

What are Safety Data Sheets?

Safety Data Sheets, often referred to by its acronym SDS, are a detailed informational document, prepared by the manufacturer or importer of a hazardous chemical, which describes the physical and chemical properties of the chemical product. OSHA requires that a SDS be available for every hazardous substance or product used in the workplace.

Information included in Safety Data Sheets aids in the selection of personal protective equipment (PPE), helps employers and employees understand the potential health and physical hazards of a chemical and describes how to respond effectively to exposure situations.

It should be noted that the health and safety guidance in the Safety Data Sheet often addresses the worst case situation which would be more relevant to a major industrial accident or tank car spill, than to quantities of chemicals used in a laboratory or the workplace.

OSHA has revised the Hazard Communication Standard and instituted a Global Harmonized System requiring chemical manufacturers, distributors, or importers to provide Safety Data Sheets in a uniform format, and include the section numbers, the headings and associated information under each.

Note: Manufacturers may withhold certain information deemed to be *proprietary* (including hazardous ingredients) on a Safety Data Sheet if the information is considered a trade secret. However, an employer has a legal right to obtain this information from the manufacturer, to evaluate the potential health risk if potential overexposure or adverse health effects are suspected.

Information found in a 16 Section SDS includes:

Section 1 - Information identifying the manufacturer and the product:

- Manufacturer's name, address and telephone number.
- Number to call in case of emergency involving product.
- Recommended use
- Restrictions on use.

Section 2 – Hazard(s) Identification:

- Includes all hazards regarding the chemical.
- Required label elements (pictograms and precautionary statements).

Section 3 – Composition/Information on Ingredients:

- Includes information on chemical ingredients.
- Trade secret claims.
- Trade name, common names and synonyms.
- Chemical family and formula, molecular weight.
- CAS# (Chemical Abstract Service) for pure materials.

Section 4 - First Aid Measures:

- Includes important symptoms/effects (acute, delayed).
- Treatment for exposure via inhalation, ingestion, eye contact, or absorption through skin contact.

Section 5 – Fire Fighting Measures:

- Lists suitable extinguishing techniques, equipment.
- Chemical hazards from fire.

Based on the flash point and other fire and explosion data, the appropriate extinguishing agent for fires involving the material will be listed. Special procedures may also be listed.

Section 6 – Accidental Release Measures:

- List emergency procedures.
- Protective equipment.
- Proper methods and materials for containment and cleanup.

Section 7– Handling and Storage:

- List precautions for safe handling and storage.
- Includes chemical incompatibilities.

Section 8– Exposure Controls/Personal Protection:

- Lists OSHA’s Permissible Exposure Limits (PELs).
- Threshold Limit Values (TLVs).
- Appropriate Engineering Controls
- Personal protective equipment (PPE).

Permissible Exposure Limits (PEL) and Threshold Limit Values (TLV's):

- OSHA PEL - either a time weighted average limit for an 8-hour day or a maximum concentration exposure limit for the items on the OSHA list. In ppm (Parts Per Million) or mg/m³ (Milligrams per Cubic Meter of air).
- ACGIH TLV - maximum exposure limits recommended by the American Congress of Governmental Industrial Hygienists.

Section 9– Physical and Chemical Properties:

- Lists the chemical's characteristics.
 - Appearance and odor
 - pH
 - Melting point/ freezing point
 - Boiling point
 - Flash point
 - Specific gravity
 - Vapor pressure
 - Percentage of volatiles
 - Vapor density
 - Ignition temperature
 - Auto-ignition temperature
 - Lower/Upper Explosion Limit
 - Density
 - Partition coefficient
 - Odor
 - Odor Threshold
 - Solubility in water
 - Evaporation rate

Section 10– Stability and Reactivity:

- Lists chemical stability
- Possibility of hazardous reactions.
- Conditions and materials to avoid
- Hazardous decomposition products

Section 11– Toxicological Information:

- Includes routes of exposure.
- Related symptoms.
- Acute and chronic effects.
- Numerical measures of toxicity.
 - LD50 (lethal dose 50) - lethal single dose (usually oral) in mg/kg (milligrams of chemical per kilogram of animal body weight) of a chemical that results in the death of 50% of a test animal population.
 - LC50 (lethal concentration 50) - concentration dose expressed in ppm for gases or micrograms of material per liter of air for dusts or mists that results in the death of 50% a test animal exposure administered in one exposure.
- Includes information about reproductive effects.

Section 12 - Ecological Information*:

- May be used to provide information on the effects the material may have on plants and animals.
- Provides information regarding the environmental fate of the material, such as bio-persistence or bio-accumulation.

Section 13 – Disposal Considerations*:

- Describes appropriate waste disposal methods.

Section 14 – Transport Information*:

- Provides basic shipping requirements:
 - Shipping name and classification
 - Packaging requirements
 - Quantity limitations

Section 15 – Regulatory Information*:

- OSHA Hazards
- Reporting requirements by SARA Title III

Section 16 – Other Information*:

- Includes the date of preparation or last revision.

***Note:** Since other Agencies regulate this information, OSHA will not be enforcing Sections 12 through 15 (29 CFR 1919.1200(g)(2)).