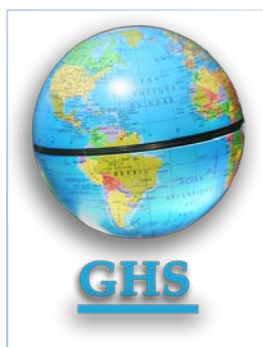


The Safety Data Sheet

(Formerly Material Safety Data Sheet)

The U.S. Department of Labor has updated the Hazard Communication Standard (HCS) and classifications to align with the *Globally Harmonized System of Classification and Labeling of Chemicals (GHS)*. This update includes major changes in the following areas:



- **Hazard classification:** Provides specific criteria for classification of health and physical hazards, as well as classification of mixtures.
- **Labels:** Requires chemical manufacturers and importers to provide a label that includes a harmonized signal word, pictogram, and hazard statement for each hazard class and category. Precautionary statements must also be provided.
- **Safety Data Sheets:** New Safety Data Sheet (SDS) replaces old Material Safety Data Sheet (MSDS).
- **Information and training:** Requires employers to train workers by December 1, 2013 on the new labels elements and safety data sheet's format to facilitate recognition and understanding.

Safety Data Sheets in the Global Harmonized System

Safety Data Sheets are provides comprehensive information about the chemical composition of a substance in use, as well as the physical properties, handling, storage, and first response in case of emergency.

Below is an outline of the required content on each of the 16 sections of the new SDS format

1. Identification of the substance or mixture and of the supplier

- a) GHS Product Identifier
- b) Other means of identification
- c) Recommended use of the chemical and restrictions on use
- d) Supplier's details (including name, address, phone number etc.)
- e) Emergency phone number

2. Hazard identification

- a) GHS classification of the substance/mixture and any national or regional information
- b) GHS label elements, including precautionary statements. (Hazard symbols may be provided as a graphical reproduction of the symbols in the black and white or the name of the symbol e.g. "flame", "skull and crossbones");
- c) Other hazards which do not result in the classification (e.g. "dust explosion hazard") or are not covered by the GHS.

3. Composition/information on ingredients

Substance

- a) Chemical identity;
- b) Common name, synonyms, etc.;
- c) CAS number and other unique identifiers
- d) Impurities and stabilizing additives which are themselves classified and which contribute to the classification of a substance.

Mixture

The chemical identity and concentration or concentration ranges of all ingredients which are hazardous within the meaning of the GHS and are present above their cut-off levels.

NOTE: For information on ingredients, the competent authority rules for CBI take priority over the rules for product identification.

4. First aid measures

- a) Description of necessary measures, subdivided according to the different routes of exposure, i.e. inhalation, skin and eye contact and ingestion;
- b) Most important symptoms/effects, acute and delayed.
- c) Indication of immediate medical attention and special treatment needed, if necessary.

5. Fire-fighting measures

- a) Suitable (and unsuitable) extinguishing media.
- b) Specific hazards arising from the chemical (e.g. nature of any hazardous combustion products).
- c) Special protective equipment and precautions for fire-fighters.

6. Accidental release measures

- a) Personal precautions, protective equipment and emergency procedures.
- b) Environmental precautions.
- c) Methods and materials for containment and cleaning up.

7. Handling and storage

- a) Precautions for safe handling.
- b) Conditions for safe storage, including any incompatibilities.

8. Exposure controls/personal protection

- a) Control parameters e.g. occupational exposure limit values or biological limit values.
- b) Appropriate engineering controls.
- c) Individual protection measures, such as personal protective equipment.

9. Physical and chemical properties

- a) Appearance (physical state, color etc.);
- b) Odor;
- c) Odor threshold;
- d) pH;
- e) Melting point/freezing point;
- f) Initial boiling point and boiling range;
- g) Flash point;
- h) Evaporation rate;
- i) Flammability (solid, gas);
- j) Upper/lower flammability or explosive limits;
- k) Vapor pressure;
- l) Vapor density;
- m) Relative density;
- n) Solubility(ies);
- o) Partition coefficient: n-octanol/water;
- p) Auto-ignition temperature;
- q) Decomposition temperature;
- r) Viscosity.

10. Stability and reactivity

- a) Reactivity;
- b) Chemical stability;
- c) Possibility of hazardous reactions;
- d) Conditions to avoid (e.g. static discharge, shock or vibration);
- e) Incompatible materials;
- f) Hazardous decomposition products.

11. Toxicological information

Concise but complete and comprehensible description of the various toxicological (health) effects and the available data used to identify those effects, including:

- a) Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact);
- b) Symptoms related to the physical, chemical and toxicological characteristics;
- c) Delayed and immediate effects and also chronic effects from short and long term exposure;
- d) Numerical measures of toxicity (such as acute toxicity estimates).

12. Ecological information

- a) Ecotoxicity (aquatic and terrestrial, where available);
- b) Persistence and degradability;
- c) Bioaccumulative potential;
- d) Mobility in the soil;
- e) Other adverse effects.

13. Disposal information

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.

14. Transport information

- a) UN number;
- b) UN proper shipping name;
- c) Transport hazard class(es);
- d) Packing group, if applicable
- e) Environmental hazards (e.g.: Marine pollutant (Yes/No));
- f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code);
- g) Special precautions which a user needs to be aware of, or needs to comply with, in connection with the transport or conveyance within or outside their premises.

15. Regulatory information

Safety, health and environmental regulations specific for the product in question.

16. Other information including information on preparation and revision of the SDS

For more information regarding this topic you can visit the U.S. Department of Labor under the section of Hazardous Communication

<https://www.osha.gov/dsg/hazcom/index.html>