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This section identifies the hazards of the chemical presented on the SDS and the appropriate warning information associated with those hazards. The required information consists of:

The hazard classification of the chemical<sup>1</sup> (e.g., flammable liquid, category)

Signal word (e.g., Danger or Warning)

Hazard statement(s) (e.g., Combustible Liquid)

Pictograms (the pictograms or hazard symbols may be presented as graphical reproductions of the symbols in black and white or be a description of the name of the symbol (e.g., skull and crossbones, flame).

Precautionary statement(s)

Description of any hazards not otherwise classified.

For a mixture that contains an ingredient(s) with unknown toxicity, a statement describing how much (percentage) of the mixture consists of ingredient(s) with unknown acute toxicity.

Please note that this is a total percentage of the mixture and not tied to the individual ingredient(s).

This section identifies the ingredient(s) contained in the product indicated on the SDS, including impurities and stabilizing additives. This section includes information on substances, mixtures, and all chemicals where a trade secret is claimed. The required information consists of:

Chemical name

Common name and synonyms

Chemical Abstracts Service (CAS) number and other unique identifiers

Impurities and stabilizing additives, which are themselves classified and which contribute to the classification of the chemical.

Same information required for substances

The chemical name and concentration (e.g., exact percentage) of all ingredients which are classified as health hazards and are:

A statement that the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret is required.

<sup>1</sup> Chemical, as defined in the HCS, is any substance, or mixture of substances.

This section describes the initial care that should be given by untrained responders to an individual who has been exposed to the chemical. The required information consists of:

Necessary first-aid instructions by relevant routes of exposure (inhalation, skin and eye contact, and ingestion).

Description of the most important symptoms, or effects, and any symptoms that are acute or delayed.

Recommendations for immediate medical care and special treatment needed, when necessary.

This section provides recommendations for fighting a fire caused by the chemical. The required information consists of:

Recommendations of suitable extinguishing equipment, and information about extinguishing equipment that is not appropriate for a particular situation.

Advice on specific hazards that develop from the chemical during the fire, such as any hazardous combustion products created when the chemical burns.

Recommendations on special protective equipment or precautions for firefighters.

This section provides recommendations on the appropriate response to spills, leaks, or releases, including containment and cleanup practices to prevent or minimize exposure to people, properties, or the environment. It may also include recommendations distinguishing between responses for large and small spills where the spill volume has a significant impact on the hazard. The required information may consist of recommendations for:

Use of personal precautions (such as removal of ignition sources or providing sufficient ventilation) and protective equipment to prevent the contamination of skin, eyes, and clothing.

Emergency procedures, including instructions for evacuations, consulting experts when needed, and appropriate protective clothing.

Methods and materials used for containment (e.g., covering the drains and capping procedures).

Cleanup procedures (e.g., appropriate techniques for neutralization, decontamination, cleaning or vacuuming; adsorbent materials; and/or equipment required for containment/clean up).



Flash point  
Evaporation rate  
Flammability (solid, gas)  
Partition coefficient: n-octanol/water  
Auto-ignition temperature  
Decomposition temperature  
Viscosity

The SDS may not contain every item on the above list because information may not be relevant or is not available. When this occurs, a notation to that effect must be made for that chemical property. Manufacturers may also add other relevant properties, such as the dust deflagration index (Kst) for combustible dust used to evaluate a dust's explosive potential.

This section describes the reactivity hazards of the chemical and the chemical stability information. This section is broken into three parts: reactivity, chemical stability, and other. The required information consists of:

Description of the specific test data for the chemical(s). This data can be for a class or family of the chemical if such data adequately represent the anticipated hazard of the chemical(s), where available.

Indication of whether the chemical is stable or unstable under normal ambient temperature and conditions while in storage and being handled.

Description of any stabilizers that may be needed to maintain chemical stability.

Indication of any safety issues that may arise should the product change in physical appearance.

Indication of the possibility of hazardous reactions, including a statement whether the chemical will react or polymerize, which could release excess pressure or heat, or create other hazardous conditions. Also, a description of the conditions under which hazardous reactions may occur.

List of all conditions that should be avoided (e.g., static discharge, shock, vibrations, or environmental conditions that may lead to hazardous conditions).

List of all classes of incompatible materials (e.g., classes of chemicals or specific substances) with which the chemical could react to produce a hazardous situation.

List of any known or anticipated hazardous decomposition products that could be produced because of use, storage, or heating. (Hazardous combustion products should also be included in Section 5 (Fire-Fighting Measures) of the SDS).

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This section identifies toxicological and health effects information or indicates that such data are not available. The required information consists of:

Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact).

The SDS should indicate if the information is unknown.

Description of the delayed, immediate, or chronic effects from short-term and long-term exposure.

The numerical measures of toxicity (e.g., acute toxicity estimates such as the LD50 (median lethal dose)) - the estimated amount [of a substance] expected to kill 50% of test animals in a single dose.

Description of the symptoms. This description includes the symptoms associated with exposure to the chemical including symptoms from the lowest to the most severe exposure. Indication of whether the chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest editions) or found to be a potential carcinogen by OSHA

This section provides information to evaluate the environmental impact of the chemical(s) if it were released to the environment. The information may include:

Data from toxicity tests performed on aquatic and/or terrestrial organisms, where available (e.g., acute or chronic aquatic toxicity data for fish, algae, crustaceans, and other plants; toxicity data on birds, bees, plants).

Whether there is a potential for the chemical to persist and degrade in the environment either through biodegradation or other processes, such as oxidation or hydrolysis.

Results of tests of bioaccumulation potential, making reference to the octanol-water partition coefficient ( $K_{ow}$ ) and the bioconcentration factor (BCF), where available.

The potential for a substance to move from the soil to the groundwater (indicate results from adsorption studies or leaching studies).

Other adverse effects (e.g., environmental fate, ozone layer depletion potential, photochemical ozone creation potential, endocrine disrupting potential, and/or global warming potential).

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Description of appropriate disposal containers to use  
Recommendations of appropriate disposal methods to employ  
Description of the physical and chemical properties that may affect disposal activities  
Language discouraging sewage disposal  
Any special precautions for landfills or incineration activities

This section provides guidance on classification information for shipping and transporting of hazardous chemical(s) by road, air, rail, or sea. The information may include:

UN number (ie: four-figure identification number of the substance)<sup>2</sup>.  
UN proper shipping name<sup>2</sup>.  
Transport hazard class(es)<sup>2</sup>.  
Packing group number, if applicable, based on the degree of hazard<sup>2</sup>.  
Environmental hazards (e.g., identify if it is a marine pollutant according to the International Maritime Dangerous Goods Code (IMDG Code)).  
Guidance on transport in bulk (according to Annex II of MARPOL 73/78<sup>3</sup> and the International Code for the Construction and Equipment of Ships Carrying Dangerous