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**EXPLANATION OF THE INDUSTRIAL HYGIENE  
TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET**

**PRODUCT INFORMATION**

**Trade Name and Synonyms**

Refer to the code number and name under which the product is marketed and the common commercial name of the product.

**Manufacturer's Name and Address Self explanatory.**

**Chemical Name and/or Family or Description**

Refer to chemical, generic, or descriptive name of single elements and compounds.

For purposes of this form, a product is defined as hazardous if it possesses one or more of the following characteristics: (1) has a flash-point below 200 degrees Fahrenheit, closed cup or subject to spontaneous heating; (2) has a threshold limit value below 500 ppm gases and vapor below 5 mg/m<sup>3</sup> for dust, fumes and mist, and below 25 MPPCF for mineral dust; (3) a single dose oral LD50 below 500 mg/kg; (4) causes burns to the skin in the short-term exposure or is systemically toxic by skin contact; (5) has been demonstrated to be a skin or eye irritant or causes respiratory irritation; (6) may cause skin or respiratory sensitization; (7) has teratogenic, mutagenic or other toxic effects; (8) may cause asphyxia or pneumoconiosis; (9) in the course of normal operations may produce dusts, gases, fumes, vapor, mist, or smoke which have one or more of the above characteristics; (10) is hazardous according to OSHA 1910.1200(g)(2)(vii).

**OCCUPATIONAL CONTROL PROCEDURES**

(Consult your Industrial Hygienist or Occupational Health Specialist.)

**Protective Equipment**

Type of protective equipment that is necessary for the safe handling and use of this product.

**Ventilation**

Normal means adequate to maintain permissible concentrations.

Ventilation: type, i.e. local exhaust, mechanical, etc.

**Permissible Concentrations**

Indicates Threshold Limit Value (TLV) and / or Time Weighted Average (TWA) as established by the American Conference of Governmental Industrial Hygienists and/or standards promulgated by the Occupational Safety and Health Administration.

**EMERGENCY AND FIRST AID PROCEDURES**

Give first aid and emergency procedures in case of eye and/or skin contact, ingestion and inhalation.

**PHYSIOLOGICAL EFFECTS**

**Acute Exposures (Eye, Skin, Respiratory System)**

Refers to the most common effects that would be expected to occur from direct contact with the product.

**Chronic**

Refers to the effects that are most likely to occur from repeated or prolonged exposure.

**Sensitizer**

Means a substance which will cause on or in normal living tissue, through an allergic or photodynamic process, a hypersensitivity which becomes evident on reapplication of, or exposure to, the same substance.

**Median Lethal Dose or Concentration (LD50, LC50)**

Refers to that dose or concentration of the material which will produce death in 50 per cent of the animals. For inhalation, exposure time is indicated.

**Irritation Index**

Refers to an empirical score (Draize Method) for eye and skin irritation which tested by the method described. If numbers are not available, a yes or no answer indicates whether or not the material is an irritant.

**FIRE PROTECTION INFORMATION**

**Ignition Temperature**

Refers to the temperature in degrees Fahrenheit, at which a liquid will give off enough flammable vapor to ignite and burn continuously for 5 seconds.

**Flash Point (State Method used)**

Refers to the temperature in degrees Fahrenheit, at which a liquid will give off enough flammable vapor to ignite.



#### Flammable Limits

Refers to the range of gas or vapor concentration (percent by volume in air) which will burn or explode if an ignition source is present. Lower means the lower flammable limit and upper means the upper flammable limit given in percent.

#### Products Evolved When Subjected to Heat or Combustion

The products evolved when this material is subjected to heat or combustion. Includes temperature at which oxidation or other forms of degradation occurs.

#### Recommended Fire Extinguishing Agents and Special Procedures

Specifies the fire fighting agents that should be used to extinguish fires. If unusual fire hazards are involved or special procedures indicated, this is specified.

#### Unusual Fire or Explosive Hazards

Specifies hazards to personnel in case of fire, explosive danger.

#### ENVIRONMENTAL PROTECTION

Specifies how this product can be successfully disposed of.

Indicates precautions necessary in the event that leakage or breakage occurs. Included are (a) clean-up procedures, (b) personal protective equipment if necessary, (c) hazards that may be created, i.e. fire, explosion, etc.

#### PRECAUTIONARY LABEL

Label that is required or recommended.

#### Requirements for Transportation, Handling and Storage

Specifies handling and storage procedures. Gives ICC, DOT, or other regulations related to safety and health for transportation.

#### CHEMICAL AND PHYSICAL PROPERTIES

##### Boiling Point (or Range)

In degrees Fahrenheit or Celsius Boiling Point at 760 mmHg.

##### Vapor Pressure

Refers to the pressure of saturated vapor above the liquid expressed in mm of Hg. at 20 degrees Celsius or 68 degrees Fahrenheit.

#### Specific Gravity

The ratio of the density of the product to the density of water.

#### Vapor Density

The ratio of the density of the vapor at saturation concentration (20 degrees Celsius or 68 degrees Fahrenheit to the density of air at 760 mmHg.)

#### Appearance and Odor

Refers to the general characterization of the material, e.g. powder, colorless liquid, aromatic odor, etc.

#### pH

Refers to the degree of acidity or basicity of the material in a specific concentration.

pH1-5 - STRONGLY ACIDIC  
pH5-7 - WEAKLY ACIDIC  
pH7-9 - WEAKLY BASIC  
pH9-14 - STRONGLY BASIC

#### Solubility

Refers to the solubility of a material by weight in water at room temperature. The term negligible, less than 0.1 %; slight, 0.1 to 1%; moderate, 1 to 10%; appreciable, 10% or greater. Gives solubility in organic solvents where appropriate.

#### Percent Volatile by volume

Refers to the amount volatilized at 20 degrees Celsius or 68 degrees Fahrenheit when allowed to evaporate.

#### Evaporation

Gives the rate of evaporation compared to a standard

#### Viscosity

Measure of flow characteristics in Kinematic viscosity of Saybolt Universal Seconds.

#### Hazardous Polymerization

Hazardous polymerization is that reaction which takes place at a rate which produces large amounts of energy. Indicates whether it may or may not occur and under what storage conditions.

#### Does the Material React Violently

Indicates whether the material will react violently, releasing large amounts of energy when exposed under conditions listed.

#### Composition

Components of the product as manufactured.