

#### 4.8 What is the GHS Safety Data Sheet (SDS)?

The (Material) Safety Data Sheet (SDS) provides comprehensive information for use in workplace chemical management. Employers and workers use the SDS as sources of information about hazards and to obtain advice on safety precautions. The SDS is product related and, usually, is not able to provide information that is specific for any given workplace where the product may be used. However, the SDS information enables the employer to develop an active program of worker protection measures, including training, which is specific to the individual workplace and to consider any measures that may be necessary to protect the environment. Information in a SDS also provides a source of information for other target audiences such as those involved with the transport of dangerous goods, emergency responders, poison centers, those involved with the professional use of pesticides and consumers.

The SDS should contain 16 headings (Figure 4.14). The GHS MSDS headings, sequence and content are similar to the ISO, EU and ANSI MSDS/SDS requirements, except that the order of sections 2 and 3 have been reversed. The SDS should provide a clear description of the data used to identify the hazards. Figure 4.14 and the GHS Purple Book provide the minimum information that is required in each section of the SDS. Examples of draft GHS SDSs are provided in Appendix B of this guidance document.

The revised Purple Book contains guidance on developing a GHS SDS (Annex 4). Other resources for SDSs include:

- ILO Standard under the Recommendation 177 on Safety in the Use of Chemicals at Work,
- International Standard 11014-1 (1994) of the International Standard Organization (ISO) and ISO Safety Data Sheet for Chemical Products 11014-1: 2003 DRAFT,
- American National Standards Institute (ANSI) Standard Z400.1,
- European Union SDS Directive 91/155/-EEC.

**Figure 4.14**

Minimum information for an SDS

<b>1.</b>	<b>Identification of the substance or mixture and of the supplier</b>	<ul style="list-style-type: none"> <li>■ GHS product identifier.</li> <li>■ Other means of identification.</li> <li>■ Recommended use of the chemical and restrictions on use.</li> <li>■ Supplier's details (including name, address, phone number, etc.).</li> <li>■ Emergency phone number.</li> </ul>
<b>2.</b>	<b>Hazards identification</b>	<ul style="list-style-type: none"> <li>■ GHS classification of the substance/mixture and any national or regional information.</li> <li>■ GHS label elements, including precautionary statements. (Hazard symbols may be provided as a graphical reproduction of the symbols in black and white or the name of the symbol, e.g., flame, skull and crossbones.)</li> <li>■ Other hazards which do not result in classification (e.g., dust explosion hazard) or are not covered by the GHS.</li> </ul>
<b>3.</b>	<b>Composition/information on ingredients</b>	<p><b>Substance</b></p> <ul style="list-style-type: none"> <li>■ Chemical identity.</li> <li>■ Common name, synonyms, etc.</li> <li>■ CAS number, EC number, etc.</li> <li>■ Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance.</li> </ul> <p><b>Mixture</b></p> <ul style="list-style-type: none"> <li>■ 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 cutoff levels.</li> </ul> <p><i><b>NOTE:</b> For information on ingredients, the competent authority rules for CBI take priority over the rules for product identification.</i></p>
<b>4.</b>	<b>First aid measures</b>	<ul style="list-style-type: none"> <li>■ Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion.</li> <li>■ Most important symptoms/effects, acute and delayed.</li> <li>■ Indication of immediate medical attention and special treatment needed, if necessary.</li> </ul>
<b>5.</b>	<b>Firefighting measures</b>	<ul style="list-style-type: none"> <li>■ Suitable (and unsuitable) extinguishing media.</li> <li>■ Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products).</li> <li>■ Special protective equipment and precautions for firefighters.</li> </ul>
<b>6.</b>	<b>Accidental release measures</b>	<ul style="list-style-type: none"> <li>■ Personal precautions, protective equipment and emergency procedures.</li> <li>■ Environmental precautions.</li> <li>■ Methods and materials for containment and cleaning up.</li> </ul>
<b>7.</b>	<b>Handling and storage</b>	<ul style="list-style-type: none"> <li>■ Precautions for safe handling.</li> <li>■ Conditions for safe storage, including any incompatibilities.</li> </ul>
<b>8.</b>	<b>Exposure controls/personal protection.</b>	<ul style="list-style-type: none"> <li>■ Control parameters, e.g., occupational exposure limit values or biological limit values.</li> <li>■ Appropriate engineering controls.</li> <li>■ Individual protection measures, such as personal protective equipment.</li> </ul>
<b>9.</b>	<b>Physical and chemical properties</b>	<ul style="list-style-type: none"> <li>■ Appearance (physical state, color, etc.).</li> <li>■ Odor.</li> <li>■ Odor threshold.</li> <li>■ pH.</li> <li>■ melting point/freezing point.</li> </ul>

		<ul style="list-style-type: none"> <li>■ initial boiling point and boiling range.</li> <li>■ flash point.</li> <li>■ evaporation rate.</li> <li>■ flammability (solid, gas).</li> <li>■ upper/lower flammability or explosive limits.</li> <li>■ vapor pressure.</li> <li>■ vapor density.</li> <li>■ relative density.</li> <li>■ solubility(ies).</li> <li>■ partition coefficient: n-octanol/water.</li> <li>■ autoignition temperature.</li> <li>■ decomposition temperature.</li> </ul>
<b>10.</b>	<b>Stability and reactivity</b>	<ul style="list-style-type: none"> <li>■ Chemical stability.</li> <li>■ Possibility of hazardous reactions.</li> <li>■ Conditions to avoid (e.g., static discharge, shock or vibration).</li> <li>■ Incompatible materials.</li> <li>■ Hazardous decomposition products.</li> </ul>
<b>11.</b>	<b>Toxicological information</b>	<p>Concise but complete and comprehensible description of the various toxicological (health) effects and the available data used to identify those effects, including:</p> <ul style="list-style-type: none"> <li>■ information on the likely routes of exposure (inhalation, ingestion, skin and eye contact);</li> <li>■ Symptoms related to the physical, chemical and toxicological characteristics;</li> <li>■ Delayed and immediate effects and also chronic effects from short- and long-term exposure;</li> <li>■ Numerical measures of toxicity (such as acute toxicity estimates).</li> </ul>
<b>12.</b>	<b>Ecological information</b>	<ul style="list-style-type: none"> <li>■ Ecotoxicity (aquatic and terrestrial, where available).</li> <li>■ Persistence and degradability.</li> <li>■ Bioaccumulative potential.</li> <li>■ Mobility in soil.</li> <li>■ Other adverse effects.</li> </ul>
<b>13.</b>	<b>Disposal considerations</b>	<ul style="list-style-type: none"> <li>■ Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.</li> </ul>
<b>14.</b>	<b>Transport information</b>	<ul style="list-style-type: none"> <li>■ UN Number.</li> <li>■ UN Proper shipping name.</li> <li>■ Transport Hazard class(es).</li> <li>■ Packing group, if applicable.</li> <li>■ Marine pollutant (Yes/No).</li> <li>■ Special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises.</li> </ul>
<b>15.</b>	<b>Regulatory information</b>	<ul style="list-style-type: none"> <li>■ Safety, health and environmental regulations specific for the product in question.</li> </ul>
<b>16.</b>	<b>Other information including information on preparation and revision of the SDS</b>	