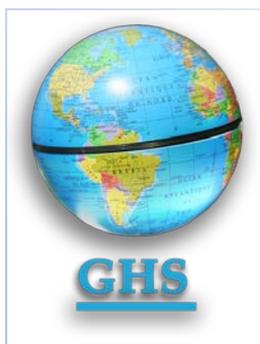


# The Safety Data Sheet

## (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>**