CARICOM REGIONAL STANDARD

Hazardous Substances and Products Containing Hazardous Substances – Classification and Labelling

FDCRS 81:202X

CARICOM Regional Organisation for Standards and Quality (CROSQ)
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Contents

Figures

Tables

Foreword

This CARICOM Regional Standard CRS 81:202X, *Hazardous substances and products containing hazardous substances – Classification and labelling* has been developed under the authority of the CARICOM Regional Organisation for Standards and Quality (CROSQ). It was approved as a CARICOM Regional Standard by the CARICOM Council for Trade and Economic Development (COTED) at its XX Meeting in MM YYYY.

This CARICOM Regional Standard is one of two standards that are outputs of the Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) Programme, specifically Project 10279 and 10472, executed under the auspices of Basel Convention Regional Centre for Training and Technology Transfer to the Caribbean (BCRC-Caribbean) and funded by the Global Environmental Facility (GEF). The objective of these projects is to support CARICOM Member States to "*enter a safe chemical development pathway through strengthening their ability to control the flow of chemicals, products and materials into their territories and to unlock resources for long term management of chemicals and wastes".*

This standard describes the classification and labelling criteria of hazardous substances and mixtures containing hazardous substances by the types of hazards they present (e.g. acute toxicity and flammability). The content for this standard is derived from the UN Globally Harmonized System of Classification and Labelling of Chemicals (UN GHS) which is based on the mandate from the 1992 United Nations Conference Environment and Development (UNCED). The mandate was further refined and was adopted by the Inter-organization Programme for the Sound Management of Chemicals (IOMC) Coordinating Group in December 2002.

The UN GHS Sub-committee is responsible for the maintenance of the GHS as well as promoting its implementation and provision of additional guidance as needs arise. The UN GHS was updated in December 2022 to version 10 and all references to the UN GHS in this standard are to be read as UN GHS Tenth revised edition (or UN GHS Rev.10)

The information on hazardous substances and mixtures containing hazardous substances must be clearly communicated through the producer/manufacturer or supplier to relevant government agencies, workers, and downstream users in order to enhance the protection of human health and the environment during the handling, transport, and use of these chemicals in CARICOM Member States.

This standard is intended to be used by national competent authorities, regional and international organizations, manufacturers, importers, distributors of hazardous substances, mixtures, and, or products (or "articles") containing hazardous substances, workers, consumers, and consumer organizations. It also addresses national, regional, and international transport requirements.

In formulating this standard considerable assistance was derived from the following publications which were still current when this standard was being developed:

a) United Nations. Globally Harmonized System of Classification and Labelling of Chemicals. New York, Geneva: United Nations. Rev ed.10, 2023;

b) ISO 11683:1997, *Tactile warnings of danger – Requirements;*

c) Hazard Communication Standard (29 CFR 1910.1200) of the Occupational Safety and Health Administration of the United States of America; and

d) United Nations. United Nations Model Regulations on the Transport of Dangerous Goods Rev 23 (2023).

This standard includes the following normative annex that is indispensable to the proper application of this standard:

- Annex A – Requirement for the preparation of safety data sheets.

Introduction

In the GHS, the hazard classes and categories are considered as the building blocks upon which the harmonized system is based (see Table 1). The national competent authorities of different countries/regions decide on which hazard classes and categories are adopted for that country/region. This standard is focused on the specific requirements of the region while ensuring that the required information to achieve harmonization with regional and international trading partners as well as providing the required level of safe use of potentially hazardous materials and chemicals. This standard therefore does not address all the areas covered by the UN GHS 10.

Table 1— GHS building blocks (Classes and categories of hazards)

Hazard type	Hazard class	Hazard categories				
Physical	Explosives	Cat. 1	Cat. 2A	Cat. 2B	Cat. 2C	
	Flammable gases	Cat. 1A	Cat. 1B	Cat. 2		
	Flammable liquids	Cat. 1	Cat. 2	Cat. 3	Cat. 4	
	Flammable solids	Cat. 1	Cat. 2			
	Aerosols	Cat. 1	Cat. 2	Cat. 3		
	Chemicals under pressure	Cat. 1	Cat. 2	Cat. 3		
	Oxidizing gases	Cat. 1				
	Oxidizing liquids	Cat. 1	Cat. 2	Cat. 3		
	Oxidizing solids	Cat. 1	Cat. 2	Cat. 3		
	Gases under pressure	Compressed gas	Liquefied gas	Refrigerated Liquefied gas	Dissolved gas	
	Pyrophoric liquids	Cat. 1				
	Pyrophoric solids	Cat. 1				
	Self-reactive substances and mixtures	Type A	Type B	Type C and D	Type E and F	Type G
	Self-heating substances and mixtures	Cat. 1	Cat. 2			
	Substances and mixtures, which upon contact with water, emits flammable gases	Cat. 1	Cat. 2	Cat. 3		
	Organic peroxides	Type A	Type B	Type C and D	Type E and F	Type G
	Substances or mixtures corrosive to metals	Cat. 1				
	Desensitized explosives	Cat. 1	Cat. 2	Cat. 3	Cat. 4	

Hazard type	Hazard class	Hazard categories				
Health	Acute Toxicity	Cat. 1	Cat. 2	Cat. 3	Cat. 4	Cat. 5
	Skin corrosion	Cat. 1A	Cat. 1B	Cat. 1C	Cat. 2	Cat. 3
	Eye Damage / irritation	Cat. 1	Cat. 2/2A	Cat. 2B		
	Respiratory and skin sensitization	Respiratory	Skin sensitization			
		Cat. 1 (1A and 1B)	Cat. 1 (1A and 1B)			
	Mutation of cells	Cat. 1 (1A and 1B)	Cat. 2			
	Carcinogenicity	Cat. 1 (1A and 1B)	Cat. 2			
	Reproductive toxicity	Cat. 1 (1A and 1B)	Cat. 2	Additional category for effect on or via lactation		
	Specific target organ toxicity – Single exposure	Cat. 1	Cat. 2	Cat. 3		
	Specific target organ toxicity - multiple exposures	Cat. 1	Cat. 2			
	Aspiration toxicity	Cat. 1	Cat. 2			
Environmental	Short term (acute) aquatic hazardous	Cat. 1	Cat. 2	Cat. 3		
	Long term (chronic) aquatic hazardous	Cat. 1	Cat. 2	Cat. 3	Cat. 4	
	Hazardous to the ozone layer	Cat. 1				

The system for hazard communication adopted in this standard makes use of appropriate labelling tools to convey information about each of the hazard classes and categories in accordance with the criteria prescribed by the UN GHS Rev.10, Chapter 1.3. Classes and categories are to be taken as defined in CRS 80, *Terminology and definitions for hazardous substances and products containing hazardous substances.*

The labelling tools include the following as necessary:

a) identification of the hazard class to which the substance/mixture has been assigned Clause 6 of this standard and referenced GHS clauses);

b) easily understandable symbols/pictograms (refer to subclause 7.2 of this standard and GHS clauses 1.4.10.3 – 1.4.10.4);

c) safety data sheets (SDS) (refer to Clause 8 and Annex A);

d) signal words (refer to GHS section 1.4.10.5.2 (a) and subclauses 7.4.1 and 9.4.2 of this standard);

e) hazard statements (refer to GHS section 1.4.10.5.2 (b) and subclauses 7.4.2 and 9.4.2 of this standard);

f) precautionary statements (refer to GHS section 1.4.10.5.2 (c) and subclauses 7.4.3 and 9.4.2 of this standard); and
g) training (refer to GHS section 1.4.9).

These requirements are necessary to:
a) protect and/or enhance the health and safety of people who may be impacted by the chemicals, substances, mixtures, and products concerned;
b) protect facilities and the environment;
c) promote the safe use and free movement of chemicals, substances, mixtures, and articles within the CARICOM region; and
d) To support the safe Transboundary Movement of Waste in accordance with the Basel Convention and other international Chemicals and Waste agreements.

The mode of application of the hazard communication elements of the UN GHS Rev. 10 (e.g. labels, safety data sheets) may vary by product category or stage in the life cycle, but the requirements are intended to protect people, facilities and the environment.

1 Scope

This standard prescribes requirements for manufacturers, importers, exporters and incidental and connected purposes throughout the lifecycle, for appropriately classifying and labelling of hazardous chemicals, substances, mixtures, and products that contain hazardous chemicals produced in or imported into the region before being offered for sale on the local market, transported within the Member State or CARICOM region or used in industrial, commercial or agricultural activities, as indicated herein. It also gives requirements for workplace labelling of hazardous chemicals.

This standard includes hazard communication elements for physical, health, and environmental hazards but is not applicable to consumer products for intentional intake/application such as human and veterinary pharmaceuticals, food products with trace levels of additives, cosmetics, or pesticides.

NOTE The labelling of pesticides is covered by CARICOM Regional Standard, CRS 39:2022, *Pesticides labelling – Requirements*.

This standard does not address the following:

a) establishment of standard test methods to determine health and environmental hazardous properties of chemical substances for labelling purposes, or the requirement for additional testing to address adverse health outcomes; and

b) risk assessment, risk management or country chemical inventories.

This standard does not directly address biohazards or radioactive substances or wastes.

2 Normative references

The following referenced documents are indispensable for the application of this standard. Some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CARICOM Regional Organisation for Standards and Quality (CROSQ)
FDCRS 80, Terminology and definitions for hazardous substances and products containing hazardous substances

International Maritime Organization
International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk - International Bulk Chemical Code (IBC)
International Convention for the Prevention of Pollution from Ships (MARPOL 73/78)

International Organization for Standardization (ISO)
ISO 11683, *Tactile warnings of danger – Requirements*
ISO 10156, *Gas cylinders — Gases and gas mixtures — Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets*

United Nations (UN)
Globally Harmonised System of Classification and Labelling of Chemicals (GHS), by United Nations. Tenth revised edition (UN GHS Rev. 10/2023)

3 Terms and definitions

For the purposes of this standard, the terms and definitions in accordance with CRS 80, *Terminology and definitions for hazardous substances and products containing hazardous substances* apply.

4 Abbreviations and acronyms

The following abbreviations are utilized in this standard.

ATE	Acute toxicity estimates/Acute toxicity values
CARICOM	The Caribbean Community and Common Market
COTED	The Council for Trade and Economic Development
CROSQ	CARICOM Regional Organisation for Standards and Quality
CRS	CARICOM Regional Standard
HCL	Harmonization of Classification and Labelling
IARC	International Agency for Research on Cancer
ILO	The International Labour Organization
IOMC	Inter-Organization Programme for the Sound Management of Chemicals (IOMC) Coordinating Group
SDS	Safety Data Sheet
STOT	Specific Target Organ Toxicity
UN GHS Rev. 10	UN Globally Harmonized Hazard Classification and Labelling Systems, Revision 10
UNECTDG	The United Nations Committee of Experts on the Transport of Dangerous Goods

5 Adoption of the GHS building blocks

This standard utilizes the following GHS Building Blocks from Table 1.

a) The physical hazard classes and categories as outlined in subclause 9.4.2 (a) – 9.4.2 (r);

b) The health hazard classes and categories as outlined in Clause 10; and

c) The environmental hazard classes and categories as outlined in Clause 11.

6 Classification of hazards

6.1 General

6.1.1 For the purpose of hazard classification:

a) the manufacturer shall be responsible for the classification of the product; and

b) the supplier (manufacturer, distributor, or importer) that places a product on the market shall be the responsible party for ensuring that the classification of the product is in conformance with the requirements of this standard.

NOTE The national competent authority has the responsibility for the registration of chemicals and validates the authenticity of the chemical classification and subsequent labelling and therefore has the final determination with respect to approval of the classification and labelling.

6.1.2 Only the intrinsic hazardous properties of substances, mixtures or alloys shall be considered. The classification process shall incorporate the following three steps per section 1.3.2.2 of UN GHS Rev. 10:

a) identification of relevant data regarding the hazards of a substance or mixtures;

b) subsequent review of relevant data to ascertain the hazards associated with the substance or mixture; and

c) a decision on whether the substance or mixture will be classified as a hazardous substance or mixture and the degree of hazard, where appropriate, by comparison of the data with agreed hazard classification criteria.

6.1.3 The definitions for substance, mixture, and alloy given in CRS 80 shall be applied in determining the hazards of a product for the purpose of classification and labelling.

NOTE The intent of the definitions is to ensure that all actual products involved are properly and consistently evaluated to determine their hazards.

6.2 Classification of mixtures

For mixtures, the process of classification shall be based on the following sequence:

a) The classification shall be based on test data for the complete mixture, where such data are available;

b) Where test data are not available for the mixture itself, the bridging principles included and explained in each specific Chapter of UN GHS Rev. 10 shall be considered to see whether classification of the mixture is permitted; and

c) In addition, for health and environmental hazards, if:

1. test data are not available for the mixture itself, and
2. the available information is not sufficient to allow application of the above-mentioned bridging principles, then the agreed method(s) described in each Chapter of UN GHS Rev. 10 for estimating the hazards based on the known information shall be applied to classify the mixture.

NOTE 1 In most cases, it is not anticipated that reliable data for complete mixtures will be available for germ cell mutagenicity, carcinogenicity, and reproductive toxicity hazard classes. Therefore, for these hazard classes, mixtures will generally be classified based on the available information for the individual ingredients of the mixtures, using the cut-off values/concentration limit methods in each Chapter of the UN GHS 10. The classification is typically modified on a case-by-case basis based on available test data for each for the complete mixture, if such data are conclusive as described in each Chapter of the UN GHS Rev. 10.

NOTE 2 Some substances are known to react slowly with atmospheric gases, e.g. oxygen, carbon dioxide, water vapour, to form different substances; or they are likely to react slowly with other ingredients of a mixture to form different substances; or they could self-polymerize to form oligomers or polymers. However, the concentrations of different substances produced by such reactions are typically considered to be sufficiently low that they do not affect the hazard classification of the mixture.

6.3 Use of cut-off values/concentration limits

a) When classifying an untested mixture based on the hazards of its ingredients, generic cut-off values or concentration limits for the classified ingredients of the mixture shall be used for several hazard classes in accordance with the UN GHS Rev. 10, Chapter 1.3, paragraph 1.3.3.2 “Use of cut-off values/concentration limits”;

b) Where impurities, additives or individual constituents of a substance or mixture have been identified and are themselves classified, they shall be taken into account during classification if they exceed the cut-off value/concentration limit for a given hazard class. (See 1.3.3.2.1 of UN GHS Rev. 10 for further information);

NOTE While the adopted cut-off values/concentration limits adequately identify the hazard for most mixtures, there are some mixtures that contain hazardous ingredients at lower concentrations so that the harmonized cut-off value/concentration limit is considerably lower than could be expected on the basis of an established non-hazardous level for an ingredient.

c) Normally, the generic cut-off values/concentration limits adopted in the UN GHS Rev. 10 shall be applied in a uniform way in all sectors. However, if the party responsible for the classification has information that the hazard of an ingredient will be evidently below the generic cut-off values/concentration limits, the mixture containing that ingredient shall be classified accordingly;

d) On occasion, conclusive data may show that the hazard of an ingredient will not be evident when present at a level above the generic GHS cut-off value(s)/concentration limit(s). In these cases, the mixture could be classified according to those data. However, the data so used shall exclude the possibility that the ingredient would behave in the mixture in a manner that would increase the hazard over that of the pure substance. Furthermore, the mixture shall not contain ingredients that would affect that determination; and

e) Adequate documentation supporting the use of any values other than the generic cut-off values/concentration limits shall be retained and made available for review on request by the national competent authority.

6.4 Synergistic or antagonistic effects

When performing an assessment in accordance with this standard, all available information about the potential occurrence of synergistic effects among the ingredients of the mixture shall be taken into account. Lowering the classification of a mixture to a less hazardous category on the basis of antagonistic effects shall be done if the determination is supported by sufficient data. (Refer to section 1.3.3.3 of UN GHS Rev. 10 for further explanation).

6.5 Classification requirements for physical hazards

The classification of physical hazards shall be in accordance with the criteria given in the relevant Chapters of Part 2 of UN GHS Rev. 10. The decision logic which accompanies the criteria may be utilized for guidance in the process of classification of hazards.

7 Hazard labelling

7.1 General

The GHS hazard communication system is based on harmonized classification criteria. The GHS label elements are assigned depending on the hazard classification results which indicate hazard classes and correspondent categories for each chemical. Hazard symbols, signal words and hazard statements have been standardized and assigned to each of the hazard categories within each hazard class.

7.1.1 Label elements

In the labelling of respective hazards:

a) label elements for physical hazards shall be in accordance with Clause 9;

b) label elements for health hazards shall be in accordance with Clause 10; and

c) label elements for environmental hazards shall be in accordance with Clause 11.

7.1.2 Use of other label elements

The use of symbols, signal words or hazards statements other than those which have been assigned to each of the GHS hazard classes and categories as shown in subclause 9.4.2, shall be in accordance with the harmonization specified in the UN GHS Rev. 10.

NOTE General and specific considerations concerning labelling requirements are provided in the UN GHS Rev. 10, Chapter 1.4.

7.2 Pictograms and reproduction of the hazard pictograms

7.2.1 Hazard symbols

The following hazard symbols are consistent with the standard symbols used in the UN GHS Rev. 10, section 1.4.10.3 and shall be used in the labelling of hazardous substances and mixtures identified in this standard.

Flame	Flame over circle	Exploding bomb
		
Corrosion	**Gas cylinder**	**Skull and crossbones**
		
Exclamation mark	**Environment**	**Health Hazard**
		

7.2.2 Shape and Colour

7.2.2.1 All hazard pictograms used in this standard shall be in the shape of a square set at a point as shown in Figure 2.

7.2.2.2 For transport, the pictograms shall be printed or affixed to a packaging on a background of contrasting colour and shall be a minimum size of 100 mm by 100 mm. Smaller pictograms shall be allowed on very small packages (less than 100 mm x 100 mm).

Figure 2 — Sample pictogram for the labelling of a flammable liquid for transport, in the UN Model Regulations. (Symbol: Flame: black or white Background red; Figure 3 in bottom corner; minimum dimensions 100 mm x 100 mm)

(*Source: UN GHS Rev. 10, section 1.4.10.4.2.2*)

7.2.2.3 Pictograms prescribed by the GHS but not the UN Model Regulations, shall have a black symbol on a white background with a red frame sufficiently wide to be clearly visible. An example of a GHS pictogram used for a skin irritant is provided in Figure 3.

Figure 3 — Sample GHS pictogram for a skin irritant

(*Source: UN GHS Rev 10, section 1.4.10.4.2.3*)

NOTE When such a pictogram appears on the label for a package which will not be exported, the national competent authority can choose to give suppliers and employers discretion to use a black border. In addition, national competent authorities can allow the use of UN Model Regulations pictograms in other use settings where the package is not covered by the Model Regulations.

7.3 Codification

For pictograms prescribed by the UN GHS Rev. 10 for sectors other than transport, and a code uniquely identifying each sector, the responsible party (manufacturer, distributor or importer) shall refer to section 4 of Annex 3 of the UN GHS Rev. 10. This section of Annex 3 outlines the GHS codes (and meanings) associated with the pictograms.

7.4 Information required on a chemical product GHS label.

7.4.1 Signal words

The signal words used in the UN GHS Rev. 10 are “Danger” and “Warning”. “Danger” is used for the more severe hazard categories (i.e. in the main for hazard categories 1 and 2), while “Warning” is used for the less severe. Signal words shall be used as assigned to each of the hazard categories in accordance with subclause 9.4 and Clauses 10 and 11.

7.4.2 Hazard statements

The label of hazardous substances and mixtures with hazardous substances shall contain essential information that is concisely expressed and kept to a minimum for clarity, purpose and effectiveness.

Details of the hazard statements are provided in the respective tables of subclause 9.4. A code uniquely identifying each statement is listed in section 1 of the Annex 3 of the UN GHS Rev. 10.

NOTE The hazard statement code is intended to be used for reference purposes. It is not to be taken as part of nor a replacement for the hazard statement text.

7.4.3 Precautionary statements and pictograms

The label shall include appropriate precautionary information, the choice of which is with the responsible party (manufacturer, distributor or importer) or the national competent authority. Section 2 of Annex 3 of UN GHS Rev. 10 contains examples of precautionary statements along with a unique identifying code, which shall be used as allowed by the national competent authority.

Section 5 of Annex 3 of UN GHS Rev. 10 contains examples of precautionary pictograms.

NOTE 1 The precautionary statement code given in UN GHS Rev. 10 is intended to be used for reference purposes. It is not a part of nor a replacement for the precautionary statement text.

NOTE 2 Annex 3 of UN GHS Rev. 10 contains examples of precautionary statements and pictograms which can be used as necessary or recommended or allowed by the national competent authority.

7.4.4 Product identifier

A product identifier shall be used on product labels and it shall match the product identifier used on the SDS, in addition to the following:

a) Where a substance or mixture is covered by the UN Model Regulations, the UN Proper Shipping Name shall be also used on the package;

b) The label for a substance shall include the chemical identity of the substance. For mixtures or alloys, the label shall include the chemical identities of all ingredients or alloying elements that contribute to acute toxicity, skin corrosion or serious eye damage, germ cell mutagenicity, or carcinogenicity, reproductive toxicity (STOT), when these hazards appear on the label; and

   Alternatively, the national competent authority may require the inclusion of all ingredients or alloying elements that contribute to the hazard of the mixture or alloy.

c) Where a substance or mixture is supplied exclusively for workplace use, the national competent authority may choose to give suppliers discretion to include chemical identities on the SDS, in lieu of including them on labels.

d) Where the national competent authority has rules about the publication of confidential business information (CBI), these rules shall take priority over the rules for product identification. In this regard, where an ingredient would normally be included on the label, if it meets the national competent authority criteria for CBI, its identity does not have to be included on the label but the identity of the ingredient, along with its concentration and associated hazard(s), shall be provided to the national competent authority upon request.

7.4.5 Supplier identification

The party responsible for introducing a substance or mixture to the market (manufacturer, importer, or supplier) shall provide the following information on the product label:

a) name;
b) address;
c) telephone number(s); and
d) email address.

7.5 Multiple hazards and precedence of hazard information

The following agreements shall apply where a substance or mixture presents more than one hazard described in the UN GHS Rev. 10. Where a system does not provide information on the label for a particular hazard, the application of the arrangements in subclauses 7.5.1 - 7.5.3 shall be modified accordingly.

7.5.1 Precedence for the allocation of symbols

For substances and mixtures covered by the UN Model Regulations, the precedence of symbols for the physical hazards shall follow the rules of the UN Model Regulations. In workplace situations, the national competent authority may require all symbols for physical hazards to be used. For health hazards the following principles of precedence apply, if:

a) the skull and crossbones appear, the exclamation mark shall not appear;

b) the corrosive symbol appears, the exclamation mark shall not appear where it is used for skin or eye irritation; and

c) health symbol appears for respiratory sensitisation, the exclamation mark shall not appear where it is used for skin sensitisation or for skin or eye irritation.

7.5.2 Precedence in the allocation of signal words

If the signal word “danger” applies the signal word “warning” shall not appear.

7.5.3 Precedence for allocation of hazard statements

7.5.3.1 All assigned hazard statements shall appear on the label. The national competent authority may choose to specify the order in which they appear. However, to avoid evident duplication or redundancy in the information conveyed by hazard statements, the following rules shall apply:

a) If the statement H410 “Very toxic to aquatic life with long-lasting effects” is assigned, the statement H400 “Very toxic to aquatic life” shall be omitted;

b) If the statement H411 “Toxic to aquatic life with long-lasting effects” is assigned, the statement H401 “Toxic to aquatic life” shall be omitted;

   a) If the statement H412 “Harmful to aquatic life with long-lasting effects” is assigned, the statement H402 “Harmful to aquatic life” shall be omitted;

   b) If the statement H314 “Causes severe skin burns and eye damage” is assigned, the statement H318 “Causes serious eye damage shall be omitted.

7.5.3.2 Where a combined hazard statement is indicated, the national competent authority shall specify whether the combined hazard statement or the corresponding individual statements shall appear on the label or may leave the choice to the manufacturer/supplier. Refer to Table A3.1.2 in Annex 3 of the UN GHS Rev. 10 for specified combinations of hazard statements.

7.6 Arrangements for presenting label elements

The appropriate GHS hazard pictogram(s), signal word and hazard statement(s) shall be located together on the label. The national competent authority may choose to provide a specified layout for the presentation of these and for the presentation of precautionary information.

NOTE Specific examples of the arrangements of GHS label elements are provided in Annex 7 of UN GHS 10.

7.7 Supplemental information

The national competent authority shall decide whether to allow the use of supplemental information subject to the parameter outlined in section 1.4.6.3 of the UN GHS Rev. 10. The national competent authority may choose to specify where this information shall appear on the label or allow supplier discretion. Supplementary information shall be limited to the following:

a) It provides further detail and does not contradict or cast doubt on the validity of the standardized hazard information; and

b) It provides information about hazards not yet incorporated into UN GHS Rev. 10.

In either approach, the placement of supplemental information shall not impede identification of the primary information or lower the standards of protection.

7.8 Use of colour pictograms

In addition to its use in pictograms, colour shall be used on the other areas of the label to implement special labelling requirements, for signal words and hazard statements or as background to them, or as otherwise provided for by the national competent authority.

7.9 Labelling of small packaging

7.9.1 General requirements

The general requirements for the labelling of small packages are as follows:

a) A small package or container shall be taken as one with a volume of not more than 125 ml;

b) All the applicable GHS label elements, that is, product identifier, pictogram, signal word, hazard statement, precautionary statements, supplemental information and supplier identification, shall appear on the immediate container of a hazardous substance or mixture; and

c) The requirements in subclauses 7.9.1, 7.9.2 and 7.9.3 shall underpin the labelling of small packages.

7.9.2 Principles for reduced label elements

Where it is impossible to put all the applicable label elements on the immediate container itself, the national competent authority shall determine or cause to be determined:

a) which label elements are to be placed on the immediate container, and

b) other methods of providing the full hazard information about the contents of the container.

Factors influencing the use of other methods shall include, *inter alia*, the:

1. shape, form or size of the immediate container;
2. number of label elements to be included, particularly where the substance or mixture meets the classification criteria for multiple hazard classes; and
3. need for label elements to appear in more than one official language.

NOTE Other methods for providing full hazard information include fold-out labels, tie-on tags, outer packaging labelling or QR codes or combinations of these, under conditions, as determined or caused to be determined by the national competent authority.

7.9.3 Omissions of label elements on very small packages

Where the quantity of a hazardous substance or mixture is very small and the national competent authority has determined, that there is no likelihood of harm to human health and/or the environment, then the label elements may be omitted from the immediate container. The national competent authority shall determine or cause to be determined:

a) the size of the immediate containers to which this allowance is applicable; and

b) the use of credible data to support the decision.

The national competent authority may require some label elements to be on the immediate container be accessible throughout the life of the product, e.g. for continuous use by workers or consumers.

7.10 Special labelling arrangements

The national competent authority shall decide whether to allow communication of the hazard information through the SDS only when the hazardous substance is supplied in bulk, non-dispersible, form.

7.11 Workplace labelling

7.11.1 General

7.11.1.1 All systems of workplace labelling of hazardous substances shall ensure that there is clear hazard communication. Workers shall be trained to understand the specific communication methods used in the workplace.

7.11.1.2 Products falling within the scope of this standard shall carry the appropriate label at the point where they are supplied to the workplace, and that label shall be maintained on the supplied container in the workplace. The label elements shall also be used for the workplace containers.

7.11.1.3 The national competent authority shall decide whether to allow employers to use alternative means of giving workers the same information in a different written or displayed format when such a format is more appropriate to the workplace and communicates the information as effectively as the GHS label.

NOTE For example, hazard information could be displayed in the work area, rather than on the individual containers.

7.11.2 Alternative provision

7.11.2.1 Alternative means of providing workers with the information contained in GHS labels are needed usually where hazardous chemicals are transferred from an original supplier container into a workplace container or system, or where chemicals that are produced in a workplace may be contained or stored in many different ways including but not limited to:

a) small samples collected for testing or analysis;

b) piping systems including valves;

c) process or reaction vessels;

d) ore cars; and

e) conveyer systems or free-standing bulk storage of solids.

NOTE Examples of workplace situations where chemicals can be transferred from supplier containers into a workplace container include but are not limited to containers for laboratory testing or analysis, storage vessels, piping or process reaction systems or temporary containers where the chemical will be used by one worker within a short timeframe.

7.11.2.2 Decanted chemicals intended for immediate use shall be labelled with the main components and directly refer the user to the supplier label information and SDS. Refer to UN GHS Rev. 10, section 1.4.10.5.5.1 for more details on workplace labelling.

7.12 Specific consumer product labelling based on the likelihood of injury

7.12.1 General

The national competent authority shall establish a risk-based approach for the labelling of consumer products and establish label requirements based on the results of the risk assessment.

NOTE A general explanation of the broad principles of risk-based labelling is contained in Annex 5 of the UN GHS Rev. 10.

7.12.2 Tactile warnings

To ensure that the visually impaired receive warnings about hazardous substances and mixtures, tactile warning labels conforming to ISO 11683, shall be applied to the labelling of all substances to which the signal word “Danger” applies.

NOTE The requirement for tactile warning labels for specific substances and mixtures to which the signal word “Warning” is normally applicable, is a decision for the national competent authority.

8 Safety data sheets (SDS)

8.1 The requirements for the preparation of Safety Data Sheets are given in Annex A of this standard.

8.2 The SDS shall provide comprehensive information about a chemical substance or mixture for use in various workplaces and other situations.

NOTE The SDS acts as a reference source for the provision of important information to target audiences such as workers involved with the transport of dangerous goods, emergency responders, and general consumers. It also facilitates the management of hazardous substances in the workplace.

8.3 The employer shall:

a) develop an active programme of protection measures, including training, emergency response, hazard identification, hazard assessment, etc. which are specific to the individual workplace; and

b) consider any measures that may be necessary to protect the environment.

9 Labelling requirements for physical hazards

9.1 General

9.1.1 The supplier (manufacturer, distributor, or importer) that places a product on the market shall be the responsible party for labelling of that product to meet the requirements of this standard.

9.1.2 The responsible party shall identify the needs of the target audiences that will be the primary end-users of the hazard communication. In so doing the responsible party shall pay special attention to how these target audiences will receive and use the information conveyed about hazardous chemicals. Factors to be considered shall include:

a) specific information needs of target audiences;

b) potential use of products;

c) availability of information in addition to the label; and

d) availability of training.

9.2 Target audiences and relevant information needed on hazardous chemicals

9.2.1 General

The responsible party, (see 9.1), shall ensure that the target audiences are provided with the minimum information in 9.2.2 to 9.2.5.

9.2.2 Information for employers and workers

Information given to employers and workers by the responsible party shall include the following:

a) hazards specific to the chemicals used, handled or stored in the workplace;

b) specific protective measures required to avoid adverse effects that might be caused by these hazards;

c) appropriate response and mitigation measures in the case of an accident/emergency; and

d) hazard identification and prevention.

9.2.3 Information for consumers

The responsible party shall provide:

a) the use and directions for usage of the product;

b) specific hazards related to the product;

c) adverse impacts of exposure to product; and

d) risk factors related to use of product.

9.2.4 Information for emergency responders from the responsible party

Emergency responders shall receive information on a range of issues, inclusive of:

a) the nature of the product;

b) product hazards and response techniques; and

c) medical needs for treating victims of an accident or emergency.

9.2.5 Information for transport workers from the responsible party

Transport workers shall be given information which may include training in:

a) general safe practices appropriate for all transport situations;

b) specific information on product hazards; and

c) appropriate response/mitigation measures when exposed to or come into contact with hazardous chemicals.

9.3 Comprehensibility of information (See 9.1)

The responsible party (manufacturer, distributor, or importer) shall ensure that the information for the target audiences are presented in a manner that they can easily understand and apply. The presentation of the information shall take the following into account:

a) information being conveyed in more than one way;

b) incorporation of information from existing studies, literature and testing; and

c) consistency in the use of phrases/words to indicate degree/severity of hazard across different hazard types.

9.4 Label preparation

9.4.1 General

The product labels for physical hazards shall be in accordance with 9.4.2 and 9.4.3.

9.4.2 Allocation of label elements

Label elements for the following physical hazard categories are covered in 9.4.3 (9.4.3.1 – 9.4.3.18).

a) Explosives;

b) Flammable gases, liquids and solids;

c) Aerosols;

d) Chemicals under pressure;

e) Oxidizing gases, liquids and solids;

f) Gases under pressure;

g) Pyrophoric liquids and solids;

h) Self-reactive substances or mixtures;

i) Self-heating substances and mixtures;

j) Substances and mixtures which, upon contact with water, emits flammable gases;

k) Organic peroxides;

l) Substances and mixtures corrosive to metals; and

m) Desensitized explosives.

NOTE Part 2 of UN GHS Rev. 10 provides a comprehensive treatment of the classification and labelling of physical hazards.

9.4.3 Label elements

9.4.3.1 Label elements for explosives

9.4.3.1.1 Label elements for substances and mixtures classified as explosives using the criteria in Chapter 2.1 of the UN GHS Rev. 10, shall be in accordance with Table 2.

Table 2 — Label elements for explosives

Category	**1**	**2**		
Sub-category	*Not applicable*	2A	2B	2C
Symbol[c]	Exploding bomb	Exploding bomb	Exploding bomb	Exclamation mark
Signal word	Danger	Danger	Warning	Warning
Hazard statement	Explosive	Explosive	Fire or projection hazard	Fire or projection hazard
Additional hazard statement	Very sensitive[a] or May be sensitive	*Not applicable*	*Not applicable*	*Not applicable*

[a] To be assigned additionally to explosives that are sensitive to initiation as determined by test series 3 or 4 of the Manual of Tests and Criteria. May also be applied to explosives sensitive to other stimuli e.g. electrostatic discharge.

[b] To be assigned additionally to explosives for which sufficient information on their sensitivity to initiation is not available.

[c] Refer to subclause 7.1 for pictogram of applicable hazard symbols for each hazard category.

9.4.3.1.2 Substances and mixtures excluded by section 2.1.1.2.2 (c) (v) in UN GHS Rev. 10, may still possess explosive properties. The responsible party (see 6.1.1 a. and 6.1.1.b) shall inform the user of these intrinsic explosive properties for the purposes of:

a) handling, especially if the substance or mixture is removed from its packaging or is repackaged; and

b) storage.

9.4.3.1.3 The hazard levels for explosives identified in Table 2, shall be in accordance with Table 3.

Table 3 — Description of explosion hazard levels

Sub-category	Explosion hazard level
2A	Sub-category 2A represents a high explosion hazard. An explosive in this subcategory has the potential to cause complete destruction of objects and lethal or very severe injuries to persons.
2B	Sub-category 2B represents a medium explosion hazard. An explosive sub-category has the potential to cause serious damage to objects and serious injuries to persons. Injuries may result in permanent impairment
2C	Sub-category 2C represents a low explosion hazard. An explosive in this sub-category can cause minor damage to objects and moderate injuries to persons. Injuries would not normally result in permanent impairment.

9.4.3.2 Label elements for flammable gases

Label elements for substances and mixtures classified as flammable gases using the criteria in Chapter 2.2 of UN GHS Rev. 10 shall be in accordance with Table 4.

Table 4 — Label elements for flammable gases

	Category 1A	**Gases categorized as 1A by meeting pyrophoric or unstable gas A/B criteria**			**Category 1B**	**Category 2**
		Pyrophoric gas	**Chemically unstable gas**			
			Category A	**Category B**		
Symbol[a]	Flame	Flame	Flame	Flame	Flame	*No symbol*
Signal word	Danger	Danger	Danger	Danger	Danger	Warning
Hazard Statement	Extremely flammable gas	Extremely flammable gas May ignite spontaneously if exposed to air	Extremely flammable gas May ignite spontaneously even in the absence of air	Extremely flammable gas May ignite spontaneously even in the absence of air at elevated pressure and/or temperature	Flammable gas	Flammable gas

[a] Pictograms of hazard symbols for each hazard category of all represented hazard classes, in this document, are to be found at subclause 7.2.1.

9.4.3.3 Label elements for aerosols

Label elements for substances and mixtures classified as aerosols using the criteria provided in Chapter 2.3, section 2.3.1 of UN GHS Rev. 10 shall be in accordance with Table 5.

Table 5 — Label elements for flammable aerosols

	Category 1	Category 2	Category 3
Symbol[a]	Flame	Flame	*No symbol*
Signal word	Danger	Warning	Warning
Hazard statement	Extremely flammable aerosol Pressurized container: May burst if heated	Flammable aerosol Pressurized container: May burst if heated	Pressurized container: May burst if heated
[a] Pictograms of hazard symbols for each hazard category of all represented hazard classes, in this document, are to be found at subclause 7.2.1.			

9.4.3.4 Label elements for chemicals under pressure

Label elements for substances and mixtures classified as “chemicals under pressure” using the criteria in Chapter 2.3, section 2.3.2 of UN GHS Rev. 10 shall be in accordance with Table 6.

Table 6 — Label elements for chemicals under pressure

	Category 1	Category 2	Category 3
Symbol	Flame Gas cylinder	Flame Gas cylinder	Gas cylinder
Signal word	Danger	Warning	Warning
Hazard statement	Extremely flammable Chemical under pressure: May explode if heated	Flammable Chemical under pressure: May explode if heated	Chemical under pressure: May explode if heated

9.4.3.5 Label elements for oxidizing gases

Label elements for substances and mixtures classified as “oxidizing gases” using the criteria in Chapter 2.4 of UN GHS Rev. 10 shall be in accordance with Table 7.

Table 7 — Label elements for oxidizing gases

	Category 1
Symbol	Flame over circle
Signal word	Danger
Hazard statement	May cause or intensify fire; oxidizer
NOTE 1 UN GHS Rev.10 contains examples of hazard communication symbols, pictograms and precautionary statements which are applicable to the labelling of oxidizing gases.	
NOTE 2 Section 2.4.4.2 of UN GHS Rev.10 details the calculation for the classification of an oxidizing gas mixture by calculation according to ISO 10156.	

9.4.3.6 Label elements for gases under pressure

9.4.3.6.1 Label elements for substances and mixtures classified as “gases under pressure” using the criteria in Chapter 2.5 of UN GHS Rev. 10 shall be in accordance with Table 8.

Table 8 — Label elements for gases under pressure

	Compressed gas	Liquefied gas	Refrigerated liquefied gas	Dissolved gas
Symbol	Gas cylinder	Gas cylinder	Gas cylinder	Gas cylinder
Signal word	Warning	Warning	Warning	Warning
Hazard statement	Contains gas under pressure; may explode if heated	Contains gas under pressure; may explode if heated	Contains refrigerated gas; may cause cryogenic burns or injury	Contains gas under pressure; may explode if heated

9.4.3.6.2 For this group of gases, the following information shall be taken into account as required:

a) vapour pressure at 50 ºC.
b) physical state at 20 ºC, at standard ambient pressure; and
c) critical temperature.

NOTE Most pure gases are already classified in the UN Model Regulations.

9.4.3.7 Label elements for flammable liquids

Label elements for substances and mixtures classified as flammable liquids using the criteria in Chapter 2.6 of UN GHS Rev.10.

Table 9 — Label elements for flammable liquids

	Category 1	Category 2	Category 3	Category 4
Symbol	Flame	Flame	Flame	No Symbol
Signal word	Danger	Danger	Warning	Warning
Hazard statement	Extremely flammable liquid and vapour	Highly flammable liquid and vapour	Flammable liquid and vapour	Combustible liquid

9.4.3.8 Label elements for flammable solids

Label elements for substances and mixtures classified as “flammable solids” using the criteria in Chapter 2.7 of UN GHS Rev.10 shall be in accordance with Table 10.

Table 10 — Label elements for flammable solids

	Category 1	Category 2
Symbol	Flame	Flame
Signal word	Danger	Warning
Hazard statement	Flammable solid	Flammable solid

9.4.3.9 Label elements for self-reactive substances and mixtures

Label elements for substances and mixtures classified as “self-reactive” using the criteria in the Chapter 2.8 of UN GHS Rev.10 shall be in accordance with Table 11.

Table 11 — Label elements for self-reactive substances and mixtures

	Type A	Type B	Type C and D	Type E and F	Type G[a]
Symbol	Exploding bomb	Exploding bomb and flame	Flame	Flame	*There are no label elements allocated to this hazard category*
Signal word	Danger	Danger	Danger	Warning	
Hazard Statement	Heating may cause an explosion	Heating may cause a fire or explosion	Heating may cause a fire	Heating may cause a fire	

[a] Type G has no hazard communication elements assigned but shall be considered for properties belonging to other hazard classes.

9.4.3.10 Label elements for pyrophoric liquids

Label elements for substances and mixtures classified as pyrophoric liquids using the criteria in Chapter 2.9 of UN GHS Rev. 10 shall be in accordance with Table 12.

Table 12 — Label elements for pyrophoric liquids

	Category 1
Symbol	Flame
Signal word	Danger
Hazard statement	Catches fire spontaneously if exposed to air

9.4.3.11 Label elements for pyrophoric solids

Label elements for substances and mixtures classified as pyrophoric solids using the criteria in Chapter 2.10 of UN GHS Rev.10 shall be in accordance with Table 13.

Table 13 — Label elements for pyrophoric solids

	Category 1
Symbol	Flame
Signal word	Danger
Hazard statement	Catches fire spontaneously if exposed to air

9.4.3.12 Label elements for self-heating substances and mixtures

Label elements for substances and mixtures classified as self-heating using the criteria in Chapter 2.11 of UN GHS Rev.10 shall be in accordance with Table 14.

Table 14 — Label elements for self-heating substances and mixtures

	Category 1	Category 2
Symbol	Flame	Flame
Signal word	Danger	Warning
Hazard statement	Self-heating; may catch fire	Self-heating in large quantities; may catch fire

9.4.3.13 Label elements for substances and mixtures, which in contact with water, emit flammable gases

Label elements for substances and mixtures classified into this hazard class according to the criteria in Chapter 2.12 of UN GHS Rev.10 shall be in accordance with Table 15.

Table 15 — Label elements for substances and mixtures, which in contact with water, emit flammable gases

	Category 1	Category 2	Category 3
Symbol	Flame	Flame	Flame
Signal word	Danger	Danger	Warning
Hazard statement	In contact with water releases flammable gasses which may ignite spontaneously	In contact with water releases flammable gases	In contact with water releases flammable gases

9.4.3.14 Label elements for oxidizing liquids

Label elements for substances and mixtures classified as oxidizing liquids using the criteria in Chapter 2.13 of UN GHS Rev.10 shall be in accordance with Table 16.

Table 16 — Label elements for oxidizing liquids

	Category 1	Category 2	Category 3
Symbol	Flame over circle	Flame over circle	Flame over circle
Signal word	Danger	Danger	Warning
Hazard statement	May cause fire or explosion; strong oxidizer	May intensify fire; oxidizer	May intensify fire; oxidizer

9.4.3.15 Label elements for oxidizing solids

Label elements for the substances and mixtures classified as oxidizing solids using the criteria in Chapter 2.14 of UN GHS Rev.10 shall be in accordance with Table 17.

Table 17 — Label elements for oxidizing solids

	Category 1	Category 2	Category 3
Symbol	Flame over circle	Flame over circle	Flame over circle
Signal word	Danger	Danger	Warning
Hazard statement	May cause fire or explosion; strong oxidizer	May intensify fire; oxidizer	May intensify fire; oxidizer

9.4.3.16 Label elements for organic peroxides

Label elements for substances and mixtures classified as organic peroxides using the criteria in Chapter 2.15 of UN GHS Rev.10 shall be in accordance with Table 18.

Table 18 — Label elements for organic peroxides

	Type A	Type B	Type C and D	Type E and F	Type G[a]
Symbol	Exploding bomb	Exploding bomb and flame	Flame	Flame	There are no label elements allocated to this hazard category.
Signal word	Danger	Danger	Danger	Warning	
Hazard statement	Heating may cause an explosion	Heating may cause a fire or explosion	Heating may cause a fire	Heating may cause a fire	

[a] Type G has no hazard communication elements assigned but shall be considered for properties belonging to other hazard classes.

9.4.3.17 Label elements for substances and mixtures corrosive to metals

Label elements for substances and mixtures classified as corrosive to metals using the criteria in Chapter 2.16 of UN GHS Rev.10 shall be in accordance with Table 19.

Table 19 — Label elements for substances and mixtures corrosive to metals

	Category 1
Symbol	Corrosion
Signal word	Warning
Hazard statement	May be corrosive to metals
NOTE Where a substance or mixture is classified as corrosive to metals but not corrosive to either skin or eyes or both, some national competent authorities have the power to allow the labelling provisions described in section 1.4.10.5.5 of UN GHS Rev.10.	

9.4.3.18 Label elements for desensitized explosives

Label elements for substances and mixtures classified as desensitized explosives using the criteria in Chapter 2.17 of UN GHS Rev. 10 shall be in accordance with Table 20.

Table 20 — Label elements for desensitized explosives

	Category 1	**Category 2**	**Category 3**	**Category 4**
Symbol	Flame	Flame	Flame	Flame
Signal word	Danger	Danger	Warning	Warning
Hazard statement	Fire, blast or projection hazard; increased risk of explosion if desensitizing agent is reduced	Fire or projection hazard; increased risk of explosion if desensitizing agent is reduced	Fire or projection hazard; increased risk of explosion if desensitizing agent is reduced	Fire hazard; increased risk of explosion if desensitizing agent is reduced
NOTE 1 Annex 3 of the UN GHS Rev. 10 contains examples of precautionary statements and pictograms for chemicals under pressure which can be used where allowed by the national competent authority.				
NOTE 2 Decision logic and guidance sections, are not part of the harmonized classification system, but have been provided in the UN GHS Rev. 10 for the respective classifications.				

10 Requirements for the classification and labelling of health hazards

10.1 General

Chemical substances and mixtures shall be considered as health hazards and be classified accordingly if they cause any of the following.

a) Acute toxicity;
b) Skin corrosion;
c) Eye damage or irritation;
d) Respiratory and skin sensitization;
e) Mutation of cells;
f) Carcinogenicity;
g) Reproductive toxicity;
h) Specific target organ toxicity; and
i) Aspiration toxicity.

The criteria for the classification of health hazards are given in the relevant Chapters of Part 3 of UN GHS Rev.10.

10.2 Label elements for acute toxicity

Label elements for substances and mixtures classified as having acute toxicity properties using the criteria in Chapter 3.1 of UN GHS Rev.10 shall be in accordance with Table 21.

Table 21 — Label elements for acute toxicity[a]

	Category 1	Category 2	Category 3	Category 4	Category 5
Symbol	Skull and crossbones	Skull and crossbones	Skull and crossbones	Exclamation mark	No symbol
Signal word	Danger	Danger	Danger	Warning	Warning
Hazard statement					
-Oral	Fatal if swallowed	Fatal if swallowed	Toxic if swallowed	Harmful if swallowed	May be harmful if swallowed
-Dermal	Fatal in contact with skin	Fatal in contact with skin	Toxic in contact with skin	Harmful in contact with skin	May be harmful in contact with skin
-Inhalation see note	Fatal if inhaled	Fatal if inhaled	Toxic if inhaled	Harmful if inhaled	May be harmful if inhaled

[a] If a substance is also determined to be corrosive (based on data such as skin or eye data), corrosivity hazard may also be communicated by some authorities as symbol and/or hazard statement. That is, in addition to an appropriate acute toxicity symbol, a corrosivity symbol (used for skin and eye corrosivity) may be added along with a corrosivity hazard statement such as “corrosive” or “corrosive to the respiratory tract”.

10.3 Label elements for skin corrosion/irritation

Label elements for substances and mixtures classified as having skin corrosion/irritation properties using the criteria in Chapter 3.2 of UN GHS Rev.10 shall be in accordance with Table 22.

Table 22 — Label elements for skin corrosion / irritation

	Category 1			Category 2	Category 3
	1A	1B	1C		
Symbol	Corrosion	Corrosion	Corrosion	Exclamation mark	*No symbol*
Signal word	Danger	Danger	Danger	Warning	Warning
Hazard statement	Causes severe skin burns and eye damage	Causes severe skin burns and eye damage	Causes severe skin burns and eye damage	Causes skin irritation	Causes mild skin irritation

10.4 Label elements for eye damage/irritation

Label elements for substances and mixtures classified as causing serious eye damage/irritation using the criteria in Chapter 3.3 of UN GHS Rev. 10 shall be in accordance with Table 23.

Table 23 — Label elements for serious eye damage/irritation

	Category 1	Category 2/2A	Category 2B
Symbol	Corrosion	Exclamation mark	No symbol
Signal word	Danger	Warning	Warning
Hazard statement	Causes serious eye damage	Causes serious eye irritation	Causes eye irritation

10.5 Label elements for respiratory or skin sensitization

Label elements for substances and mixtures classified as causing respiratory, or skin sensitization hazards using the criteria in Chapter 3.4 of UN GHS Rev.10 shall be in accordance with Table 24.

Table 24 — Label elements for substances with respiratory or skin sensitization properties

	Respiratory sensitization Category 1 and sub-categories 1A and 1B	Skin sensitization Category 1 and sub-categories 1A and 1B
Symbol	Health hazard	Exclamation mark
Signal word	Danger	Warning
Hazard statement	May cause allergy or asthma symptoms or breathing difficulties if inhaled	May cause an allergic skin reaction

10.6 Label elements for germ cell mutagenicity

Label elements for substances classified as having germ cell mutagenicity properties using the criteria in Chapter 3.5 of UN GHS Rev.10 shall be in accordance with Table 25.

Table 25 — Label elements for germ cell mutagenicity.

	Category 1 (Category 1A and 1B)	Category 2
Symbol	Health hazard	Health hazard
Signal word	Danger	Warning
Hazard statement	May cause genetic defects (state the route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	Suspected of causing genetic defects (state the route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

10.7 Label elements for carcinogenicity

Label elements for substances and mixtures classified as having carcinogenic properties using the criteria in Chapter 3.6 of UN GHS Rev.10 shall be in accordance with Table 26.

Table 26 — Label elements for carcinogenicity

	Category 1 (Category 1A, 1B)	Category 2
Symbol	Health hazard	Health hazard
Signal word	Danger	Warning
Hazard statement	May cause cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

10.8 Label elements for reproductive toxicity

Label elements for substances and mixtures classified as having reproductive toxicity properties using the criteria in Chapter 3.7 of UN GHS Rev.10 shall be in accordance with Table 27.

Table 27 — Label elements for substances and mixtures with reproductive toxicity

	Category 1 (Category 1A, 1B)	Category 2	Additional category for effects on or via lactation
Symbol	Health hazard	Health hazard	*No symbol*
Signal word	Danger	Warning	*No signal word*
Hazard statement	May damage fertility or the unborn child (state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	Suspected of damaging fertility or the unborn child (state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	May cause harm to breast-fed children.

10.9 Label elements for substances with specific target organ toxicity

10.9.1 Label elements for substances and mixtures classified as causing specific target organ toxicity after single exposure using the criteria in Chapter 3.8 of UN GHS Rev.10 shall be in accordance with Table 28.

Table 28 — Label elements for specific target organ toxicity after single exposure

	Category 1	Category 2	Category 3
Symbol	Health hazard	Health hazard	Exclamation mark
Signal word	Danger	Warning	Warning
Hazard statement	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)	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)	May cause respiratory irritation Or May cause drowsiness or dizziness

10.9.2 Label elements for substances and mixtures classified as causing specific target organ toxicity following repeated exposure using the criteria in Chapter 3.9 of UN GHS Rev.10 shall be in accordance with Table 29.

Table 29 — Label elements for specific target organ toxicity following repeated exposure

	Category 1	Category 2
Symbol	Health hazard	Health hazard
Signal word	Danger	Warning
Hazard statement	Causes damage to organs (or state all organs affected if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	May cause damage to organs (or state all organs affected if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

10.9.3 The national competent authority shall decide whether to allow communication of certain hazard information for carcinogens, reproductive toxicity and specific target organ toxicity following repeated exposure on both the label and SDS, or through the SDS only.

10.10 Label elements for aspiration toxicity

Label elements for substances classified as causing aspiration toxicity using the criteria in Chapter 3.10 of UN GHS Rev.10 shall be in accordance with Table 30.

Table 30 — Label elements for aspiration toxicity

	Category 1	Category 2
Symbol	Health hazard	Health hazard
Signal word	Danger	Warning
Hazard statement	May be fatal if swallowed and enters airways	May be harmful if swallowed and enters airways

NOTE For detailed information on toxicity, the responsible party (manufacturer, distributor or importer) can refer to the following sections 3.7.1.1 to 3.7.1.3 and Chapters 3.8 to 3.10 of UN GHS Rev.10.

11 Requirements for classifying and labelling environmental hazards

11.1 General

Chemicals are considered environmental hazards if they damage:

a) aquatic environments; and

b) the ozone layer.

NOTE For the purpose of this standard, the aquatic environment is taken to mean the aquatic ecosystem in fresh water and marine, and the organisms that live in it.

11.2 Classification

The classification of environmental hazards shall be in accordance with the relevant criteria specified in Part 4 of the UN GHS 10.

11.3 Chemicals and mixtures hazardous to the aquatic environment

11.3.1 Label elements for substances and mixtures with short-term (acute) aquatic hazards

Label elements for substances and mixtures classified as being short-term (acute) aquatic hazardous using the criteria in Chapter 4.1 of the UN GHS Rev. 10 shall be in accordance with Table 31.

Table 31 — Short-term (acute) aquatic hazards

	Category 1	Category 2	Category 3
Symbol	Environment	*No symbol*	*No symbol*
Signal Word	Warning	*No signal word*	*No signal word*
Hazard statement	Very toxic to aquatic life	Toxic to aquatic life	Harmful to aquatic life

11.3.2 Label elements for substances and mixtures with long-term (chronic) aquatic hazards

Label elements for substances and mixtures classified as having long-term (chronic) aquatic hazardous properties using the criteria in Chapter 4.1 of the UN GHS Rev. 10 shall be in accordance with Table 32.

Table 32 — Long-term (chronic) aquatic hazards

	Category 1	Category 2	Category 3	Category 4
Symbol	Environment	*No symbol*	*No symbol*	*No symbol*
Signal Word	Warning	*No signal word*	*No signal word*	*No signal word*
Hazard statement	Very toxic to aquatic life with long lasting effects	Toxic to aquatic life with long lasting effects	Harmful to aquatic life with long lasting effects	May cause long lasting harmful effects to aquatic life

11.4 Chemicals and mixtures hazardous to the ozone layer

11.4.1 Classification criteria

A substance or mixture shall be classified as Category 1 under this hazard class if it meets the criteria presented in Table 33.

Table 33 — Criteria for classifying Category 1 substances or mixtures hazardous to the ozone layer

Category	Criteria
1	• Any of the controlled substances listed in annexes to the Montreal Protocol; or • Any mixture containing at least one ingredient listed in the annexes to the Montreal Protocol in concentration ≥ 0.1%.

NOTE The criteria in this subclause are intended to be applied to substances and mixtures. Equipment, articles or appliances (such as refrigerator or air conditioning equipment) containing substances hazardous to the ozone layer are beyond the scope of these criteria. Consistent with GHS section 1.1.2.5 (a) (iii) regarding pharmaceutical products. GHS classification and labelling criteria do not apply to medical inhalers at the point of intentional intake.

11.4.2 Label elements for Category 1 substances and mixtures hazardous to the ozone layer

Label elements for substances and mixtures classified as hazardous to the ozone layer (category 1), using the criteria in Table 33, shall be in accordance with Table 34.

Table 34 — Label elements for Category 1 substances and mixtures hazardous to the ozone layer

	Category 1
Symbol	Exclamation mark
Signal Word	Warning
Hazard statement	Harms public health and the environment by destroying ozone in the upper atmosphere

Annex A
(normative)

Requirements for the preparation of safety data sheets

A.1 The role of the safety data sheet (SDS) in the harmonized system

The SDS shall provide comprehensive information about a chemical substance or mixture for use in various workplace and other situations. The SDS information acts as a reference source for the management of hazardous chemicals in the workplace and shall enable the responsible party (i.e. employer) to:

a) develop and effective chemicals management programme for the protection of people and the environment; and

b) provide important information for other target audiences e.g. workers involved with the transport of dangerous goods, emergency responders and general consumers.

A.2 Criteria for determining whether an SDS shall be produced

An SDS shall be produced in for all substances and mixtures which:

a) meet the harmonized criteria for physical, health or environmental hazards specified in this standard;

b) contain substances that meet the criteria for carcinogenic, toxic to reproduction of specific target organ toxicity in concentrations exceeding the cut-off limits for the SDS specified by the criteria for mixtures (see 1.5.3.1 of the GHS);

c) do not meet the criteria for classification as hazardous but which contain hazardous substances in certain concentrations (see 1.5.3.1 of the GHS); and

d) are identified by the national competent authority for that purpose.

A.3 General requirements for compiling a safety data sheet

A.3.1 An SDS shall be provided based on the generic cut-off values/concentration limits indicated in Table A1.

Table A.1 — Cut-off values/concentration limits for each health and environmental hazard class

Hazard class	Cut-off value/concentration limit
Acute toxicity	≥1.0%
Skin corrosion/Irritation	≥1.0%
Serious eye damage/eye irritation	≥1.0%
Respiratory/Skin sensitization	≥1.0%
Germ cell mutagenicity (Category 1)	≥0.1%
Germ cell mutagenicity (Category 2)	≥1.0%
Carcinogenicity	≥0.1%
Reproductive toxicity	≥0.1%
Specific target organ (single exposure)	≥1.0%
Specific target organ (repeated exposure)	≥1.0%
Aspiration hazard (Category 1)	≥1.0%
Aspiration hazard Category 2)	≥1.0%
Hazardous to the aquatic environment	≥1.0%

A.3.2 When specific cut-off values for classification of mixtures are normally specified by concentrations as expressed as % of the ingredients. In some cases, for example acute toxicity (human health), the cut-off values are expressed as acute toxicity values (ATE) are used for classification, they shall also apply to the obligation to compile an SDS.

An SDS may be required for mixtures which are not classified for acute toxicity or aquatic toxicity as a result of application of the additivity formula, but which contain acutely toxic or toxic to the aquatic ingredients in concentrations equal to or greater than 1%.

NOTE 1 The classification of a mixture is determined by additivity calculation based on acute toxicity values (see subclause 3.1) and concentrations of ingredients. Similarly, acute toxicity classification can be calculated on the basis of acute aquatic toxicity values (see GHS section 4.1) and where appropriate, corrosion, by adding up concentrations of ingredients (see GHS Chapters 3.2 and 3.3). Ingredients are taken into consideration for application of the formula when the concentration is equal to or greater than 1%. Some competent authorities (CA) can use this cut-off as a basis of obligations to compile an SDS.

NOTE 2 In accordance with the building block approach, the competent authorities can choose not to regulate certain categories within a hazard class. In such situations, there would be no obligation to compile an SDS.

A.3.3 When an SDS is required for a substance or a mixture, the information to be included shall in all cases be provided in accordance with the UN GHS Rev. 10 requirements as described in GHS section A.4.2.2 - Guidance on preparation of SDS.

A.4 SDS format

The information in the SDS shall be presented using the following 16 headings in the order given:

a) identification
b) hazard(s) identification
c) composition/information on ingredients
d) first-aid measures
e) fire-fighting measures
f) accidental release measures
g) handling and storage
h) exposure controls/personal protection
i) physical and chemical properties
j) stability and reactivity
k) toxicological information
l) ecological information
m) disposal considerations
n) transport information
o) regulatory information
p) other information

A.5 SDS content

A.5.1 The SDS shall provide a clear description of the data used to identify the hazards. The minimum information in Table A.2 shall be included, where applicable and available, on the SDS under the relevant headings. If specific information is not applicable or not available under a particular subheading, the SDS shall clearly state this. Additional information may be required by competent authorities.

A.5.2 Manufacturers/suppliers or employers shall include information under such SDS subheadings that is appropriate and relevant to the countries or regions for which the SDS is intended and into which the product is being supplied. Table A.2 prescribes the minimum information required for an SDS.

NOTE Additional safety and environmental information can be required by the entity preparing the SDS to address the needs of transport workers engaged in the transport of dangerous goods in inland or sea going navigation carriers or tank vessels subject to IMO or national regulations.

Table A.2 — Minimum information for an SDS

	SDS element	Specific information
1.	**Identification of the substance or mixture and of the supplier**	a) GHS Product identifiers; b) Other means of identification; c) Recommended use of the chemical and restrictions on use; d) Supplier's details (including name, address, phone number etc.); e) Emergency phone number
2.	**Hazards identification**	a) GHS classification of the substance/mixture and any national or regional information; b) GHS label elements, including precautionary statements. (Hazard symbols may be provided as a graphical reproduction of the symbols in black and white or the name of the symbol e.g. flame, skull and crossbones); c) Other hazards which do not result in classification (e.g. dust explosion hazard) or are not covered by the GHS.
3.	**Composition/ information on ingredients**	**Substance** a) Chemical identity b) Common name. Synonyms, etc.; c) CAS number and other unique identifiers; d) Impurities and stabilizing additives which are themselves classified ad which contribute to the classification of the substance. **Mixture** The chemical identity and concentration or concentration ranges of all ingredients which are hazardous within the meaning of the GHS and are present above their cut-off levels. For information on ingredients, the national competent authority rules for CBI shall take priority over the rules for product identification.
4.	**First-aid measures**	a) Description of necessary measures, subdivided according to the different routes of exposure, i.e. inhalation, skin and eye contact and ingestion; b) Most important symptoms/effects, acute and delayed; c) Indication of immediate medical attention and special treatment needed, if necessary.

	SDS element	Specific information
5.	**Fire-fighting measures**	a) Suitable (and unsuitable) extinguishing media. b) Specific hazards arising from the chemical (e.g. nature of any hazardous combustion products). c) Special protective equipment and precautions for fire-fighter.
6.	**Accidental release measures**	a) Personal precautions, protective equipment and emergency procedures b) Environmental precautions. c) Methods and materials for containment and cleaning up.
7.	**Handling and storage**	a) Precautions for safe handling b) Conditions for safe storage, including any incompatibilities
8.	**Exposure controls/personal protection**	a) Control parameters e.g. occupational exposure limit values or biological limit values. b) Appropriate engineering controls. c) Individual protection measures, such as personal protective equipment.
9.	**Physical and chemical properties**	a) physical state b) colour c) odour d) melting point/freezing point e) boiling point or initial boiling point and boiling range f) flammability g) lower and upper flammability limit/flammability limit h) flash point i) auto-ignition temperature j) decomposition temperature k) ph l) kinematic viscosity m) solubility n) partition coefficient: n-octanol/water (log value)r o) vapour pressure p) density and/or relative density q) relative vapour density r) particle characteristics
10.	**Stability and reactivity**	a) reactivity b) chemical stability c) possibility of hazardous reactions d) Conditions to avoid (e.g. static discharge, shock or vibration) e) Incompatible materials f) Hazardous decomposition products
11.	**Toxicological information**	Concise but complete and comprehensible description of the various toxicological (health) effects and the available data used to identify those effects, including: • information on the likely routes of exposure (inhalation, ingestion, skin and eye contact); • Symptoms related to the physical. Chemical and toxicological characteristics;

	SDS element	Specific information
		• Delayed and immediate effects and also chronic effects from short and long term exposure; • Numerical measures of toxicity (such as acute toxicity estimates).
12.	**Ecological information**	a) ecotoxicity (aquatic ad terrestrial, where availability); b) persistence and degradability; c) bioaccumulative potential; d) mobility in soil; e) other adverse effects.
13.	**Disposal considerations**	Descriptions of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.
14.	**Transport information**	a) UN Number; b) UN proper shipping name; c) transport hazard class(es); d) packing group, if applicable; e) environmental hazards (e.g.: marine pollutant (yes/no)); f) transport in bulk (according to Annex ii of MARPOL 73/78 and IBC code; g) special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises.
15.	**Regulatory information**	Safety, health and environmental regulations specific for the product in question.
16.	**Other information including information on preparation and revision of the SDS**	
NOTE The order of the physical and chemical properties in section 9 of UN GHS Rev.10 can be followed on the SDS as shown in this table but it is not mandatory. The national competent authority can decide to prescribe an order for section 9 of the SDS, or leave it to the supplier of the SDS to re-order the properties, if deemed appropriate		

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CARICOM REGIONAL ORGANISATION FOR STANDARDS AND QUALITY

The CARICOM Regional Organisation for Standards and Quality (CROSQ) was created as an Inter-Governmental Organisation by the signing of an agreement among fourteen Member States of the Caribbean Community (CARICOM). CROSQ is the regional centre for promoting efficiency and competitive production of goods and services, through the process of standardization and the verification of quality. It is the successor to the Caribbean Common Market Standards Council (CCMSC) and supports the CARICOM mandate in the expansion of intra-regional and extra-regional trade in goods and services.

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