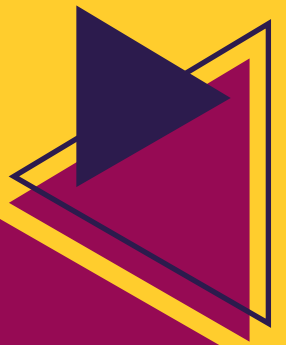




International
Labour
Organization

SAFETY
+ HEALTH
FOR ALL



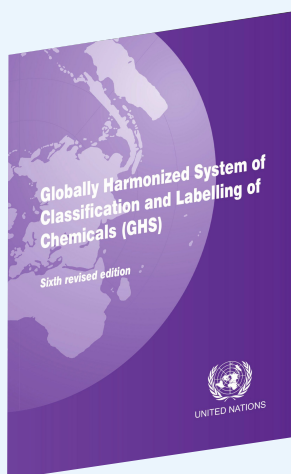
► **The Globally
Harmonized System**
of Classification
and Labelling of
Chemicals **(GHS)**



► What is the GHS?

The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) is an internationally agreed-upon system to standardize chemical hazard classification and communication. The GHS arose from an international mandate during the United Nations Conference on Environment and Development (1992), as a response to the ILO Chemicals Convention, 1990 (No. 170) and the ILO Chemicals Recommendation, 1990 (No. 177); the adoption of these instruments necessitates a system for hazard classification and labelling.

The GHS was developed over more than a decade and continues to evolve. The ILO, in close collaboration with its constituents, played a critical role, serving as the focal point for the technical work on hazard communication.



The GHS includes:

- Criteria for classifying substances and mixtures according to their physical, health and environmental hazards.
- Requirements for communication of the hazards, through labels and safety data sheets (SDS).

The GHS is described in a document known as the “purple book”. The first edition of the purple book was published in 2003 and it is updated every two years. The latest revision and previous revisions of the purple book are available in the official UN languages on the [UNECE Website](#).

► What are the objectives of the GHS?



1. Enhance the protection of human health and the environment by providing an internationally comprehensible system for hazard communication.



3. Reduce the need for testing and evaluation of chemicals.



2. Provide a recognized framework for those countries without an existing system.



4. Facilitate international trade in chemicals.



© iStock/ArtboyAnimation

C155 - Occupational Safety and Health Convention, 1981

C167 - Safety and Health in Construction Convention, 1988

C170 - Chemicals Convention, 1990

C174 - Major Industrial Accidents Convention, 1993

C176 - Safety and Health in Mines Convention, 1995

C184 - Safety and Health in Agriculture Convention, 2001

C187 - Promotional Framework for Occupational Safety and Health Convention, 2006

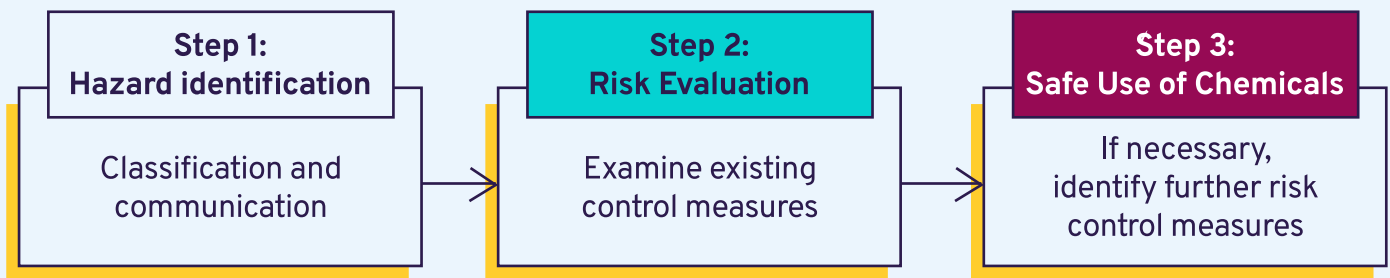
► How does the GHS relate to the ILO and its International Labour Standards?

The ILO, through its normative framework on chemicals, helps reinforce and create synergies with the GHS. A number of International Labour Standards (ILS) require the implementation of the elements of the GHS. Some of the ILS most closely related to the GHS are included in the box on the left of this page.

For more details, please refer to the following ILO report: [The GHS in the world of work: Mapping synergies between ILO Instruments and the Globally Harmonized System of Classification and Labelling of Chemicals \(GHS\)](#).

The GHS, together with ILO instruments, are fundamental for chemical safety in the world of work.

► How does the GHS contribute to Occupational Safety and Health?



Step 1: Hazard Identification

- Classification of the chemicals based on their intrinsic properties.
- Hazard communication, through labels, SDS and training.

Step 1 (i.e. hazards classification and communication) is precisely at the core of the GHS and for this reason, is a necessary component of the safe use of chemicals in the workplace.

Step 2: Risk Evaluation

- Assess how the chemical is used at the workplace.
- Take into account existing control measures already in place to reduce the risks.
- While hazards are intrinsic to a given chemical, risks are not and so will vary depending on the levels of risk reduction measures applied.

Step 3: Safe Use of Chemicals

- If the risk reduction measures applied are sufficient, the level of risk is acceptable and this can be considered as the safe use of chemicals.
- If not, it is necessary to identify what further risk control measures are needed to reduce the risk to an acceptable and safe use level.

► What are the hazards covered by the GHS?

Physical Hazards



There are
17 CLASSES
of Physical Hazards

which are described in **Part 2**
of the purple book.

Health Hazards



There are
10 CLASSES
of Health Hazards

which are described in **Part 3**
of the purple book.

Environmental Hazards



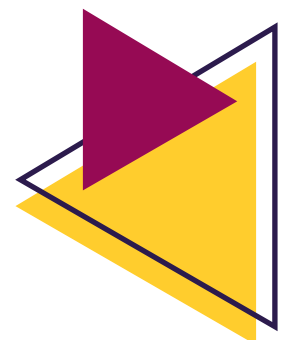
There are
2 CLASSES
of Environmental Hazards

which are described in **Part 4**
of the purple book.

- 2.1 Explosives
- 2.2 Flammable gases
- 2.3 Aerosols and chemicals under pressure
- 2.4 Oxidizing gases
- 2.5 Gases under pressure
- 2.6 Flammable liquids
- 2.7 Flammable solids
- 2.8 Self-reactive substances and mixtures
- 2.9 Pyrophoric liquids
- 2.10 Pyrophoric solids
- 2.11 Self-heating substances and mixtures
- 2.12 Substances and mixtures which, in contact with water, emit flammable gases
- 2.13 Oxidizing liquids
- 2.14 Oxidizing solids
- 2.15 Organic peroxides
- 2.16 Corrosive to metals
- 2.17 Desensitized explosives

- 3.1 Acute toxicity
- 3.2 Skin corrosion/irritation
- 3.3 Serious eye damage/eye irritation
- 3.4 Respiratory or skin sensitization
- 3.5 Germ cell mutagenicity
- 3.6 Carcinogenicity
- 3.7 Reproductive toxicity
- 3.8 Specific target organ toxicity – Single exposure
- 3.9 Specific target organ toxicity – Repeated exposure
- 3.10 Aspiration hazard

- 4.1. Hazardous to the aquatic environment (acute and chronic)
- 4.2. Hazardous to the ozone layer



► How are hazards communicated in the GHS?

Hazards in the GHS are communicated through labels and SDS.


A GHS label contains the following six elements (for more information, see Chapter 1.4 of the purple book):



- 1 Product identifier.
- 2 Supplier identification.
- 3 Hazard pictogram(s).
- 4 Signal word: a word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. There are two signal words:
 - “Danger” for the more severe hazards, or
 - “Warning” for the less severe

1 ACETONE

3



4 DANGER

Highly flammable liquid and vapor
Causes serious eye irritation
May cause drowsiness or dizziness.

6 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Wear eye protection. **IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2 Company name:
Address:

Telephone:

- 5 Hazard statements: phrase that describes the nature of the hazards including, where appropriate, the degree of hazard.

- 6 Precautionary statements: 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.



A GHS SDS has the following sixteen sections (for more information, see Chapter 1.5 and Annex 4 of the purple book):

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Identification 2. Hazard(s) identification 3. Composition/information on ingredients 4. First-aid measures 5. Fire-fighting measures 6. Accidental release measures 7. Handling and storage 8. Exposure controls/personal protection | <ol style="list-style-type: none"> 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 |
|--|---|

International Chemical Safety Cards (ICSCs)

The ICSCs are data sheets intended to provide essential safety and health information on chemicals in a clear and concise way. The ICSCs provide information in over 10 languages on over 1,700 chemicals.

► What is the scope of the GHS?

The GHS covers all hazardous chemicals at the workplace, in all of the stages of the product life cycle, including: production, storage, transport, handling, recycling and disposal. The GHS, depending on national legislation, may also include the use of chemicals in consumer products, which are often used in many sectors of the world of work. This can include, for example, chemicals used to disinfect workplaces or the use of paint in the construction sector, to name a few.



Industry



Agriculture



Transport



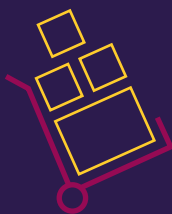
Consumer products/ Other workplaces

► **Who are the target audiences of the GHS in the world of work?**



Governments

particularly the competent authority responsible for establishing policies and regulations



Producers/suppliers/ users of chemicals

responsible for the identification and classification of the chemicals, and preparation of labels and SDS, and passing on that information



Employers

responsible for implementing comprehensive chemical safety programmes in the workplace



Workers

the target audience of the labels and SDS



► How to implement the GHS?



Governments

- Develop a national GHS implementation strategy (note that the document “[Developing a National GHS Implementation Strategy](#)”, prepared by UNITAR, ILO and IOMC might be useful for this purpose).
- Establish and/or update regulations on chemicals based on the GHS, considering the building block approach of section 1.1.3.1.5 of the GHS document.
- Evaluate the effectiveness and compliance of regulations related to the GHS.
- Ratify and implement relevant International Labour Standards on chemicals to further reinforce the main provisions of the GHS.



Producers/suppliers

- Classify, or reclassify, chemicals in accordance with the GHS.
- Develop labels and SDS in accordance with the GHS.
- Share appropriate chemical safety information on classification and labelling as relevant and required.



Employers

- Ensure that all chemicals used at work are labelled according to the GHS.
- Provide the SDS in line with the GHS for workers.
- Inform and train workers about the GHS communication elements and the handling and use of chemicals, to ensure that workers’ “right to know” is fully met.
- Apply risk assessment procedures to ensure that appropriate OSH measures, following the hierarchy of controls, are followed. This may include engineering controls, administrative controls and/or appropriate personal protective equipment (PPE) (including information and training on its use, maintenance, storage and disposal).



Workers

- Receive instruction and attend training about chemical safety, particularly to ensure understanding of the information contained in the GHS labels and the SDS.
- Request instruction and training in situations where it is not initially provided.
- Use and apply information on risk control measures gained in instruction and training on GHS labels and SDS. This includes using PPE appropriately according to instruction and training.

**Labour Administration, Labour Inspection
and Occupational Safety and Health Branch
(LABADMIN/OSH)**

**Governance and Tripartism Department
(GOVERNANCE)**

International Labour Office
4 route des Morillons
CH-1211 Geneva 22 – Switzerland

T: +41 (0) 22 799 61 11
E: labadmin-osh@ilo.org

ilo.org/labadmin-osh