessary information that the informal working group considered should be deleted on the basis that the table notes do not normally refer to other tables where the same or similar pictograms are used.
- (b) The notes beneath several of the tables (see Tables A1.2, A1.3, A1.5, A1.6, A1.12) that refer to symbol, number, border and background colour of the Model Regulations' pictograms are inconsistently worded and raise questions regarding:
- (i) What the alternative pictograms look like, as they are not clearly illustrated;
 - (ii) Why notes are not provided beneath all tables to indicate whether or not alternative pictograms are available for other hazard classes/categories.
- (c) The notes beneath several of the tables (see Tables A1.19, A1.21, A1.22) that refer to the application of sub-categories provide unnecessary information that the informal working group considered should be deleted on the basis that such application is already integrated into the building block approach for the implementation of GHS in different jurisdictions.
- (d) Several of the tables contain incorrectly displayed Model Regulations' pictogram entries:
- (i) **Table A1.4 (Oxidising gases)** – Under the Model Regulations these substances are classified under the applicable Class 2 division according to their primary gas hazard and should display the applicable Class 2 transport pictogram. These gases are also assigned a Division 5.1 (flame over circle) transport pictogram due to their oxidizing subsidiary hazard. The Model Regulations pictogram table entry incorrectly displays only the Division 5.1 (flame over circle; yellow background) transport pictogram without providing any information in a note beneath the table that the relevant Class 2 transport pictogram should also be displayed.
 - (ii) **Table A1.8 (Self-reactive substances and mixtures) and Table A1.15 (Organic peroxides)** – The Model Regulations' pictogram table entries for "Type B" self-reactive substances and mixtures or "Type B" organic peroxides incorrectly indicate that two pictograms apply, when

the orange (exploding bomb) Model Regulations' pictogram assigned to Divisions 1.1, 1.2 and 1.3 is only required for "Type B" substances that have an explosive subsidiary hazard.

- (iii) **Table A1.17 (Desensitised explosives)** – Although these substances are classified differently under the GHS than under the Model Regulations, the table entry does not display the relevant Model Regulations pictograms. For clarity and consistency reasons the table entry should display both a Class 3 (for liquid desensitised explosives) and a Division 4.1 (for solid desensitised explosives) Model Regulations pictograms.
 - (iv) **Tables A1.29 (a) (Hazardous to the aquatic environment, short term (acute)) and (b) (Hazardous to the aquatic environment, long term (chronic))** – These tables do not display the Class 9 Model Regulations pictogram which usually applies to substances that are hazardous to the aquatic environment and should be provided in the table entry, in addition to the environmentally hazardous substance Model Regulations pictogram.
- (e) Several tables contain inconsistent titles with those used in the chapters for the respective hazard classes:
- (i) **Table A1.21 (Respiratory sensitizer)** – should read '**Table A1.21 Respiratory sensitization** (see Chapter 3.4 for classification criteria)'.
 - (ii) **Table A1.22 (Skin sensitizer)** - should read '**Table A1.22 Skin sensitization** (see Chapter 3.4 for classification criteria)'.
 - (iii) **Table A1.25 (Toxic to reproduction)** - should read '**Table A1.25 Reproductive toxicity** (see Chapter 3.7 for classification criteria)'.
 - (iv) **Table A1.26 (Specific target organ toxicity following single exposure)** - should read '**Table A1.26 Specific target organ toxicity - single exposure** (see Chapter 3.8 for classification criteria)'.
 - (v) **Table A1.27 (Specific target organ toxicity following repeated exposure)** - should read '**Table A1.27 Specific target organ toxicity - repeated exposure** (see Chapter 3.9 for classification criteria)'.
 - (vi) **Table A1.30 (Hazard to the ozone layer)** - should read '**Table A1.30 Hazardous to the ozone layer** (see Chapter 4.2 for classification criteria)'.
- (f) **Table A1.17 (Desensitised explosives)** – the GHS hazard statement for hazard category 1 provided in the table is inconsistent with that provided in Table 2.17.2 and the word 'or' is required to be inserted into the hazard statement to read: "Fire, blast or projection hazard ..."

5. The advantages of the proposed changes to Annex 1 include:

- (a) Improved clarity, consistency and readability of the tables, through the:
 - (i) Inclusion of Model Regulations' class or divisions, in addition to Model Regulations pictograms, in the tables enables greater clarity and comparison between the equivalent classification systems of GHS and Model Regulations. To provide further clarity, the abbreviation 'GHS' is included into the GHS 'hazard class'; 'hazard category'; 'signal word'; 'hazard statement'; and 'hazard statement code' heading columns.
 - (ii) Merger (where this aids greater clarity) of identical text or pictograms in adjacent table entries, provides a less cluttered presentation of information in the tables and enables easier access to relevant classification and labelling information for the labelling practitioner.

- (iii) Introduction of new notes at the beginning of Annex 1 that provide:
 - Clear reasoning behind the inclusion of Model Regulations' classification and labelling in the tables of Annex 1, whilst also directing the reader to the Model Regulations for definitive classification and labelling under those regulations (Note 2);
 - Consistent information on the display of pictograms in the tables (Note 3).
 - (iv) Inclusion in the tables of alternative Model Regulations' pictograms, where these are available, together with the use of the word 'or' in between these pictograms to clearly indicate that either alternative is available to be used (see Tables A1.2, A1.3, A1.5, A1.6, A1.12, A1.15, A1.17 in the annex to this document).
 - (v) Inclusion of the word "and" in between two pictograms displayed in a table entry for a given hazard class or category to clearly indicate that both pictograms are required to be used (see Table A1.3, A1.8, A1.15, A1.29(a), A1.29(b) in the annex to this document).
 - (vi) Inclusion of the words "and if applicable" between the two pictograms displayed for "Type B" self-reactive substances and mixtures or "Type B" organic peroxides, with additional information provided in a note beneath table, to clearly indicate that if there is an explosive subsidiary hazard, then the second pictogram (orange "exploding bomb" Model Regulations' pictogram) is also be required to be used (see Tables A1.8 and A1.15 in the annex to this document).
 - (vii) Deletion of inconsistently worded notes beneath tables that relate to alternative pictograms (see Tables A1.2, A1.3, A1.5, A1.6, A1.12 in the annex to this document), with a more detailed note (Note 3) on the display of pictograms, including alternatives, provided at the beginning viii.
 - (viii) Deletion of unnecessary notes beneath tables (see Tables A1.19, A1.21, A1.22 in the annex to this document), the redrafting of other notes (see Tables A1.1, A1.5, A1.8, A1.15, A1.17, A1.18, A1.29(a) and A1.29(b) in the annex to this document) and the inclusion of a new note (see Table A1.4 in the annex to this document) that provides greater clarity, accuracy and consistency of information presented in Annex 1.
 - (ix) Consistently used terminology in the tables and notes, including:

Where there is no Model Regulations' classification or pictogram for a particular hazard class or category, the term 'Not applicable' is used in the relevant table entries under the respective columns to help ensure consistent terminology is used in the tables (see Tables A1.2, A1.6, A1.8, A1.15, A1.18, A1.19, A1.20, A1.21, A1.22, A1.23, A1.24, A1.25, A1.26, A1.27, A1.28, A1.29(a), A1.29(b), A1.30 in the annex to this document).
 - (x) Consistency between the table titles with the chapter titles for the respective hazard classes (see Tables A1.21, A1.22, A1.25, A1.26, A1.27, A1.30 in the annex to this document).
- (b) Improved clarity and accuracy of labelling information through the inclusion of additional Model Regulations' pictograms in specific tables, as follows:
- **Table A1.17 (desensitized explosives)** – Insertion of the Class 3 (for liquid desensitized explosives) and Division 4.1 (for solid desensitized explosives) pictograms.
 - **Table A1.18 (acute toxicity)** – Insertion of the Division 2.3 (for toxic gases) pictogram.

- **Table A1.29 (a) (Hazardous to the aquatic environment, short term (acute)) and Table A1.29 (b) (Hazardous to the aquatic environment, long term (chronic))** – Insertion of the Class 9 pictogram.

6. Although the proposed changes to Annex 1 would enable greater clarity and comparison between the GHS and Model Regulations classification systems for the purposes of GHS practitioners, no changes are proposed to the Model Regulations classification system.

7. The working group will monitor the outcome of on-going classification and labelling work (e.g. on the revision of Chapter 2.1 (Explosives) of the GHS and the gas pictograms work under the Model Regulations) and may make further proposed amendments to Annex 1 as may be appropriate in the future.

Proposal

8. The annex to this document sets out the proposed changes to Annex 1 in full.

Action

9. The Sub-Committee of Experts on the Transport of Dangerous Goods (TDG Sub-Committee) is invited to note the proposal and the GHS Sub-Committee is invited to agree the proposed changes to Annex 1 of the GHS as set out in the annex to this document.

Annex

Proposed changes to Annex 1 of the GHS

The proposed changes to Annex 1 are shown hereafter in full. New text is shown in blue. Deleted text is shown in red ~~striktthrough~~. However, because it is difficult to clearly display the changes between existing adjacent table entries and those that are proposed to be merged, to assist readability only the proposed merged table entries are provided in the appendix of this document. For the existing table entries please refer to Annex 1 in the GHS.

“Annex 1

Classification and labelling summary tables







NOTE 1: *The codification of hazard statements is further explained in Annex 3 (Section 1). The hazard statement codes are intended to be used for reference purposes only. They are not part of the hazard statement text and should not be used to replace it.*

NOTE 2: *To provide clarity, assist labelling practitioners and enable comparison between equivalent classification and labelling systems under the GHS and the UN Recommendations on the Transport of Dangerous Goods Model Regulations (UN Model Regulations), transport hazard classes, divisions and pictograms are included in Tables A1.1 to A1.30. However, it should be noted that in these tables the UN Model Regulations classification and labelling entries are provided for indicative purposes only. For transport purposes, the classification and labelling provisions prescribed by UN Model Regulations shall be used (see also Chapter 1.4, section 1.4.10 of the GHS).*

NOTE 3: *GHS hazard pictograms are displayed in the shape of a square set at a point with a black symbol on a white background with a red frame. The transport pictograms (commonly referred to as labels in the UN Model Regulations) shall be displayed on a background of contrasting colour or, where appropriate, shall have either a dotted or solid boundary line as provided in Chapter 5.2 of the UN Model Regulations¹ and in Tables A1.1 to A1.30 below. For some hazard categories, the symbol, number and border line of the transport pictogram may be shown in white instead of black. Where such an alternative is available it is shown in the relevant Tables below (see Tables A1.2, A1.3, A1.5, A1.6, A1.12, A1.15, A1.17).*




¹ See UN Recommendations on the Transport of Dangerous Goods, Model Regulations, Chapter 5.2, Section 5.2.2.2.

A1.1 Explosives (see Chapter 2.1 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|------------------|---------------------|--|---|---|-----------------|---|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram ^a | GHS Signal word | GHS Hazard statement | |
| Explosives | Unstable explosive | |  | (Transport not allowed) | Danger | Unstable explosive | H200 |
| | 1.1 | | |  | | Explosive; mass explosion hazard | H201 |
| | 1.2 | | |  | | Explosive; severe projection hazard | H202 |
| | 1.3 | | |  | | Explosive; fire, blast or projection hazard | H203 |
| | 1.4 | | No pictogram |  | Warning | Fire or projection hazard | H204 |
| | 1.5 | | |  | Danger | May mass explode in fire | H205 |
| | 1.6 | | |  | No signal word | No hazard statement | None |

^a Under the UN Model Regulations, (*) indicates the place for compatibility group and (**) indicates the place for division - to be left blank if explosive is the subsidiary hazard. The pictogram for Divisions 1.1, 1.2 and 1.3 is also assigned to substances which have an explosive subsidiary risk, but without the indication of the division number and the compatibility group (see also "Self reactive substances and mixtures" and "Organic peroxides").

A1.2 Flammable gases (see Chapter 2.2 for classification criteria)

| Classification | | | | Labelling | | | | GHS Hazard statement codes | |
|------------------|---------------------|----------------|--|---|--|--------------------------------|---|---|---|
| GHS Hazard class | GHS Hazard category | | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram ^a | GHS Signal word | GHS Hazard statement | | |
| Flammable gases | 1A | Flammable gas | 2.1 |  |  or  | Danger | Extremely flammable gas | H220 | |
| | | Pyrophoric gas | | | | | Extremely flammable gas May ignite spontaneously if exposed to air | H220 H232 | |
| | | | | | | | Chemically unstable gas | Extremely flammable gas May react explosively even in the absence of air | H220 H230 |
| | | A | | | | | | B | Extremely flammable gas May react explosively even in the absence of air at elevated pressure and/or temperature |
| | | 1B | | | | | | | |
| | | 2 | | Not applicable | No pictogram | Not applicable Not required | Warning | Flammable gas | H221 |



^a Under the UN Recommendations on the Transport of Dangerous Goods, Model Regulations, the symbol, number and border line may be shown in black instead of white. The background colour stays red in both cases. Under the UN Model Regulations, pyrophoric gases and chemically unstable gases (A and B) are classified based on their flammability in Class 2, Division 2.1.

A1.3 Aerosols and Chemicals under pressure (see Chapter 2.3 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|---|---------------------|--|---------------|---|-----------------|--|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram ^a | GHS Signal word | GHS Hazard statement | |
| Aerosols (section 2.3.1) | 1 | 2.1 | | | Danger | Extremely flammable aerosol | H222 |
| | 2 | | | or | | Pressurized container: may burst if heated | H229 |
| | 3 | 2.2 | No pictogram | or | Warning | Flammable aerosol | H223 |
| | | | | | | Pressurized container: may burst if heated | H229 |
| Chemicals under pressure (section 2.3.2) | 1 | 2.1 | | | Danger | Extremely flammable chemical under pressure: may explode if heated | H282 |
| | 2 | | and | or | | Flammable chemical under pressure: may explode if heated | H283 |
| | 3 | 2.2 | | or | Warning | Chemical under pressure: may explode if heated | H284 |
| | | | | | | | |




^a—Under the UN Recommendations on the Transport of Dangerous Goods, Model Regulations, the symbol, number and border line may be shown in black or white. The background colour is red for categories 1 and 2 and green for category 3.

A1.4 Oxidizing gases (see Chapter 2.4 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement code |
|------------------------|---------------------------|---|---|---|-----------------------|---------------------------------------|------------------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram ^a | GHS Signal word | GHS Hazard statement | |
| Oxidizing gases | 1 | 2 ^a |  |  | Danger | May cause or intensify fire; oxidizer | H270 |




^a Under the UN Model Regulations, oxidising gases are classified under the applicable Class 2 division according to their primary gas hazard and will display the applicable Class 2 transport pictogram. In addition, they are assigned a Division 5.1 (flame over circle) transport pictogram due to their oxidizing subsidiary hazard.

A1.5 Gases under pressure (see Chapter 2.5 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|----------------------------|----------------------------|---|---|--|--------------------|--|-------------------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram ^a | GHS Signal word | GHS Hazard statement | |
| Gases under pressure | Compressed gas | 2.2 |  |  or  | Warning | Contains gas under pressure; may explode if heated | H280 |
| | Liquefied gas | | | | | Contains gas under pressure; may explode if heated | |
| | Refrigerated liquefied gas | | | | | Contains refrigerated gas; may cause cryogenic burns or injury | H281 |
| | Dissolved gas | | | | | Contains gas under pressure; may explode if heated | H280 |



^a Under the ~~UN Recommendations on the Transport of Dangerous Goods~~, Model Regulations, ~~the symbol, number and border line may be shown in white instead of black. The background colour stays green in both cases. This pictogram is not required for gases under pressure that are also toxic or flammable gases. In those cases, the applicable toxic or flammable gas hazard class pictogram is used instead (see also note "a" to tables A1.18 and A1.2).~~

A1.6 Flammable liquids (see Chapter 2.6 for classification criteria)








| Classification | | | Labelling | | | | GHS Hazard statement codes |
|------------------------|---------------------------|---|---|--|-----------------------|---------------------------------------|-------------------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram* | GHS Signal word | GHS Hazard statement | |
| Flammable liquids | 1 | 3 |  |  or  | Danger | Extremely flammable liquid and vapour | H224 |
| | 2 | | | | | Highly flammable liquid and vapour | H225 |
| | 3 | | | | Warning | Flammable liquid and vapour | H226 |
| | 4 | Not applicable | No pictogram | Not applicable <i>Not required</i> | | Combustible liquid | H227 |

*—Under the UN Recommendations on the Transport of Dangerous Goods, Model Regulations, the symbol, number and border line may be shown in black instead of white. The background colour stays red in both cases

A1.7 Flammable solids (see Chapter 2.7 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|------------------------|---------------------------|---|---|---|-----------------------|-------------------------|-------------------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Flammable solids | 1 | 4.1 |  |  | Danger | Flammable solid | H228 |
| | 2 | | | | Warning | | |



A1.8 Self-reactive substances and mixtures (see Chapter 2.8 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|---------------------------------------|---------------------|--|---|--|-----------------|---------------------------------------|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram ^a | GHS Signal word | GHS Hazard statement | |
| Self-reactive substances and mixtures | Type A | 4.1 Type A |  | (Transport may not be allowed) ^b | Danger | Heating may cause an explosion | H240 |
| | Type B | 4.1 Type B |  and  |  and if applicable ^a :  | Danger | Heating may cause a fire or explosion | H241 |
| | Types C and D | 4.1 Types C and D |  |  | Danger | Heating may cause a fire | H242 |
| | Types E and F | 4.1 Types E and F | | | Warning | | |
| | Type G | Type G | No pictogram | Not applicable Not required | No signal word | No hazard statement | None |



^a ~~For Type B, under the UN Recommendations on the Transport of Dangerous Goods, Model Regulations, where a Type B substance or mixture has an explosive subsidiary hazard, then the transport pictogram for Divisions 1.1, 1.2 or 1.3 shall also be used without the indication of the division number or the compatibility group. For a substance or mixture of hazard category Type B, special provision 181 may apply (Exemption of explosive label with competent authority approval. See Chapter 3.3 of the UN Model Regulations for more details).~~

^b May not be acceptable for transport in the packaging in which it is tested (See 2.4.2.3.2.1 ~~Chapter 2.5, para 2.5.3.2.2~~ of the UN Model Regulations).



A1.9 Pyrophoric liquids (see Chapter 2.9 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement code |
|--------------------|---------------------|--|---|---|-----------------|--|---------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Pyrophoric liquids | 1 | 4.2 |  |  | Danger | Catches fire spontaneously if exposed to air | H250 |

A1.10 Pyrophoric solids (see Chapter 2.10 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement code |
|-------------------|---------------------|--|---|---|-----------------|--|---------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Pyrophoric solids | 1 | 4.2 |  |  | Danger | Catches fire spontaneously if exposed to air | H250 |

A1.11 Self-heating substances and mixtures (see Chapter 2.11 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|--------------------------------------|---------------------|--|---|---|-----------------|--|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Self-heating substances and mixtures | 1 | 4.2 |  |  | Danger | Self-heating; may catch fire | H251 |
| | 2 | | | | Warning | Self-heating in large quantities; may catch fire | H252 |

A1.12 Substances and mixtures, which in contact with water, emit flammable gases (see Chapter 2.12 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|--|---------------------|--|---------------|---------------------------------|-----------------|---|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram* | GHS Signal word | GHS Hazard statement | |
| Substances and mixtures, which in contact with water, emit flammable gases | 1 | 4.3 | | | Danger | In contact with water releases flammable gases which may ignite spontaneously | H260 |
| | 2 | | | | Danger | In contact with water releases flammable gases | H261 |
| | 3 | | | | Warning | | |

*—Under the UN Recommendations on the Transport of Dangerous Goods, Model Regulations, the symbol, number and border line may be shown in black instead of white. The background colour stays blue in both cases.

A1.13 Oxidizing liquids (see Chapter 2.13 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|-------------------|---------------------|--|---------------|--------------------------------|-----------------|--|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Oxidizing liquids | 1 | 5.1 | | | Danger | May cause fire or explosion; strong oxidizer | H271 |
| | 2 | | | | Danger | May intensify fire; oxidizer | H272 |
| | 3 | | | | Warning | | |

A1.14 Oxidizing solids (see Chapter 2.14 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|------------------|---------------------|--|---------------|--------------------------------|-----------------|--|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Oxidizing solids | 1 | 5.1 | | | Danger | May cause fire or explosion; strong oxidizer | H271 |
| | 2 | | | | Danger | May intensify fire; oxidizer | H272 |
| | 3 | | | | Warning | | |

A1.15 Organic peroxides (see Chapter 2.15 for classification criteria)



| Classification | | | Labelling | | | | GHS Hazard statement codes |
|-------------------|---------------------|--|---------------|---|-----------------|---------------------------------------|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram ^a | GHS Signal word | GHS Hazard statement | |
| Organic peroxides | Type A | 5.2 Type A | | (Transport may not be allowed) ^b | Danger | Heating may cause an explosion | H240 |
| | Type B | 5.2 Type B | and | and if applicable ^a : | Danger | Heating may cause a fire or explosion | H241 |
| | Types C and D | 5.2 Types C and D | | or | Danger | Heating may cause a fire | H242 |
| | Types E and F | 5.2 Types E and F | | | Warning | | |
| | Type G | Type G | No pictogram | Not applicable Not required | No signal word | No hazard statement | None |

^a For Type B, ~~Under the UN Recommendations on the Transport of Dangerous Goods, Model Regulations~~, where a Type B substance or mixture has an explosive subsidiary hazard, then the transport pictogram for Divisions 1.1, 1.2 or 1.3 shall also be used without the indication of the division number or the compatibility group. For a substance or mixture of hazard



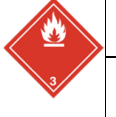

category Type B, special provision 181 may apply (Exemption of explosive label with competent authority approval. See Chapter 3.3 of the UN Model Regulations for more details).

- ^b May not be acceptable for transport in the packaging in which it is tested (See *Chapter 2.5, para 2.5.3.2.2 of the UN Model Regulations*).

A1.16 Corrosive to metals (see Chapter 2.16 for classification criteria)





| Classification | | | Labelling | | | | GHS Hazard statement code |
|---------------------|---------------------|--|---|---|-----------------|----------------------------|---------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Corrosive to metals | 1 | 8 |  |  | Warning | May be corrosive to metals | H290 |

A1.17 Desensitized explosives (see Chapter 2.17 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|-------------------------|---------------------|---|---|--|-----------------|---|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division ^a | GHS pictogram | UN Model Regulations pictogram ^a | GHS Signal word | GHS Hazard statement | |
| Desensitized explosives | 1 | 3 |  |  <i>Not applicable</i> or  | Danger | Fire, blast or projection hazard; increased risk of explosion if desensitizing agent is reduced | H206 |
| | 2 | | | | Danger | Fire or projection hazard; increased risk of explosion if desensitizing agent is reduced | H207 |
| | 3 | or | |  | Warning | Fire or projection hazard; increased risk of explosion if desensitizing agent is reduced | |
| | 4 | 4.1 | | | Warning | Fire hazard; increased risk of explosion if desensitizing agent is reduced | H208 |




- ^a *Classification and labelling of desensitized explosives are addressed in transport regulations in a different way: In transport, solid desensitized explosives are classified in Division 4.1 (flammable solids,) and shall bear a Division 4.1 label (see Chapter 2.4, section 2.4.2.4 of the UN Recommendations on the Transport of Dangerous Goods, Model Regulations). Liquid desensitized explosives are classified in Class 3 (flammable liquids) for transport purposes and shall bear a Class 3 label (see Chapter 2.3, section 2.3.1.4 of the Model Regulations). Under the UN Model Regulations, liquid desensitized explosives are classified in Class 3 and solid desensitized explosives are classified in Division 4.1.*

A1.18 Acute toxicity (see Chapter 3.1 for classification criteria)

| Classification | | | Labelling | | | | | GHS Hazard statement codes |
|------------------|---------------------|------------|---|--|---|-------------------------------------|------------------------------|----------------------------|
| GHS Hazard class | GHS Hazard category | | UN Model Regulations class or division ^a | GHS pictogram | UN Model Regulations pictogram ^a | GHS Signal word | GHS Hazard statement | |
| Acute toxicity | 1, 2 | Oral | 2.3 |  |  | Danger | Fatal if swallowed | H300 |
| | | Dermal | | | | | Fatal in contact with skin | H310 |
| | | Inhalation | | | | | Fatal if inhaled | H330 |
| | 3 | Oral | 6.1 | |  | Danger | Toxic if swallowed | H301 |
| | | Dermal | | | | | Toxic in contact with skin | H311 |
| | | Inhalation | | | | | Toxic if inhaled | H331 |
| | 4 | Oral | Not applicable |  | Not applicable <i>Not required</i> | Warning | Harmful if swallowed | H302 |
| | | Dermal | | | | | Harmful in contact with skin | H312 |
| | | Inhalation | | | | | Harmful if inhaled | H332 |
| | 5 | Oral | No pictogram | No pictogram | Warning | May be harmful if swallowed | H303 | |
| | | Dermal | | | | May be harmful in contact with skin | H313 | |
| | | Inhalation | | | | May be harmful if inhaled | H333 | |

^a For gases, under the UN Recommendations on the Transport of Dangerous Goods, Model Regulations, replace the number "6" in the bottom corner of the pictogram by "2". Under the UN Model Regulations, toxic gases are classified in Division 2.3 and toxic substances (as defined in the UN Model Regulations) are classified in Division 6.1.



A1.19 Skin corrosion/irritation (see Chapter 3.2 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|---------------------------|----------------------------|--|---|---|-----------------|---|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Skin corrosion/irritation | 1, 1A, 1B, 1C ^a | 8 |  |  | Danger | Causes severe skin burns and eye damage | H314 |
| | 2 | Not applicable |  | Not applicable <i>Not required</i> | Warning | Causes skin irritation | H315 |
| | 3 ^b | | No pictogram | | Warning | Causes mild skin irritation | H316 |


^a Sub-categories may be applied where data are sufficient and where required by a competent authority

^b Applies to some authorities.

A1.20 Serious eye damage/eye irritation (see Chapter 3.3 for classification criteria)


| Classification | | | Labelling | | | | GHS Hazard statement codes |
|-----------------------------------|---------------------|--|---|---------------------------------------|-----------------|-------------------------------|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Serious eye damage/eye irritation | 1 | Not applicable |  | Not applicable <i>Not required</i> | Danger | Causes serious eye damage | H318 |
| | 2/2A | |  | | Warning | Causes serious eye irritation | H319 |
| | 2B | | No pictogram | | Warning | Causes eye irritation | H320 |

A1.21 Respiratory sensitizer-sensitization (see Chapter 3.4 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|---------------------------|---------------------|--|---|--------------------------------|-----------------|---|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Respiratory sensitization | 1, 1A*, 1B* | Not applicable |  | Not applicable Not required | Danger | May cause allergy or asthma symptoms or breathing difficulties if inhaled | H334 |


* Sub-categories may be applied where data are sufficient and where required by a competent authority.

A1.22 Skin sensitizer-sensitization (see Chapter 3.4 for classification criteria)


| Classification | | | Labelling | | | | GHS Hazard statement codes |
|--------------------|---------------------|--|---|--------------------------------|-----------------|-------------------------------------|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Skin sensitization | 1, 1A*, 1B* | Not applicable |  | Not applicable Not required | Warning | May cause an allergic skin reaction | H317 |

* Sub-categories may be applied where data are sufficient and where required by a competent authority.


A1.23 Germ cell mutagenicity (see Chapter 3.5 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|------------------------|---------------------|--|---|--------------------------------|-----------------|---|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Germ cell mutagenicity | 1, 1A, 1B | Not applicable |  | Not applicable Not required | Danger | May cause genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard) | H340 |
| | 2 | | | | Warning | Suspected of causing genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard) | H341 |



A1.24 Carcinogenicity (see Chapter 3.6 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|------------------|---------------------|--|---|---------------------------------------|-----------------|---|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Carcinogenicity | 1, 1A, 1B | Not applicable |  | Not applicable <i>Not required</i> | Danger | May cause cancer (<i>state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard</i>) | H350 |
| | 2 | | | | Warning | Suspected of causing cancer (<i>state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard</i>) | H351 |


A1.25 Reproductive toxicity ~~Toxic to reproduction~~ (see Chapter 3.7 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|-----------------------|---|--|---|---------------------------------------|-----------------|---|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Reproductive toxicity | 1, 1A, 1B | Not applicable |  | Not applicable <i>Not required</i> | Danger | May damage fertility or the unborn child (<i>state specific effect if known</i>) (<i>state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard</i>) | H360 |
| | 2 | | | | Warning | Suspected of damaging fertility or the unborn child (<i>state specific effect if known</i>) (<i>state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard</i>) | H361 |
| | Additional category for effects on or via lactation | | No pictogram | Not applicable <i>Not required</i> | No signal word | May cause harm to breast-fed children | H362 |


A1.26 Specific target organ toxicity - ~~following~~ single exposure (see Chapter 3.8 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|--|---------------------|--|---|---|-----------------|--|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Specific target organ toxicity – single exposure | 1 | Not applicable |  | Not applicable Not required | Danger | Causes damage to organs (or state all organs affected, if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard) | H370 |
| | 2 | | | | Warning | May cause damage to organs (or state all organs affected, if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard) | H371 |
| | 3 | |  | | Warning | May cause respiratory irritation or May cause drowsiness or dizziness | H335 H336 |




A1.27 Specific target organ toxicity - ~~following~~ repeated exposure (see Chapter 3.9 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|--|---------------------|--|---|---------------------------------------|-----------------|--|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Specific target organ toxicity – repeated exposure | 1 | Not applicable |  | Not applicable <i>Not required</i> | Danger | Causes damage to organs (<i>state all organs affected, if known</i>) through prolonged or repeated exposure (<i>state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard</i>) | H372 |
| | 2 | | | | Warning | May cause damage to organs (<i>state all organs affected, if known</i>) through prolonged or repeated exposure (<i>state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard</i>) | H373 |

A1.28 Aspiration hazard (See chapter 3.10 for classification criteria)




| Classification | | | Labelling | | | | GHS Hazard statement codes |
|-------------------|---------------------|--|---|---------------------------------------|-----------------|--|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Aspiration hazard | 1 | Not applicable |  | Not applicable <i>Not required</i> | Danger | May be fatal if swallowed and enters airways | H304 |
| | 2 | | | | Warning | May be harmful if swallowed and enters airways | H305 |

A1.29 (a) Hazardous to the aquatic environment, short-term (acute) (see Chapter 4.1 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|--|---------------------|---|---|---|-----------------|----------------------------|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division ^a | GHS pictogram | UN Model Regulations pictogram ^a | GHS Signal word | GHS Hazard statement | |
| Hazardous to the aquatic environment, short-term (Acute) | Acute 1 | 9 |  |  and  | Warning | Very toxic to aquatic life | H400 |
| | Acute 2 | Not applicable | No pictogram | Not applicable | No signal word | Toxic to aquatic life | H401 |
| | Acute 3 | Not applicable | No pictogram | Not applicable | No signal word | Harmful to aquatic life | H402 |


^a ~~For Category 1, under the UN Recommendations on the Transport of Dangerous Goods, Model Regulations, for category Acute 1, environmentally hazardous substances are classified under Class 9 and shall bear both the Class 9 transport pictogram and the environmentally hazardous substance transport mark (see Chapter 5.2, section 5.2.1.6 and Chapter 5.3, section 5.3.2.3, of the UN Model Regulations). the pictogram is not required if the substance presents any other hazards covered by UN Model Regulations. If no other hazard is presented, this pictogram is required as a mark in addition to the UN Model Regulations Class 9 label. However, if the environmentally hazardous substance presents any other hazards covered by UN Model Regulations, the Class 9 transport pictogram shall be replaced by the transport pictogram(s) applicable to the hazard(s) present and the environmentally hazardous substance pictogram is not required.~~

A1.29 (b) Hazardous to the aquatic environment, long-term (chronic) (see Chapter 4.1 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement codes |
|---|---------------------|---|---|---|-----------------|--|----------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division ^a | GHS pictogram | UN Model Regulations pictogram ^a | GHS Signal word | GHS Hazard statement | |
| Hazardous to the aquatic environment, long-term (Chronic) | Chronic 1 | 9 |  |  and  | Warning | Very toxic to aquatic life with long lasting effects | H410 |
| | Chronic 2 | | | | No signal word | Toxic to aquatic life with long lasting effects | H411 |
| | Chronic 3 | Not applicable | No pictogram | Not applicable <i>Not required</i> | No signal word | Harmful to aquatic life with long lasting effects | H412 |
| | Chronic 4 | | | | | May cause long lasting harmful effects to aquatic life | H413 |

^a ~~For categories 1 and 2, under the UN Recommendations on the Transport of Dangerous Goods, Model Regulations, for categories Chronic 1 and 2, environmentally hazardous substances are classified under Class 9 and shall bear both the Class 9 transport pictogram and the environmentally hazardous substance transport mark (see Chapter 5.2, section 5.2.1.6 and Chapter 5.3, section 5.3.2.3, of the UN Model Regulations). the pictogram is not required if the substance presents any other hazards covered by UN Model Regulations. If no other hazard is presented, this pictogram is required as a mark in addition to the UN Model Regulations Class 9 label.~~ However, if the environmentally hazardous substance presents any other hazards covered by UN Model Regulations, the Class 9 transport pictogram shall be replaced by the transport pictogram(s) applicable to the hazard(s) present and the environmentally hazardous substance pictogram is not required.

A1.30 Hazardous to the ozone layer (see Chapter 4.2 for classification criteria)

| Classification | | | Labelling | | | | GHS Hazard statement code |
|------------------------------|---------------------|--|---|---------------------------------------|-----------------|---|---------------------------|
| GHS Hazard class | GHS Hazard category | UN Model Regulations class or division | GHS pictogram | UN Model Regulations pictogram | GHS Signal word | GHS Hazard statement | |
| Hazardous to the ozone layer | 1 | Not applicable |  | Not applicable <i>Not required</i> | Warning | Harms public health and the environment by destroying ozone in the upper atmosphere | H420 |

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