A harmonized and consistent way of classifying and communicating the hazards of substances and mixtures down the supply chain– chemicals being supplied, produced and used in the GCC.

Draft Standard for the Global Harmonized system (GHS) in Gulf Cooperation Council (GCC) countries- Draft

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1. INTRODUCTION

The chemical industry is one of the most globalized industries in today's world and it contributes significantly to the world economy. Yet, the intrinsic hazardous properties of some chemicals make this industry one of the most regulated one. Therefore, the safe management of chemicals is a key factor for economic and sustainability growth and no country nor modern industry exist where sustainability is not on their economic agenda. This was first acknowledged in 1992 in the action plan Agenda 21 of the United Nations (UN) [1] with regard to sustainable development. The development of sound regulatory framework will be an essential component of the 2020 goal established by SAICM to promote the sound management of chemicals around the world [2].

The Globally Harmonized System of Classification and Labeling of Chemicals (GHS) is a system created by the United Nations (UN) to address the classification of chemicals by type of hazard and harmonize hazard communication elements, including labels and safety data sheets [3]. As a tool to provide information on the hazards of chemical products along the supply chain, it is considered a cornerstone of sound management of chemicals with the ultimate goal of increasing sustainability in the production and use of chemicals.

GHS, once fully implemented, will enhance the protection of human health and the environment by providing a system for hazard communication that is comprehensible throughout the world; provide a recognized framework for those countries without an existing system; reduce the need for testing and evaluation of chemicals; and facilitate trade in chemicals whose hazards have been properly assessed and identified on an international basis.

As science advances, sensitivity in the field of chemical safety and toward more sustainable solutions increases, the UN GHS subcommittee [4] has put in place a mechanism to continuously update the GHS text to reflect scientific and technical advancements. This is done via a biannual working rhythm, which has led to the publication of the seventh version of GHS in 2017 [5].

As an internationally-agreed system GHS is non-legally binding system. In this respect, GHS can be defined as a global voluntary best-practice. It becomes binding only when the country, or confederation of countries, has implemented it in their local legal systems. Despite the fact that GHS has been in place for fifteen years, its implementation is not yet completed as several factors for national GHS implementation co-exist [6].

This draft Standard has been written, in the spirit of leveraging on the experiences so far and taking elements and best practices from major trading partner. In details, this draft Standard is based on the UN GHS Rev.7 (2017), the European Regulation (EC) No 1272/2008 [7] as amended and the Standard GSO ISO 11014:2013 [8]. It has been written to improve the consistency of hazard classifications given on SDSs and Labels that are compliant with GCC Country Standards/Regulations, GSO 1810 / 2007 Labelling – Labelling of Chemical Products and GCC

"Unified Guiding Regulation for The Control of Hazardous Chemical Substances in the GCC Countries 2002". In the Appendix all the SDSs and Labels standards/regulations that are still active in the GCC are provided for reference.

The UN GHS provides the general framework and it allows individual countries, or confederation of countries, to choose GHS hazard classes to implement in the national legal system. This is referred to as the building block approach. While this was meant to allow flexibility to acknowledge country-specific needs and circumstances this can lead to significant discrepancies in the regulations between countries and hence barrier to trade.

In the GCC, the lack of a harmonized classification and hazard communication system lead to poor hazard classification communication for users and producers of chemicals.

Commission Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) no. 1907/2006 (official Journal of the European Union L 353, 31/12/2008) is hereafter referred to as CLP Regulation.

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (official Journal of the European Union 396, 30/12/2016) is hereafter referred to as CLP Regulation.

GHS Rev. 7 (2017) is hereafter referred to as GHS.

Safety data sheet is hereafter referred to as SDS.

This document "Global Harmonized system (GHS) in Gulf Cooperation (GCC) countries" is hereafter referred to as draft Standard.

2. TERMS and DEFINITIONS

For the purpose of this document, the following definitions apply, which are relevant to the classification and labelling terminology addressed in this draft Standard:

1. 'substance' means a chemical element and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its compositions. Methyl isocyanate is an example of substance;
2. 'mixture' means a mixture or solution composed of two or more substances in which they do not react. A formulation used in coating industry, for example;

3. ‘article’ means an object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition. A cartridge is an example of article;
4. ‘UVCB’ means a substances of Unknown or Variable composition, Complex reaction products or Biological materials;
5. ‘SVHC‘ means substance of very high concern. The list of substances in the Candidate List of substances of very high concern for Authorization (published in accordance with Article 59(10) of the REACH Regulation) is considered a SVHC for the purpose of this draft Standard [9];
6. ‘non-isolated intermediate’ means an intermediate that during synthesis is not intentionally removed from the equipment in which the synthesis takes place. Phosgene in isocyanate production is an example of non-isolated intermediate;
7. ‘Hazard class’ means the nature of the physical, health or environmental hazard. Oral acute toxicity is an example of hazard class;
8. ‘hazard category’ means the division of criteria within each hazard class. Oral acute toxicity is divided into four hazard categories according to this draft Standard;
9. ‘signal word’ means a word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. ‘Danger’ and ‘Warning’ are examples of signal words;
10. ‘hazard pictogram ’ means a graphical composition that may include a symbol plus other graphic elements, such as a border, background pattern or color that is intended to convey specific information;
11. ‘hazard statement’ means a phrase assigned to a hazard class and category that describes the nature of the hazards of a hazardous product, including, where appropriate, the degree of hazard. May cause respiratory irritation (H335) is an example of hazard statement.
12. ‘precautionary statement’ means a phrase (and/or pictogram) that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous product, or improper storage or handling of a hazardous product. Do not allow contact with air (P222) is an example of P statement.
13. ‘cut-off value’ means a threshold of any classified impurity, additive or individual constituent in a substance or in a mixture, above which threshold these shall be taken into account for determining if the substance or the mixture shall be classified
14. ‘concentration limit’ means a threshold of any classified impurity, additive or individual constituent in a substance or in a mixture that my trigger classification of the substance or the mixture, respectively

For the purpose of this document, the following definitions apply, which are relevant to the actors playing a role in the classification and communication of hazards along the supply chain:

1. ‘manufacturer’ means any natural or legal person established within a GCC country who manufactures a substance within that country;
2. ‘importer’ means any natural or legal person established within a GCC country who is responsible for import. Import means the physical introduction into customs territory of a GCC country;
3. ‘placing on the market’ means the supply or the making available to a third party. Import is considered placing on the market;
4. ‘downstream user’ means any natural or legal person established within a GCC country, who uses a substance or a mixture in his industrial or professional activity;
5. ‘distributor’ means any natural or legal person established within a GCC country, who only stores and places on the market a substance or a mixture;

A more comprehensive list of definitions and abbreviations is provided in Chapter 1.2 of GHS. When this draft Standard refers to provisions as implemented in the CLP Regulation, the definitions provided in Article 2 of CLP apply.

3. SCOPE AND FIELD OF APPLICATION

This draft Standard aims to harmonize the following two elements: 1) the criteria for classifying substances and mixtures in accordance to their health, environmental and physical hazards; and 2) the hazard communication elements, including requirements for safety data sheets and labels.

Since all chemical products placed on the market are made in a workplace, handled during storage, shipment and transport by workers, this draft Standard does not provide exemptions from the scope of the GHS for any particular type of chemical product.

This draft Standard should apply to all substances and mixtures supplied, used and/or manufactured in the GCC countries, except when other GCC legislation lays down more specific rules on classification and labelling. In particular, it shall not apply to radioactive substances and mixtures, non-isolated intermediates, substances and mixtures for scientific research and development. It shall not apply to substances and mixtures in the forms of medicinal and veterinary products, cosmetic products, food or feeding stuffs. This draft Standard shall not be applied to articles, however SDSs can be provided for articles on a voluntary basis.

This draft Standard does not include the establishment of test methods or promotion of further testing on chemicals

Target audiences for this draft standard include consumers, workers, transport workers, and emergency responders using chemicals in and/or supplying chemicals into a GCC country.

4. HAZARD COMMUNICATION: SDSs AND LABELS

The communication of safety information on substances and mixtures along the supply chain is one of the pillars of a sound management of chemicals program. The development of a harmonized hazard communication system, based on the classification criteria developed fort the GHS, is one of the objective of the work on the GHS. The harmonized system for hazard communication includes safety data sheets, labels and easily understandable symbols.

Guidance on the preparation of SDS and labels are outlined in sections 4.1 and 4.2 of this draft Standard.

4.1 Safety data sheet

The SDS is an efficient and effective document for transmitting appropriate safety information along the supply chain on substances and mixtures. In particular the SDS is a tool meant to transferring essential hazard information (including information on transport, handling, storage and emergency actions) from the supplier to the downstream users. It is the main source of information for workers and employers about the intrinsic hazard of the product. The information on the SDSs are product related. Although the information on uses (and restrictions of uses) are made available on the SDS, specific actions could be required at the workplace where the product is used. The SDS may also be used to transfer this information to institutions, services and other bodies that play a role in dealing with chemical products

This guidance on SDSs is based on the provisions laid down in the GHS text. In particular in Chapter 1.5 “Hazard Communication: Safety Data Sheets” and references therein and, as such it is consistent with GSO ISO 11014:2013 (Safety data sheet for chemical products – content and order of sections) [8] of the GCC Standardization Organization. Whenever the GHS text leaves freedom to the competent authorities in the implementation of a given provision, the provisions laid down in this draft Standard are based on well-established and well known national implementations. Whenever, the GHS text refers to competent authorities that may require additional information or further define a requirement, this draft Standard adopted provisions from REACH and from industry best practices (e.g. the classification of substances in the composition section of SDSs of mixtures).

The purpose of the table provided in section 4.1.2 of this draft Standard is to ensure consistency and accuracy in the content of each of the mandatory headings required under GHS, so that the

resulting safety data sheets will enable users to take the necessary measures relating to protection of health and safety at the workplace, and the protection of the environment.

4.1.1 General requirements

An SDS contains information on the potential health effects of exposure and how to work safely with the substance or mixture. It also contains hazard information derived from physicochemical properties or environmental effects, on the use, storage, handling and emergency response measures related to that substance or mixture.

1. Scope and applicability

Where a substance or a mixture meets the criteria for classification as dangerous in accordance with this Standard, the supplier shall provide the recipient of such substance or mixture with a safety data sheet compiled in accordance with paragraph 4.1.2 of this Standard, free of charge. The supplier shall provide the recipient with a safety data sheet where a mixture does not meet the criteria for classification as dangerous but contains substances that meet the criteria for carcinogenic, toxic for reproduction or target organ toxicity in concentration exceeding the values of 0.1% for carcinogenic, toxic for reproduction and 1.0% for target organ systemic toxicity (both single-exposure and repeat-exposure).

The supplier may decide to provide the recipient with a safety data sheet where a mixture does not meet the criteria for classification as dangerous but contains substances for which there are workplace exposure limits established by a recognized regulatory authority or established by the supplier itself. The supplier may decide to provide the recipient with a safety data sheet for articles containing SVHC.

2. Language

As the SDS is meant to inform workers, employers, health and safety professionals, emergency personnel, relevant government agencies, as well as members of the community, the information in the SDS shall be written in a clear and concise manner. Language used in the SDS should be simple, clear and precise, avoiding jargon, acronyms and abbreviations. Vague and misleading expressions should not be used. In the GCC countries, safety data sheet should be written in Arabic and English and the supplier shall provide the recipient with an SDS in both languages. The versions of the two SDSs shall match.

3. Layout, length and unit

The length of the safety data sheet is not fixed. All pages of an SDS should be clearly numbered. The date of issue of the SDS should be stated and it should be easily readable. When the SDS has been revised the ‘Revision: (date)’ as well as a version number should be stated.

Numbers and quantities should be expressed in accordance to the International System of Units (SI) and/or in units appropriate to GCC countries. When revisions are made to a safety data sheet, it should clearly indicate where the change have been made to the previous version of the SDS This can be done either in section 16 or section by section, where the change is made. An explanation of the change can also be provided but it is not mandatory.

4. Format

The information should be presented in 16 headings. The headings and their order is fixed. Sub-headings are not mandatory, nor their numbering, and they can be used to distinguish the route of exposure, provide national or regional information and in general to structure the content of the headings. The safety data sheet should not contain blank subsections. Subheading with no information might be suppressed.

The list of 16 headings is given below:

1. Identification
2. Hazard Identification
3. Composition/information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure control/personal protection
9. Physical and Chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information

A summary of the information requirements for each section is provided in paragraph 4.1.2

5. Updating of SDS information

Suppliers shall update the safety data sheet as new and significant information become available. Information updates that may affect the measures to protect human health or the environment are considered relevant changes. In these cases the SDS should be updated without delay and the new version of the SDS shall be provided to all former recipients to whom they have supplied the product within the preceding 12 months.

If no new and significant information become available, suppliers should periodically review the information on which a SDS is based at least every 3 years from the date of original preparation

6. Confidential business information on SDS

The protection of confidential business information (CBI) should not compromise the information provided to protect the human health and the environment. CBI claims should be limited to the chemical identity of certain substances in a way that does not put the confidential nature of their businesses at risk. Trade secret (TS) names, such as alternative chemical names, can be used. Where a TS name is used for a component with occupational exposure limits, a statement in Section 8 should be included on the SDS to "contact the Customer Information service for additional information". CBI should be disclosed the competent authority(ies) of the GCC countries upon request.

7. SDS authoring and training

The author of an SDS shall be a competent person. This is a person (or combination of persons) – or a coordinator of a group of people - who has or have, the required knowledge and experience for the compilation of the SDS. The supplier of the substances and mixtures should ensure that the competent persons have received appropriate training. The supplier shall have a program to deliver refresher trainings to the authors of SDSs on a regular basis.

4.1.2 SDS format and content

The SDS should allow the identification of the product and the details of the supplier of the SDS, provide a clear description of the data used to identify the hazards, the measure to protect human health and environment, regulatory information, etc. The following table provides the requirements for each section of the SDS. Additional details can be found in Annex IC of GHS.

The following table provides the minimum requirements for each section of the SDS

1	Identification	This section of the SDS shall provide the identity of the substance or mixture, the identified uses and restriction on use, the name of the supplier with the contact details (name, full address, phone number(s)) and emergency contact numbers.
2	Hazard Identification	This section of the SDS shall provide the hazards of the substance or mixture and the appropriate warning information associated with those hazards.

		This section shall provide: - classification of the substance or mixture (this is in general done by providing the appropriate hazard class and category/subcategory); - label elements (hazard pictograms, signal word, Hazard Statement and Precautionary statement) - Other hazards which do not in classification but may contribute to the overall hazards
3	Composition/ Composition/information on ingredients	This section of the SDS shall provide the identity of the ingredient(s) of the product, including impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance. For substances, the chemical name and numerical identifier of the main constituent shall be provided. For mixtures, the chemical identity (name and identification number), the concentration or concentration ranges of all hazardous ingredients which are present about their cut-off levels.
4	First aid measures	This section of the SDS shall provide Initial care in such a way that first aid responder can understand and provide without the use of medical sophisticated equipment and medications. The information on immediate effects shall be given by rough of exposure (Inhalation, Skin contact, Eye contact, Ingestion). The most important symptoms and effects (both acute and delayed) and the Indication of any immediate attention and special treatment is needed
5	Fire-fighting measures	This section of the SDS define requirements for fighting a fire caused by the substance or mixture, or arising in its vicinity. Suitable and unsuitable extinguishing media shall be provided. In case of special hazards arising from the substance or mixture information on hazardous combustion products and unusual fire and explosion hazards shall be provided. Advice for firefighters, which include firefighting procedures and special protective equipment for firefighters shall also be provided.
6	Accidental release measures	This section of the SDS shall recommend the appropriate response to spills, leaks, or releases, to prevent or minimize the adverse effects on persons, property and the environment including personal precautions, protective equipment and emergency procedures. Advice shall be provided on any environmental precautions to be taken related to accidental spills and release of the substance or mixture, such as keeping away from drains, surface and ground water. The Methods and materials for containment and cleaning up procedures shall be indicated in the safety data sheet.
7	Handling and storage	This section of the safety data sheet shall provide precautions for safe handling practices and recommended technical measures such as containment, measures to prevent aerosol and dust generation and fire, measures required to protect the environment (e.g. use of filters or scrubbers on exhaust ventilation, use in a bonded area, measures for collection and disposal of spillages, etc.) and any specific

		requirements or rules relating to the substance or mixture (e.g. procedures or equipment which are prohibited or recommended) This section should include any relevant information on conditions for safe storage temperature and storage period
8	Exposure controls/personal protection	This section of the safety data sheet shall provide the control parameters including occupational exposure limit values and/or biological limit values when available for a substance and for each of the ingredients of a mixture. It must also include the currently recommended Engineering controls measure that can be: local exhaust ventilation, personal and room air monitoring and biological monitoring information. This section contains measures related to use of individual protection measures (such as personal protective equipment (PPE)). Use of PPE is usually considered as the last resort to control risks and it should be used in conjunction with other control measures such as process design (e.g. level of containment, closed process, local extraction), product design (e.g. low dust grades), workplace (dilution ventilation) or work method (automation). Individual protection measures shall be provided for the protection of eye/face, skin and respiratory
9	Physical and chemical properties	The following physical and chemical properties shall be clearly identified including, where appropriate, a reference to the test methods used and specification of appropriate units of measurement and/or reference conditions (Appearance, Odor, PH, Melting point/range, Freezing point, Boiling point (760 mmHg), Flash point, Evaporation rate, Flammability (solid, gas), Upper/lower flammability or explosive limits, Vapour pressure, Vapour density, Relative density, Solubility(ies) , Partition coefficient: n-octanol/water, Auto-ignition temperature , Decomposition temperature, Viscosity, Explosive properties, Oxidizing properties). Other properties may also be included in this section of the SDS. If information on specific properties is not available, they should be listed with the statement “not available”. It is recommended to provide an explanation as the why the data is not available.
10	Stability and reactivity	This section of the safety data sheet shall describe the stability of the substance or mixture and the possibility of hazardous reactions occurring under certain conditions of use and also if released into the environment. The reactivity hazards of the substance or mixture shall be described. However, the information may also be based on general data for the class or family of substance or mixture if such data adequately represent the anticipated hazard of the substance or mixture Chemical stability shall be indicated if the substance or mixture is stable or unstable under normal ambient and anticipated storage and handling conditions of temperature and pressure. Any stabilizer which

		are, or may need to be, used to maintain the chemical stability of the substance or mixture shall be described. The safety significance of any change in the physical appearance of the substance or mixture shall be indicated. If relevant, Possibility of hazardous reactions shall be stated if the substance or mixture will react or polymerize, releasing excess pressure or heat, or creating other hazardous conditions. The conditions under which the hazardous reactions may occur shall be described. Conditions such as temperature, pressure, light, shock, static discharge, vibrations or other physical stresses that might result in a hazardous situation shall be listed and if appropriate a brief description of measures to be taken to manage risks associated with such hazards shall be given. Families of substances or mixtures or specific substances, such as water, air, acids, bases, oxidizing agents, with which the substance or mixture could react to produce a hazardous situation (like an explosion, a release of toxic or flammable materials, or a liberation of excessive heat) shall be listed and if appropriate a brief description of measures to be taken to manage risks associated with such hazards shall be given Known and reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating shall be listed. Hazardous combustion products shall be included in Section 5 of the safety data sheet.
11	Toxicological information	This section of the safety data sheet is meant for use primarily by medical professionals, occupational health and safety professionals and toxicologists. A concise but complete and comprehensible description of the various toxicological (health) effects and the available data used to identify those effects shall be provided, including where appropriate information on toxic kinetics, metabolism and distribution. The relevant hazard classes, for which information shall be provided, are: acute toxicity, skin corrosion/irritation, serious eye damage/irritation, respiratory or skin sensitization, germ cell mutagenicity, carcinogenicity, reproductive toxicity, STOT-single exposure; STOT-repeated exposure, aspiration hazard. It is necessary to consider whether the concentration of each substance is sufficient to contribute to the overall health effects of the mixture. For mixtures information on toxic effects shall be presented for each substance.

13	Ecological information	This section of the safety data sheet shall provide information to enable evaluation of the environmental impact of the substance or mixture where it is released to the environment. This information may assist in handling spills, and evaluating waste treatment practices, control of release, accidental release measures and transport. Relevant available data on aquatic toxicity, both acute and chronic for fish, crustaceans, algae and other aquatic plants shall be included. In addition, when available, toxicity data on soil micro- and microorganisms and other environmentally relevant organisms, such as birds, bees and plants. Persistence and degradability is the potential for the substance or the appropriate substances in a mixture to degrade in the environment, either through biodegradation or other processes, such as oxidation or hydrolysis. Test results relevant to assess persistence and degradability shall be given where available. Bio accumulative potential is the potential of the substance or certain substances in a mixture to accumulate in biota and, eventually, to pass through the food chain. Test results relevant to assess the bio accumulative potential shall be given. This shall include reference to the octanol-water partition coefficient (Kow) and bioconcentration factor (BCF), if available. Mobility in soil shall be given where available. It is the potential of the substance or the components of a mixture, if released to the environment, to move under natural forces to the groundwater or to a distance from the site of release. It shall be included where available, the results of the PBT and vPvB assessment and information on any other adverse effects on the environment, such as environmental fate (exposure), photochemical ozone creation potential, ozone depletion potential, endocrine-disrupting potential and/or global warming potential.
13	Disposal considerations	This section of the safety data sheet shall provide information for proper waste management of the substance or mixture and/or its container to assist in the determination of safe and environmentally preferred waste management options, consistent with the local by-laws governing hazardous waste.
14	Transport information	This section of the safety data sheet shall provide basic classification information for the transport/shipment of substances or mixtures mentioned in Section 1 by road, rail, sea, inland waterways or air. Where such information is not available or relevant this shall be stated. Where relevant, this section shall provide information on the transport classification for each of the UN Model Regulations: the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), the Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) and the European Agreement concerning the International Carriage of

		Dangerous Goods by Inland Waterways (ADN)., as well as the International Maritime Dangerous Goods (IMDG) Code (sea), and the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO).
15	Regulatory information	This section of the safety data sheet shall describe the other regulatory information that is not provided elsewhere in the SDS. A reference to this Standard can be provided.
16	Other information	This section of the safety data sheet shall contain other information that is not included in Sections 1 to 15, including information on the revision of the safety data sheet such as: (a) a key or legend to abbreviations and acronyms used in the safety data sheet; (b) key literature references and sources for data; (c) a list of relevant hazard statements and/or precautionary statements. Write out the full text of any statements which are not written out in full under Sections 2 to 15. The NFPA (National Fire Protection Association) 704 information can be provided in this section on a voluntary basis. The SDS author should be mindful that NFPA serves a different purpose, i.e. it provides information related to fire and emergency responders only, when compared to GHS.

4.2 Labels

Labels is the other fundamental communication tool in the supply chain of chemical industry. Labels are intended to draw the attention of users who handle or use the product to its inherent hazard(s), and define the necessary precautionary measures to be taken into account. The label may provide comprehensive product information on safety such as the supplier's safety data sheet.

For the purpose of this standard, a label is the written, printed, or graphic material firmly attached in the product container.

This Standard is based on the provisions laid down in Chapter 1.4 (Hazard Communication: Labelling) of the GHS and references therein. Whenever the GHS text refers to competent authorities that may require additional information or further define a requirement, this Standard adopted provisions from CLP and from industry best practices.

4.2.1 General requirements

1. Scope and applicability

In general substances and mixtures that are placed on the market are supplied in packaging with the necessary labelling information. The product will be labelled in accordance to the rules laid down in this Standard where a substance or a mixture meets the criteria for classification as dangerous in accordance with this Standard.

2. Language

In GCC countries, labels should be in Arabic and English (a single label can provide the label elements in the 2 languages). In regards to the language used, the generic requirements laid down for SDS applies to labels. The translation in Arabic of the GHS elements is the one provided in the GHS text (Annex 3: 'Codification of hazard statements, codification and use of precautionary statements, codification of hazard pictograms and examples of precautionary statements')

3. Format and size

As a general principle, the label should be large enough to contain all the label elements defined by this Standard. The exact size is not designated in this standard. However, the size and spacing used to display the signal words, hazard statements, precautionary statements and supplemental information laid down in section 4.2.2 below, must use the appropriate size and spacing to be easily read. In regards to the size of the hazard pictograms, each of them must cover at least one fifteenth of the minimum surface area of the GHS label.

For the labelling of small packaging and labelling of packaging of various layers, the provisions are shown in paragraph 1.4.10.5.4.4 of Chapter 1.4 of GHS.

4. Multiple hazards and principles of precedence

Where a substance or mixture presents more than one GHS hazard, precedence for the allocation of symbols, signal words, hazard statements apply to reduce the number of information on the label. The applicable provisions are laid down in paragraph 1.4.10.5.3.1 (for the precedence of allocation of symbols), 1.4.10.5.3.2 (for the precedence for allocation of signal words) and 1.4.10.5.3.3 of GHS (for the precedence for allocation of hazard statements).
For substances that are included in the list of substances with harmonized classification (see section 8), the label shall include the hazard pictograms corresponding to the most severe hazard category for each relevant hazard class.

5. Derogations

Derogations from labeling requirements apply to special cases. In the case of packaging which is so small or in such a shape or form that it is impossible to meet the requirements of labelling, the label information may be reduced. The label elements that may be omitted from the label of

packages which do not exceed 125 ml of capacity and classified in one or more the hazard categories are spelled out in section 1.5.2.1.1 of Annex I to CLP are laid down in section 1.5.2.1.2, and 1.5.2.1.3 of Annex I to CLP. Exemptions from the labelling requirements apply also to metals in massive form, alloys, mixtures containing polymers, mixtures containing elastomers if they do not present a hazard to human health by inhalation, ingestion or contact with skin, or to the aquatic environment in the form they are placed on the market.

6. Revision

Suppliers shall update the label following any change to the classification and labelling of that substance or mixture. The label should be updated without undue delay.

7. Confidential business information

The same provisions laid down for SDS in section 4.1 of this Standard apply.

8. Label author and training

The same provisions laid down for SDS in section 4.1 of this Standard apply.

4.2.2 GHS labelling elements

A list of mandatory GHS labeling elements is given below

Supplier identification	The name, address and telephone number of the manufactured or supplier of the substance or mixture should be provided on the label
Product identifier	For a substance the product identifier shall consist of the chemical name of the substance (in addition to the name of the product) and an internationally recognized identification number (CAS number preferred). The product identifier of a mixture shall consist (in addition to the name of the product) of the identity of all substances in the mixture that contribute to the classification of the mixture as to acute toxicity, skin corrosion or serious eye damage, germ cell mutagenicity, carcinogenicity, reproductive toxicity, skin or respiratory sensitization, or specific target organ toxicity (STOT). The product identifier of substances and mixtures should be consistent with the product identifier used on the SDS.
Hazard pictograms	The generic definition laid down in paragraph 2 applies. The classification of a substance or mixture determines the hazard pictograms that have to be displayed on a label. Currently there are nine different pictograms as some pictograms cover several hazard classes and categories. All hazard

	pictograms used in this Standard should be in the shape of a square set at a point The symbols assigned to each of the hazard class/categories are provided in section 6.
Signal word	The generic definition laid down in paragraph 2 applies. The label shall include the relevant signal word in accordance with the classification of the hazardous substances or mixtures. The signal words assigned to each of the hazard class/categories is provided in section 6.
Hazard statement	The generic definition laid down in paragraph 2 applies. The complete set of precautionary statements is listed in section 3 of Annex 3 of GHS, Arabic version is available. The classification of a substance or mixture determines the hazard statement that have to be displayed on a label. If a substance is included in part 3 of Annex VI to CLP (List of substances with harmonized classification), the corresponding hazard statement(s) relevant for this classification have to be used.
Precautionary statement	The generic definition laid down in paragraph 2 applies. The complete set of precautionary statements is listed in section 3 of Annex 3 of GHS, Arabic version is available. Precautionary statements will be selected taking into account the hazard statements used and the use(s) of the substance or mixtures. Normally, a maximum of six precautionary statements shall appear on the label, unless more precautionary statements are necessary due to the nature and the severity of the hazards. Suppliers may combine the precautionary statements, having regard to clarity and comprehensibility of the precautionary advice
Supplemental information	Relevant 'supplemental information' is intended to incorporate additional labelling information over and above that listed in GHS. Supplemental information can be included as long as it is consistent with the classification of a substance or mixture and it does not contradict or cast doubt the validity of the information given by the label elements. Without prejudice the provisions laid down in the GHS text (paragraph 1.4.10.5.4.2 of GHS, since the GHS building block approach adopted by this Standard is the European GHS implementation (i.e. CLP Regulation), the supplemental hazard information and supplemental label elements in accordance with article 25 of CLP are considered supplemental information accepted by this Standard. Statement as 'non-toxic', 'non-harmful', or any other statements indicating that the substances or mixture is not hazardous shall not appear on the label

5. HAZARD CLASSIFICATION: GENERAL CONCEPTS

Hazard classification is a process involving the identification of information on the physical, health, environmental or other hazards of a substance or a mixture. This is followed by the comparison of the hazard information (including the severity of hazard) with defined criteria, in order to determine the classification of the substance or mixture. Suppliers of substances and mixtures on the GCC market has the responsibility for hazard classification and related hazard communication provisions such as SDS and label as laid down in section 4 of this Standard.

Thus, a manufacturer, importer or downstream user will apply the following steps to arrive to classification of a substance or a mixture:

- identification of relevant available information regarding the potential hazards (including severity of hazard) of a substance or mixture;
- examination of the information gathered to assess whether it is relevant, reliable and sufficient for classification purposes;
- evaluation of the information (data) by applying the classification criteria for each hazard class and differentiation as laid down in this Standard and references therein;
- decision on whether the hazard information for the substance or mixture meets the criteria for one or more hazard classes, or differentiations and therefore decision on the classification of the substance or mixture as hazardous in relation to these hazard classes or differentiations within hazard classes.

A substance or a mixture fulfilling the criteria relating to physical, health or environmental hazards, is hazardous and shall be classified in relation to the respective hazard classes provided for in Section 6.

5.1 Substances

In general the classification of a substance is based on the relevant data available on its hazardous properties, mostly data generated in tests for physical, toxicological and eco-toxicological hazards. So the responsible party for classification shall identify the relevant available information for the purpose of determining whether the substance is classified. The information must be compared with the criteria for classification for each hazard class or differentiation within the hazard class. Differentiation is a distinction depending on the route of exposure or the nature of the effects. A decision should be made as to whether the substance meets the criteria for classification. When this is the case, the responsible party for classification should assign one

or more hazard categories for each relevant hazard class or differentiation. The substance is then assigned the appropriate hazard communication elements.

This Standard requires testing only for the purpose of classification for physical hazards unless reliable and adequate information is already available. This Standard does not require new testing for health or environmental hazards

Substances may contain impurities, additives, or other constituents while still meeting the substance definition in CLP. This applies to both mono-constituent, multi-constituent and UVCB substances. The classification of such impurities, additives or individual constituents may influence the classification of the substance, in addition to the other hazardous properties. If data on the substance with its components is not available, the same classification and labelling rules for mixtures should apply for this substance.

Leveraging on provisions developed under the CLP regulation, this Standard introduces two types of classification: self-classification and harmonized-classification.

"Self-classification" is a process for determining the hazardous properties of a substance. The available toxicological, eco-toxicological and physical-chemical data on the substance are compared with the classification criteria in order to determine the appropriate hazard classification. This Standard does not require the generation of new toxicology and eco-toxicology data in order to perform a self-classification.

The "harmonized classification" of a substance means that a decision to classify and label the substance for particular hazards has been taken by an authority. Harmonized classification applies only to certain substances and they are in general published in national lists. The application of a harmonized classification helps suppliers of that substance to fulfil their obligations without having to perform the necessary tests. Section 6 of this document outlines the provisions adopted by this Standard.

5.2 Mixtures

The responsible party for classification shall identify the relevant available information for the purpose of determining whether the mixture is classified. The concept of harmonized classification is not applicable to mixtures (except for aqueous solutions of certain substances), as a consequence a mixture must always be self-classified. For mixtures, the same rules apply as for substances; where data are available on the mixture as a whole, they should primarily be used to determine the classification. If this cannot be done, further approaches to mixture classification may be applied.
A distinction is made depending on the type of hazards. Classification for physical hazards is normally based on the results of tests carried out on the mixtures themselves. For the classification for health and environmental hazards, available data on the mixture as a whole should primarily be used; however no "in vivo" test data should be generated for mixtures.

Where no test data are available, alternative approaches are used when classifying a mixture for health and environmental hazards. These are: 1) classification based on the application of bridging principles which make use of test data on similar tested mixtures and, if the hazard properties of some or all substances are known, 2) classification done using ingredient concentrations, concentration limits (and M-factors) and calculations methods.

The bridging principles accepted by this Standard are dilution; batching; concentration of highly hazardous mixtures; interpolation within one toxicity category; substantially similar mixtures, classification where the composition of a mixture has changed and provisions for aerosol. Further details on the bridging principles are referred to in section 1.1.3 of CLP.

When applying the calculation principles there are two distinct approaches: additive and non-additive. In the first approach, the sum of the concentrations of the components is compared to the concentration limit and if this is exceeded, the mixture will result classified for that particular hazard class. This approach cannot be applied for some hazard classes (see CLP Annex I 3.2.3.3.4), for those the non-additive approach applies, which means that the concentration of the individual components is compared to the concentration limits.

1. Concentration limit

Concentration limits are the minimum concentrations for a substance which trigger the classification of a mixture if exceeded by the individual concentration or the sum of concentrations (where the additivity approach is allowed) of relevant substances. This Standard, in accordance to CLP provisions, introduces two types of concentration limits: specific (SCL) and generic (GCL). The generic concentration limits (or thresholds) are set out in parts 2-5 of Annex I to CLP for those hazard classes where they apply. The SCLs are substance specific, they are only applicable to health hazards, and when available are given in Annex VI to CLP as outlined in section 8 of this Standard.

2. Cut-off values

The minimum concentrations for a substance (either as additive, impurity or an individual ingredient of mixture) to be taken into account for classification purposes is called cut-off values (in general 0.1% or 1% depending on the hazard class – additional details are provided in section 1.1.2.2.2 of Annex I to CLP).

3. M-factors

It is a multiplying factor applied to substances classified as hazardous to the aquatic environment acute category 1 and chronic category 1. It is used to derive the classification of a mixture where the substance is contained

6 HAZARD CLASSIFICATION: CLASSES AND CATEGORIES

The hazard classes and their differentiations are provided in section 6.1, 6.2 and 6.3, respectively for physical, health and environment hazards. This Standard is not a comprehensive description of the GHS hazard classes, their applicability and decision logic. References to this information are made through the text.

6.1 Physical Hazards

Whilst the general principles to classify substances and mixtures are outlined in section 5 of this Standard, definitions of the physical hazard classes, the criteria for classification of substances and mixtures and the hazard communication elements are provided in part 2 of Annex I to CLP Regulation.

6.1.1 Definition and categorization

A substance or a mixture fulfilling the criteria relating to physical hazards is hazardous and shall be classified in relation to the respective hazard classes and categories provided in the table below.

Physical Hazard	Categories and subcategories						
Explosives	Unstable Explosive	1.1	1.2	1.3	1.4	1.5	1.6
Flammable gases (including chemically unstable gases)	1		2		A		B
Aerosols	1		2		3		
Oxidizing gases	1						
Gases under pressure	Compressed gas		Liquefied gas		Refrigerated liquefied gas		Dissolved gas
Flammable liquids	1		2		3		
Flammable solids	1				2		
Self-reactive substances and mixtures	Type A		Type B		Type C & D	Type E & F	Type G
Pyrophoric liquids	1						
Pyrophoric solids	1						
Self-heating substances and mixtures	1						
Substances and mixtures which in contact with water emit flammable gases	1		2		3		
Oxidizing liquids	1		2		3		
Oxidizing solids	1		2		3		
Organiroxides	Type A		Type B		Type C & D	Type E & F	Type G
Corrosive to metals	1						

6.1.1 Hazard Communication elements

Explosives

Hazard Class	Hazard Categories	Pictogram	Signal Word	Hazard Statement Code	Description of Hazard Statement
Explosives	Unstable explosive		Danger	H200	Unstable explosives
	Division 1.1			H201	Explosive; mass explosion hazard
	Division 1.2			H202	Explosive, severe projection hazard
	Division 1.3			H203	Explosive; fire, blast or projection hazard
	Division 1.4		Warning	H204	Fire or projection hazard
	Division 1.5	None	Danger	H205	May mass explode in fire
	Division 1.6	None	None	None	None

Flammable gases (including chemically unstable gases)

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Flammable gases (including chemically unstable gases)	1		Danger	H220	Extremely flammable gas
	2	None	Warning	H221	Flammable gas
	A (chemically unstable gases)	None	Danger	H230	Additional hazard statement: May react explosively even in the absence of air
	B (chemically unstable gases)	None	Danger	H231	Additional hazard statement: May react explosively even in the absence of air at elevated pressure and/or temperature

Aerosols

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Aerosols	1		Danger	H222 H229	Extremely flammable aerosol Pressurized container: may burst if heated
	2		Warning	H223 H229	Flammable aerosol Pressurized container: may burst if heated
	3		Warning	H229	Pressurized container: may burst if heated

Oxidizing gases

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Oxidizing gases	1		Danger	H270	May cause or intensify fire; oxidizer

Gases under pressure

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Gases under pressure	Compressed gas		Warning	H280	Contains gas under pressure; may explode if heated
	Liquefied gas			H280	Contains gas under pressure; may explode if heated
	Refrigerated liquefied gas			H281	Contains refrigerated gas; may cause cryogenic burns or injury
	Dissolved gas			H280	Contains refrigerated gas; may cause cryogenic burns or injury

Flammable liquids

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Flammable liquids	1		Danger	H224	Extremely flammable liquid and vapor
	2			H225	Highly flammable liquid and vapor
	3		Warning	H226	Flammable liquid and vapor
	4	None		H227	Combustible liquid

Flammable solids

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Flammable solids	1		Danger	H228	Flammable solid
	2		Warning		

Self-reactive substances and mixtures

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Self-reactive substances and mixtures	Type A		Danger	H240	Heating may cause an explosion
	Type B		Danger	H241	Heating may cause a fire or explosion

	Types C and D		Danger	H242	Heating may cause a fire
	Types E and F		Warning	H242	Heating may cause a fire
	Type G	None	None	None	None

Pyrophoric liquids

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Pyrophoric liquids	1		Danger	H250	Catches fire spontaneously if exposed to air

Pyrophoric solids

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Pyrophoric solids	1		Danger	H250	Catches fire spontaneously if exposed to air

Self-heating substances and mixtures

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Self-heating substances and mixtures	1		Danger	H251	Self-heating; may catch fire
	2		Warning	H252	Self-heating in large quantities; may catch fire

Substances and mixtures, which in contact with water, emit flammable gases

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Substances and mixtures, which in	1		Danger	H260	In contact with water releases flammable gases which may ignite spontaneously

contact with water, emit flammable gases	2		Danger	H261	In contact with water releases flammable gases
	3		Warning	H261	In contact with water releases flammable gases

Oxidizing liquids

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Oxidizing liquids	1		Danger	H271	May cause fire or explosion; strong oxidizer
	2		Danger	H272	May intensify fire; oxidizer
	3		Warning	H272	May intensify fire; oxidizer

Oxidizing solids

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Oxidizing solids	1		Danger	H271	May cause fire or explosion; strong oxidizer
	2		Danger	H272	May intensify fire; oxidizer
	3		Warning	H272	May intensify fire; oxidizer

Organic peroxides

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Organic peroxides	Type A		Danger	H240	Heating may cause an explosion

	Type B		Danger	H241	Heating may cause a fire or explosion
	Type C and D		Danger	H242	Heating may cause a fire
	Type E and F		Warning	H242	Heating may cause a fire
	Type G	None	None	None	None

Corrosive to metals

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Corrosive to metals	1		Warning	H290	May be corrosive to metals

6.2 Health hazards

Whilst the general principles to classify substances and mixtures are outlined in section 5 of this Code of Practice, definitions of the health hazard classes, the criteria for classification of substances and mixtures, and the hazard communication elements are provided in part 3 of Annex I to CLP Regulation.

6.2.1 Definition and categorization

A substance or a mixture fulfilling the criteria relating to health hazards is hazardous and shall be classified in relation to the respective hazard classes and categories provided in the table below.

Health Hazard		Categories and subcategories				
Acute Toxicity	Oral	1		2	3	4
	Dermal	1		2	3	4
	Inhalation	1		2	3	4
Skin Corrosion/Irritation		1	1A	2		
			1B			
			1C			

Serious Eye Damage/Irritation	1		2		
Respiratory sensitization	1	1A			
		1B			
Skin sensitization	1	1A			
		1B			
Germ cell mutagenicity	1A				
	1B				
Carcinogenicity	1A		2		
	1B				
Reproductive toxicity	1A		2		
	1B				
Lactation	No category or sub-category				
Specific target organ toxicity — single exposure	1		2	3	
Specific target organ toxicity — repeated exposure	1		2		
Aspiration hazard	1				

6.2.1 Hazard Communication elements

Acute toxicity

Hazard Class	Hazard Categories		Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Acute Toxicity	1	Oral		Danger	H300	Fatal if swallowed
		Dermal			H310	Fatal in contact with skin
		Inhalation			H330	Fatal if inhaled
	2	Oral			H300	Fatal if swallowed
		Dermal			H310	Fatal in contact with skin
		Inhalation			H330	Fatal if inhaled
	3	Oral			H301	Toxic if swallowed
		Dermal			H311	Toxic in contact with skin
		Inhalation			H331	Toxic if inhaled
	4	Oral		Warning	H302	Harmful if swallowed
		Dermal			H312	Harmful in contact with skin
		Inhalation			H332	Harmful if inhaled
	5	Oral	None	Warning	H303	May be harmful if swallowed
		Dermal			H313	May be harmful In contact with skin
		Inhalation			H333	May be harmful if inhaled

Skin corrosion/irritation

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Skin corrosion/irritation	1		Danger	H314	Causes severe skin burns and eye damage
	2		Warning	H315	Causes skin irritation
	3	None	Warning	H316	Causes mild skin irritation

Serious eye damage/eye irritation

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Serious eye damage/eye irritation	1		Danger	H318	Causes serious eye damage
	2/2A		Warning	H319	Causes serious eye irritation
	2B	None	Warning	H320	Causes eye irritation

Respiratory sensitizer

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Respiratory sensitization	1		Danger	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
	1A		Danger	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled

	1B		Danger	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled

Skin sensitizer

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Skin sensitization	1		Warning	H317	May cause an allergic skin reaction
	1A		Warning	H317	May cause an allergic skin reaction
	1B		Warning	H317	May cause an allergic skin reaction

Germ cell mutagenicity

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Germ cell mutagenicity	1 (both 1A and 1B)		Danger	H340	May cause genetic defects (state route of exposure if it is conclusively proven that no other
	2		Warning	H341	Suspected of causing genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

Carcinogenicity

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
	1 (both 1A and 1B)		Danger	H350	May cause cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

Carcinogenicity	2		Warning	H351	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

Toxic to reproduction

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Reproductive toxicity	1 (both 1A and 1B)		Danger	H360	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)
	2		Warning	H361	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)
	Additional category for effects on or via lactation	None	None	H362	May cause harm to breast-fed children

Specific target organ toxicity following single exposure

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement

Specific target organ toxicity – repeated exposure	1		Danger	H372	Causes damage to organs (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)
	2		Warning	H373	May cause damage to organs (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)

Aspiration hazard

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Aspiration hazard	1		Danger	H304	May be fatal if swallowed and enters airways
	2		Warning	H305	May be harmful if swallowed and enters airways

6.3 Environmental hazards

Whilst the general principles to classify substances and mixtures are outlined in section 5 of this Code of Practice, definitions of the environmental hazard classes, the criteria for classification of substances and mixtures, and the hazard communication elements are provided in part 4 of Annex I to CLP Regulation.

6.3.1 Definition and categorization

A substance or a mixture fulfilling the criteria relating to health hazards is hazardous and shall be classified in relation to the respective hazard classes and categories provided in the table below

Environmental Hazard	Categories and subcategories			
Hazardous to the aquatic environment – Acute hazard	1			
Hazardous to the aquatic environment – Chronic hazard	1	2	3	4
Hazardous to the ozone layer	1			

6.3.1 Hazard Communication elements

Hazardous to the aquatic environment, short-term (acute)

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
Hazardous to the aquatic environment, short-term (Acute)	Acute 1		Warning	H400	Very toxic to aquatic life
	Acute 2	None	None	H401	Toxic to aquatic life
	Acute 3	None	None	H402	Harmful to aquatic life

Hazardous to the aquatic environment, long-term (chronic)

Hazard Class	Hazard Categories	Pictogram	Signal	Hazard Statement Code	Description of Hazard Statement
	Chronic 1		Warning	H410	Very toxic to aquatic life with long lasting effects

Hazardous to the aquatic environment, long-term (Chronic)	Chronic 2		None	H411	Toxic to aquatic life with long lasting effects
	Chronic 3	None	None	H412	Harmful to aquatic life with long lasting effects
	Chronic 4	None	None	H413	May cause long lasting harmful effects to aquatic life

Hazard to the ozone layer

Hazard Class	**Hazard Categories**	**Pictogram**	**Signal**	**Hazard Statement Code**	**Description of Hazard Statement**
Hazardous to the ozone layer	1		Warning	H420	Harms public health and the environment by destroying ozone in the upper atmosphere

8 LIST OF SUBSTANCES WITH HARMONIZED CLASSIFICATION AND LABELLING

As GHS is being implemented around the world, a number of competent authorities have adopted lists of GHS classification for chemicals. Countries with their own substance classification lists include Europe (mandatory), Japan (non-mandatory), South Korea (mandatory), Malaysia (mandatory), Australia (non-mandatory) and New Zealand (non-mandatory). Competent authorities of some of these countries have made such list mandatory.

A global list would facilitate worldwide trade and would represent a step forward toward harmonization; the UN GHS Sub-Committee developed a set of guiding principles that would govern the development of such a list and started exploring the process and resources that are required to prepare a global classification list [10].

This Standard adopts the list implemented by the CLP Regulation, namely the list of substances with an entry in Table 3.1 of Part 3 of Annex VI to CLP Regulation. This is the most comprehensive and consolidated list, which is the result of a process that started in Europe in 1967. The list is updated both with GHS and with scientific and technical advancements as outlined in this section.

In this list each substance is represented by an entry. The substance is identified by the Index No., name (International Chemical Identification), EC No, and CAS No. For each substance the Classification, Labelling, Specific Concentration Limits/M-factors and Notes are provided as shown in the table below

Index No	International Chemical Identification	EC No	CAS No	Classification		Labelling			Specific Conc. Limits, M-factors	Notes
				Hazard Class and Category Code(s)	Hazard statement Code(s)	Pictogram, Signal Word Code(s)	Hazard statement Code(s)	Suppl. Hazard statement Code(s)		

The classification for each entry is provided by means of a code representing the hazard class and the category or categories and code(s) of the Hazard statement. For each hazard class, the hazard class and category code are shown in following Table.

Hazard class	Hazard Class and Category Code
Explosive	Unst. Expl. - Expl. 1.1 - Expl. 1.2 - Expl. 1.3 - Expl. 1.4 - Expl. 1.5 - Expl. 1.6
Flammable gas (including chemically unstable gases)	Flam. Gas 1 - Flam. Gas 2 - Chem. Unst. Gas A - Chem. Unst. Gas B
Aerosol	Aerosol 1 - Aerosol 2- Aerosol 3
Oxidizing gas	Ox. Gas 1
Gases under pressure	Press. Gas (Comp.) - Press. Gas (Liq.) - Press. Gas (Ref. Liq.) - Press. Gas (Diss.)
Flammable liquid	Flam. Liq. 1 - Flam. Liq. 2 - Flam. Liq. 3
Flammable solid	Flam. Sol. 1 - Flam. Sol. 2
Self-reactive substance or mixture	Self-react. A - Self-react. B - Self-react. CD - Self-react. EF - Self-react. G
Pyrophoric liquid	Pyr. Liq. 1
Pyrophoric solid	Pyr. Sol. 1
Self-heating substance or mixture	Self-heat. 1 - Self-heat. 2
Substance or mixture which in contact with water emits flammable gas	Water-react. 1 - Water-react. 2 - Water-react. 3
Oxidising liquid	Ox. Liq. 1 - Ox. Liq. 2 - Ox. Liq. 3
Oxidising solid	Ox. Sol. 1 - Ox. Sol. 2 - Ox. Sol. 3

Organic peroxide	Org. Perox. A - Org. Perox. B - Org. Perox. CD - Org. Perox. EF -Org. Perox. G
Substance or mixture corrosive to metals	Met. Corr. 1
Acute toxicity	Acute Tox. 1 - Acute Tox. 2 - Acute Tox. 3 - Acute Tox. 4
Skin corrosion/irritation	Skin Corr . -Skin Corr. 1A - Skin Corr. 1B - Skin Corr. 1C - Skin Irrit. 2
Serious eye damage/eye irritation	Eye Dam. 1 - Eye Irrit. 2
Respiratory/skin sensitization	Resp. Sens. 1, 1A, 1B - Skin Sens. 1, 1A, 1B
Germ cell mutagenicity	Muta. 1A - Muta. 1B - Muta. 2
Carcinogenicity	Carc. 1A - Carc. 1B - Carc. 2
Reproductive toxicity	Repr. 1A - Repr. 1B - Repr. 2 - Lact.
Specific target organ toxicity — single exposure	STOT SE 1 - STOT SE 2 - STOT SE 3
Specific target organ toxicity — repeated exposure	STOT RE 1 - STOT RE 2
Aspiration hazard	Asp. Tox. 1
Hazardous to the aquatic environment	Aquatic Acute 1 - Aquatic Chronic 1 - Aquatic Chronic 2 - Aquatic Chronic - Aquatic Chronic 4
Hazardous for the ozone layer	Ozone 1

For each substance, the labelling elements provided in this table are the Pictograms (Signal Word Code(s)), Hazard statement Code(s) and Suppl. Hazard statement Code(s). The signal word code 'Dgr' for 'Danger' or 'Wng' for 'Warning', the codes for the supplemental statements in accordance with Article 25(1) and the rules specified in Annex II, part 1.

A harmonized classification may include a Specific Concentration Limit (SCL) or a multiplication factor (M-factor), SCLs are concentration limits that are specific to the substance, and they can be lower or higher than the generic concentration limits. Substances classified in the list for the aquatic environment may have been assigned an M-factor which is the equivalent to an SCL. The Notes provided in the last column of the table provides special instructions in relation to the identification and classification of the substance.

A Harmonized classification indicated by an asterisk (*) corresponds to the minimum classification, meaning that the manufacturers or importers should apply this classification, but must classify in a more severe hazard category in case further information is available which shows that this is more appropriate.

The classifications in the list are not exhaustive for all hazards; the person placing the substance on the market must perform a self-classification in hazard classes and differentiation not covered by the elements of the Annex VI entry for the substance

In Europe this list is updated by adapting the CLP Regulation to technical and scientific progress. This includes: incorporating amendments made on a biannual working rhythm at UN level to the GHS, considering the developments in internationally recognized chemical programs (e.g. REACh) and of the data from other scientific sources accident databases. The updates to the list may include a new entry (i.e. a decision has been taken to harmonize the classification of a substance), deletion or revising an entry for that purpose.

Adaptation to the CLP regulation are made through the publication of the "Adaptation to Technical Progress (ATP)", which are Commission Regulations amending the CLP Regulation. At the time of writing the first edition of this Standard, the ninth Adaptation to Technical Progress to CLP Regulation applies [11].

9 APPENDIX: HAZARD COMMUNICATION IN THE GCC

Appendix all the SDSs and Labels standards/regulations that are still active in the GCC are provided for reference

Gulf Cooperation Council

- GSO 01/ ISO 11014:2012 - Safety data sheet for chemical products – Content and order of sections (ISO 11014:2009) {Regulation is in Harmony with the latest GHS SDS}
- GSO 1810 / 2007 Labelling – Labelling of Chemical Products {Four Categories: Applications, Identification, General Conditions, Support Documents}
- GCC "Unified Guiding Regulation for The Control of Hazardous Chemical Substances in The GCC Countries 2002"

Saudi Arabia

- Royal Commission Environmental Regulations – 2015 Volume 1 (Limited to the industrial areas of Yanbu and Jubail)
- Royal Decree M/34 Concerning General Environmental Law and Rule for Implementation (Oct. 15, 2001)
- Royal Decree No. M/38, 12 June 2006, Law of Chemicals Import and Management

United Arabs Emirates

- Code of Practice AD EHSMS CoP 1.0 - Hazardous Materials - Version 3.1 - June 2018 - classification should be done according to international model regulations (e.g. GHS) https://www.oshad.ae/en/Pages/Code-Of-Practice.aspx
- Technical Guidance Document for Storage of Hazardous Materials (EAD-EQ-PCE-TG-16)
- Standard Operating Procedure for Permitting of Traders of Hazardous Materials (EAD-EQ-PCE-SOP-07)

Kuwait

- Decision No. 210 of 2001; The Executive Law of Environment Public Authority
- Law No. 42 of 2014 - Promulgating The Environment Protection Law
- By-Law of the Environmental Law No. 21 of 1995 as amended by Law No. 16 of 1996 and its implementing regulations

Bahrain

- Resolution No.4 - Management of Hazardous Chemicals, 2006

- Bahrain Resolution No.7 - Control of Importing and Use of Prohibited and Restricted Chemicals, 2002

Oman

- Royal Decree No. 46/95
- Ministerial Decision No. 317/2001 (Based on Royal Decree No. 46/95)
- Ministerial Decision No. 248/97 (Based on Royal Decree No. 46/95)

Qatar

- Decree No. 30 of 2002 Promulgating the Environment Protection Law
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11. Commission Regulation (EU) 2018/669 amending Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures. It is commonly referred to as the '11th ATP to CLP'.