

FERRO CORPORATION

MATERIAL SAFETY DATA SHEET DEFINITIONS

SECTION I (PRODUCT IDENTIFICATION)

Trade Name: Product name that uniquely identifies the product and appears on both the MSDS and container label.

DOT Class/ID Number: For U.S. Dept. of Transportation regulated products, the hazard classification and the UN or NA number are given to provide detailed identification of hazards during transportation.

SECTION II

OSHA Potential Hazardous Ingredients: These are chemical substances existing as 1% or more of product mixture (0.1% or more if considered to be a carcinogen) determined to be potential health or physical hazards by criteria established in the Federal OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CAS Number: Chemical Abstract Service Number assigned to specific chemical substances; references The US-EPA TSCA registrations of the substance.

Exposure Limits: OSHA permissible exposure limits (PEL) and ACGIH Threshold Limit Values (TLV) are airborne concentration limits. The values are generally, unless otherwise stated, time-weighted averages which express the highest airborne concentration of a contaminant to which nearly all workers (Adults) may be exposed daily during a 40-hour work week for a working lifetime without adverse effect. A "Ceiling" value is the concentration that should not be exceeded during any part of the working exposure.

SECTION III PHYSICAL DATA

Boiling Point: The temperature at which a liquid changes to a vapor state, at a given pressure: Usually stated in degrees Fahrenheit (°F) at sea level pressure of 760 millimeters (mm) of mercury (Hg). For mixtures, the initial boiling point or the boiling range may be given.

Vapor Pressure: The pressure exerted by a saturated vapor above its own liquid in a closed container, usually stated in millimeters (mm) of mercury (Hg) at 68 degrees Fahrenheit (°F) or 20 degrees Celsius (°C), unless otherwise specified.

Vapor Density: For volatile portion of the product, air = 1.0 given as either > 1, = 1 or < 1.

Solubility in Water: The percentage of a material (by weight) that will dissolve in distilled water at an ambient temperature of 68 degrees Fahrenheit (°F) or 20 degrees Celsius (°C).

Specific Gravity: The ratio of the weight of a volume of material to the weight of an equal volume of water at 39.2 degrees Fahrenheit (°F).

Percentage Volatile by Volume: The percentage of a liquid or solid (by volume) that will evaporate at an ambient temperature of 70 degrees Fahrenheit (°F).

Evaporation Rate: The rate at which a particular material will vaporize (evaporate) when compared to the rate of vaporization of a known material, usually butyl acetate. If another known material is used for comparison, that information is to be provided.

Melting Point: The temperature at which a solid changes to a liquid state. It is usually stated in degrees Fahrenheit (°F).

Appearance and Odor: A brief description of the material at normal room temperature and atmospheric conditions, such as "viscous, colorless liquid with an aromatic hydrocarbon odor."

SECTION IV FIRE & EXPLOSION HAZARD DATA

Flash Point: Temperature at which a substance gives off sufficient vapor to burn if ignited.

Flammable Limits: LEL and UEL: In % mixed with air, ignition range.

Extinguishing Media: Gives extinguishing media that are effective for the product.

Special Firefighting Procedures: Indicates equipment to protect firemen from toxic products of combustion or if water is not to be used.

Unusual Fire & Explosion Hazards: Any unusual fire and explosion hazards are shown here.

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SECTION V REACTIVITY

Stability: Conditions to avoid that result in chemical instability.

Incompatibility: Materials to avoid that could cause a dangerous reaction.

Hazardous Decomposition Products: Known hazardous products resulting from heating, burning, etc.

Hazardous Polymerization: Conditions to avoid hazardous polymerization resulting in a large release of energy.

SECTION VI HEALTH HAZARD DATA

Primary routes of entry: Considering the properties of the product and its use, the significant routes of entry into the body are listed.

Listed as Carcinogen?: Provides status of product with respect to the OSHA Hazard Communication Standard definition of a carcinogen. This includes any chemical at or above 0.1% in the product that is listed as a carcinogen by OSHA, the National Toxicology Program (NTP) or the International Agency for Research on Cancer (IARC) Group 1 or 2.

Symptoms and Effects of Overexposure: Potential acute and chronic health hazards for the product are presented. Included are local and systemic effects, target organs, signs and symptoms and any medical conditions aggravated by exposure.

Emergency and First Aid Procedures: Primarily for acute overexposure; emergency procedures for inhalation, ingestion, skin or eye contact with a hazardous substance or mixture before medical aid can be obtained. A physician should be promptly called in all cases.

SECTION VII SPILL OR LEAK PROCEDURES

Reasonable precautions to be taken and the methods of clean-up for the product. Consult federal, state and local regulations for accepted procedures on disposal.

SECTION VIII RECOMMENDED CONTROL MEASURES

Respiratory Protection: NIOSH/MSHA approved respirators as appropriate for workplace conditions and good industrial hygiene practice.

Ventilation: Provides recommendations for consideration of local exhaust, general or any special ventilation controls in the use of the product.

Personal Protective Equipment: Provides recommendations for gloves, eye protection and other protective equipment to minimize contact to within acceptable levels.

SECTION IX SPECIAL PRECAUTIONS

Special precautions to be taken in the safe handling and storage of the product, including appropriate hygiene practices.

ADDITIONAL COMMENTS

Questions concerning Ferro Material Safety Data Sheets should be directed to the appropriate Ferro Division Sales Representative or to the Ferro Emergency telephone number 216/641-5324.

WARNING!: Serious accidents have resulted from the misuse of "emptied" containers (drums, 1 and 5 gallon pails, etc.), both by industrial uses and individuals. Containers should be either professionally reconditioned for reuse by certified firms or properly disposed of by certified firms to help reduce the possibility of an accident. Disposal of containers should be in accordance with applicable laws and regulations.

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