

## Regulatory Compliance

# Globally Harmonized System of Classification and Labeling of Chemicals

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**With consistent and appropriate information on the chemicals either produced or imported into the country, the infrastructure to control chemical exposures, protect people and environment can be established in a comprehensive manner. GHS will provide and internationally comprehensible system for enhanced protection of human health and environment.**

**E**xtensive increase in trade in chemicals globally necessitated development of national programs to ensure safe use, transport and disposal of chemicals. These are some of the prime reasons to set the objective of having Globally Harmonized System (GHS). It is anticipated that once implemented, GHS will provide an internationally comprehensible system for hazard communication and enhance protection of human health and environment. This will endow a recognized framework for the countries without an existing system.

Adopting uniform system globally will reduce the need to test and

evaluate the hazardous chemicals thus facilitate international trade of chemicals whose hazards have been identified and assessed.

### **Maintaining Uniformity Globally**

To enable safe transport of dangerous chemicals and develop uniform system, UN carried out the study of regulatory norms of various countries to identify the best aspects of existing systems and develop a common system based on best practices that would be followed by all the countries involved in trade of chemicals. Further studies were based on agreed principles of harmonization that were adopted early in the process

- The level of protection offered to workers, consumers, the general public and the environment should not be reduced as a result of harmonizing the classification and labeling systems.
- Harmonization means establishing a common and coherent basis for chemical hazard classification and communication, from which the appropriate elements relevant to means of transport, consumer, worker and environment protection can be selected.
- Scope of harmonization

includes both hazard classification criteria and hazard communication tools, eg labeling and chemical safety data sheets.

- Comprehension of chemical hazard information, by the target audience, eg workers, consumers and the general public should be addressed
- Validated data already generated for the classification of chemicals under the existing systems should be accepted when reclassifying these chemicals under the harmonized system.
- A new harmonized classification system may require adaptation of existing methods for testing of chemicals.

### Critical Components

The goal of the GHS is to identify the intrinsic hazards found in chemical substances and mixtures and to convey hazard information about these. The criteria for hazard classification are harmonized. Hazard statements, symbols and signal words have been standardized and harmonized and now form an integrated hazard communication system.

For transport, it is expected that application of the GHS will be similar to application of current transport requirements. Containers of dangerous goods will be marked with pictograms that address acute toxicity, physical hazards and environmental hazards. Elements of the GHS that address such elements as signal words and hazard statements are not expected to be adopted in the transport sector.

In the workplace, it is expected that all of the GHS elements will be adopted, including labels that have the harmonized core information under the GHS, and safety data sheets. It is also anticipated that employee training to help ensure effective communication will supplement this.

The GHS includes the elements such as harmonized criteria for classifying substances and mixtures according to their health, environmental and physical hazards and harmonized hazard communication elements, including requirements for labeling and safety data sheets.

### Hazard Communication

**Labeling:** During the process of developing labeling system the difficulty to comply with the needs of the target audience and work place was recognized that needed to be considered. For example, while labeling of paints and solvents due consideration must be given to the fact that the workers and emergency responders use labels for their storage and these products are used both by consumers and in workplaces. Label should supply complete information specific for each of the target audience down the line.

**Workplace:** Employers and workers must know the hazards specific to the chemicals used and or handled in the workplace, as well as information about the specific protective measures required to avoid the adverse effects that might be caused by those hazards. In the case of storage of chemicals, potential hazards are minimized by the containment

(packaging) of the chemical, but in the case of an accident, workers and emergency responders need to know what mitigation measures are appropriate.

**Consumers:** The label in most cases is likely to be the sole source of information readily available to the consumer. The label thus needs to convey sufficient details in relevance with product usage. There are considerable philosophical differences in the approach to provide information to the consumers. Risk communication based on the likelihood of injury is considered to be an effective approach for consumer labeling systems.

**Emergency Responders:** Emergency responders need information on a range of levels in the event of an accident during transportation, in storage facilities or at workplaces. To facilitate immediate response they need accurate detailed and sufficiently clear information about the hazards and the response techniques, which they obtain from the range of sources. The information needs of medical personnel responsible to treat the victims of an accident or emergency may differ from those of fire fighters.

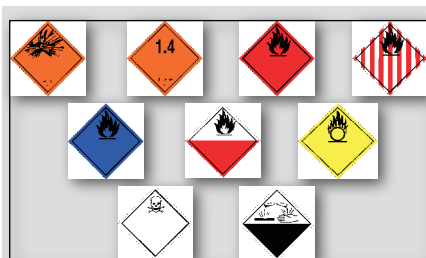
**Transport:** Although transport workers and emergency responders are the principal ones, the UN recommendations on transport of dangerous goods and model regulations cater for a wide range of target audiences. For example, a driver will have to know what has to be done in case of an accident irrespective of the substance transported: (e.g. report the accident to authorities, keep the shipping

documents in a given place, etc.). Drivers may only require limited information concerning specific hazards, unless they also load and unload packages or fill tanks, etc. Workers who might come into direct contact with dangerous goods, for example on board ships, require more detailed information.

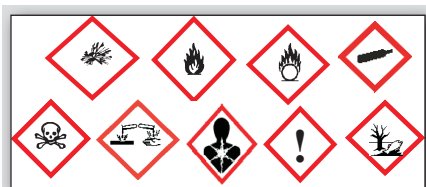
## Information Required on GHS Label

**Label Elements:** Each hazard class details the label elements that include symbol, signal word and hazard statement assigned to each of the hazard categories of the GHS. These categories reflect the harmonized classification criteria.

**Reproduction of the Symbol:** It is mandatory to use standard symbols in GHS, Please refer to the picture below



Hazard communication – Label elements: Transport pictograms



Hazard communication – Label elements: GHS pictograms

**Pictograms and Reproduction of the Hazard Pictograms:** A pictogram means a graphical composition that includes a symbol

plus other graphic elements, such as a border, background pattern or color that is intended to convey specific information.

**Shape and Color:** All hazard pictograms used in the GHS should be in the shape of a square set at a point.

Labeling Procedures	
(a)	Allocation of label elements;
(b)	Reproduction of the symbol;
(c)	Reproduction of the hazard pictogram;
(d)	Signal words;
(e)	Hazard statements;
(f)	Precautionary statements and pictograms;
(g)	Product and supplier identification;
(h)	Multiple hazards and precedence of information;

- **Signal Words:** This indicates the relative level of severity of hazard and alerts the reader to a potential hazard through the label. Danger and warning are the standard signal words used in GHS. Danger is used for severe hazard categories (ie in the main for hazard categories 1 and 2), whereas warning is used for lesser severe categories.
- **Hazard Statements:** These are phrases, assigned to a hazard class and category to describe the nature and degree of the product hazards. The tables of label elements in the individual chapters for each hazard class detail the hazard statements that have been assigned to each of the hazard categories of the

GHS.

- **Precautionary Statements and Pictograms:** A phrase and/or pictogram on GHS label to describe recommended measures to be take in order to minimize or prevent the adverse effects that result from exposure, improper storage or handling of hazardous product. GHS label should include appropriate precautionary information, the choice for which lies with competent authority. Annex 3 contains examples of precautionary statements and pictograms that can be used wherever allowed by the competent authority.
- **Product Identifier:** One used on a GHS label must match with the product identifier used on the Safety Data Sheet (SDS). This system also makes it mandatory to include chemical identity of the substance on the label. However, where a substance is exclusively supplied for workplace use the competent authority may choose to give suppliers discretion to include chemical identities on the SDS, in lieu of including them on labels. The competent authority rules for CBI take priority over the rules for product identification.
- **Supplier Identification:** The name, address and telephone number of the manufacturer or supplier of the substance or mixture should be provided on the label.

## Safety Data Sheet (SDS)

Safety Data Sheet (SDS) is an important and comprehensive

source of information about a chemical substance or mixture for use in workplace intended to provide workers and emergency personnel with procedures to handle the substance in a safe manner. These data sheets are primary information source in GHS as well and the introduction of harmonization system in no way dilutes the importance of the SDS for workplace users. Information in SDS should be presented using the sixteen headings in order.

The SDS should provide a clear description of the data used to identify the hazards. The minimum information (in Table 1) should be included, where applicable and available, on the SDS under the relevant heading. If specific information is not applicable or not available under a particular

subheading, the SDS should clearly state this. Competent authorities may require additional information.

#### SDS Format

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
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

Table: 1

Some subheadings relate to information that is national or regional in nature, for example 'EC number' and 'occupational exposure limits'. Suppliers or employers should 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. ■

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## Lanxess India Signs MoU with Institute of Chemical Technology

**Mumbai:** Lanxess India, the specialty chemicals company, has entered into collaboration with Institute of Chemical Technology (ICT), Mumbai for industrial research and scientific projects. The MoU was signed at the Technology Day Celebrations of ICT in presence of Honorable Union Minister for Science and Technology, Prithviraj Chavan.

The subjects, around which the company projects could be undertaken by ICT, would include process improvement of existing production lines, process development of new products, equipment design, and development of catalysts.

Dr Joerg Strassburger, Managing Director and Country Representative, Lanxess India said, "We

at Lanxess, are very excited to collaborate with a renowned Institute like ICT in the space of chemical technology. This is a first of its kind collaboration for us at Lanxess India and we are convinced that this association will be beneficial for both parties."

Professor G D Yadav, Director of ICT Mumbai corroborated, "We at ITC are glad to be working with the globally renowned specialty chemicals company Lanxess. We are convinced that we will substantially contribute to the further growth and success of Lanxess in India".

Neelanjan Banerjee, Director, Lanxess India added, "We are looking forward to a long lasting and fruitful partnership with ICT."