

# MATERIAL SAFETY DATA SHEET

Issue Date: October 10, 1994

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This MSDS contains important environmental, safety and health information for your employees who will be using this product. Please give this information to them. If you resell this product, give a copy of this MSDS to the buyer.

Manufacturer: Ferro Corporation, Specialty Ceramics Division,  
Diamonite Plant, 453 W. McConkey, Shreve, OH 44676

Emergency Telephone Number: 800-424-9300  
Informational Telephone Number: 330-567-2145

## SECTION I

Trade Name: Aluma-Plate (TM) Part I – Resin  
Common Name: Epoxy resin

DOT Class: Not Regulated  
HMIS Codes: Health 2, Fire 1, Reactivity 0

## SECTION II

OSHA Potential Hazardous Ingredients		%	Exposure Limits		
Component	CAS Number		typical	ACGIH TLV	OSHA PEL
Bisphenol A/Epichlorohydrin Resin	25068-38-6	20	N/F	N/F	N/F
NEODOL (R) Glycidyl Ether	120547-52-6	5	N/F	N/F	N/F
Aluminum Oxide	1344-28-1	73	10 mg/m <sup>3</sup> as AL	15 mg/m <sup>3</sup>	N/F
Silica Amorphous Fumed	7631-86-9	1.5	N/F	N/F	N/F

Additional Product Information: To the best of our knowledge, this product does not contain any SARA 313 chemicals.

## SECTION III – PHYSICAL DATA

Boiling Point: Not Available  
Vapor Pressure: <1 mm Hg at 20 degrees C  
Vapor Density: >1 (air=1)  
Solubility in Water: Slight  
Appearance & Odor: White granular paste

Specific Gravity: Not Available  
Volatiles by Volume (%): Not Available  
Evaporation Rate (butyl acetate=1): Not Available  
Melting Point (°F): Not Available

## SECTION IV – FIRE & EXPLOSION HAZARD DATA

Flash Point (method used): >200 degrees F – Setflash

Flammable Limits: LEL – N/F

UEL – N/F

Extinguishing Media: Carbon dioxide, dry chemical, "alcohol" foam or water fog.

Special Fire Fighting Procedures: Self-contained air supply and full protective clothing; use water to keep fire exposed containers cool until fire is out.

Unusual Fire & Explosion Hazards (see Reactivity Section for other physical hazards): No unusual hazards. Material will not burn unless preheated.

## SECTION V – REACTIVITY DATA

Stability: Stable

Incompatibility: Strong acids, bases, and oxidizing agents. Reaction with curing agents can produce considerable heat.

Hazardous Decomposition Products: Combustion may produce oxides of carbon, aldehydes and acids.

Hazardous Polymerization: Will not occur.

## SECTION VI – HEALTH HAZARD DATA

Primary Routes of Entry: Eye and skin contact, inhalation and ingestion.

Listed as a Carcinogen? No.

Effects of Overexposure:

Eyes: contact with paste may cause moderate irritation.

Skin: contact may cause moderate irritation and may cause skin sensitization. Prolonged contact may cause defatting and drying of skin which may result in dermatitis. Contact with curing product may cause thermal burns.

Inhalation: vapors may cause irritation to the nose, throat and respiratory tract.

Ingestion: moderately toxic if swallowed. May be irritating to the mouth, throat and stomach.

N/A = Not Applicable

N/F = Not Found

Important: See Page 2 for Disclaimer.

## SECTION VI – HEALTH HAZARD DATA (continued)

Signs and Symptoms: Irritation as noted on Page 1. Allergic reactions, such as rashes or hives are possible.

Medical Conditions Aggravated by Overexposure: Existing eye, skin and pulmonary disorders or allergies.

Toxicological Studies: In mutagenicity studies of similar resins, there has been activity by in vitro microbial mutagenic screening and chromosomal aberrations were produced in cultured rat liver cells.

Emergency and First Aid Procedures:

In case of contact, immediately flush eyes and skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Destroy contaminated leather items such as belts and shoes.

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

## SECTION VII – SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled: Avoid all personal contact. Ventilate area. Contain spill and soak up with inert absorbent, such as clay or sand, and place in a covered container for disposal. Wash contaminated area with soapy water.

Waste Disposal Method: Avoid discharge to sewers or to natural waters. Follow all applicable Federal, state and/or local regulations.

## SECTION VIII – RECOMMENDED CONTROL MEASURES

Respiratory Protection: For vapor protection, use NIOSH/MSHA approved respiratory protection for organic vapors as necessary. In emergency situations or confined spaces, use air supplied NIOSH/MSHA approved respiratory protection.

Ventilation: Good general ventilation must be provided for even small applications. Local exhaust ventilation may be necessary due to high curing temperatures which cause significant levels of vapors to be released.

Personal Protective Equipment: Impermeable gloves, such as supported butyl rubber, are recommended. Consult with the glove manufacturer in all cases of glove selection. Chemical goggles recommended.

Other Protective Equipment or Measures: Face shields, full-body protection, boots as required by user conditions and equipment. Eye wash and safety shower facilities should be available for emergency use.

## SECTION IX – SPECIAL PRECAUTIONS

Precautions to be Taken in Handling & Storing (including hygienic practices):

Avoid contact with eyes, skin or clothing.

Use butyl rubber gloves and chemical goggles when mixing with hardener.

Wash thoroughly after handling.

Avoid breathing vapor.

Use with adequate ventilation.

Do not swallow.

Do not mix resin and activator (hardener) together until actually ready to use.

Do not leave activated resin in container for more than 10 minutes as temperature may reach 350 degrees F.

Keep away from children.

Store in a cool, dry location.

Keep container tightly closed when not in use.

Since emptied containers retain product residues and hazards, continue to observe all given precautions.

Judgments as to the suitability of information herein for the purchaser's purposes are necessarily the purchaser's responsibility. Reasonable care has been taken in the preparation of this information, but FERRO EXTENDS NO WARRANTIES, MAKES NO REPRESENTATIONS AND ASSUMES NO RESPONSIBILITY AS TO THE ACCURACY OR SUITABILITY OF THIS INFORMATION FOR ANY PURCHASER'S USE OR FOR ANY CONSEQUENCE OF ITS USE.

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Emergency Telephone Number: 800-424-9300  
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## SECTION I

Trade Name: Aluma-Plate (TM) Part II – Hardener  
Common Name: Triethylenetetramine, "TETA"

DOT Class: Class 8 Corrosive Material, UN2259  
HMIS Codes: Health 3, Fire 1, Reactivity 0

## SECTION II

OSHA Potential Hazardous Ingredients		%	Exposure Limits		
Component	CAS Number		ACGIH TLV	OSHA PEL	Other
Triethylenetetramine	112-24-3	94.9	N/F	N/F	N/F
Silica Amorphous Fumed	7631-86-9	4.6	N/F	N/F	N/F

Additional Product Information: To the best of our knowledge, this product does not contain any SARA 313 chemicals.

## SECTION III – PHYSICAL DATA

Boiling Point: >482 degrees F (250 C)  
Vapor Pressure: <1 mm Hg at 20 degrees C  
Vapor Density: 5.0  
Solubility in Water: 94.9%  
Appearance & Odor: Black liquid – amine odor

Specific Gravity: N/F  
Volatiles by Volume (%): Negligible  
Evaporation Rate (butyl acetate=1): <.1  
Melting Point (°F): N/F

## SECTION IV – FIRE & EXPLOSION HAZARD DATA

Flash Point (method used): 245-300 degrees F – PMCC  
Extinguishing Media: Carbon dioxide, dry chemical, "alcohol" foam or water fog.

Flammable Limits: LEL -1.1% (@185C) UEL ->6.5% (@185C)

Special Fire Fighting Procedures: Self-contained air supply and full protective clothing; use water to keep fire exposed containers cool until fire is out.

Unusual Fire & Explosion Hazards (see Reactivity Section for other physical hazards): Reportedly can autoignite in air at 561 degrees F (294C); Burning releases oxides of nitrogen and other nitrogen containing organic compounds.

## SECTION V – REACTIVITY DATA

Stability: Stable

Incompatibility: Acids, oxidizing agents, organic halides, aldehydes, and ketones.

Hazardous Decomposition Products: Thermal decomposition may produce oxides of carbon and nitrogen, and other organic nitrogen compounds.

Hazardous Polymerization: Will not occur.

## SECTION VI – HEALTH HAZARD DATA

Primary Routes of Entry: Eye and skin contact, dermal absorption, inhalation and ingestion.

Listed as a Carcinogen? No.

Effects of Overexposure:

Eyes: contact with liquid causes burns and may cause severe damage including blindness. Vapors may be irritating.

Skin: prolonged contact causes burns and may cause skin sensitization. Absorption through skin can occur in toxic amounts.

Contact with curing product may cause thermal burns.

Inhalation: vapors are irritating to respiratory tract and may cause respiratory sensitization.

Ingestion: causes burns to the mouth, throat and stomach.

N/A = Not Applicable

N/F = Not Found

Important: See Page 2 for Disclaimer.

## SECTION VI – HEALTH HAZARD DATA (continued)

Signs and Symptoms: Systemic toxicity may result in reproductive, liver, kidney and CNS effects. Symptoms include burning sensations, irritation, nausea, vomiting, rashes, shortness of breath, bronchitis, wheezing, or cough.

Medical Conditions Aggravated by Overexposure: Existing dermal and pulmonary conditions.

Toxicological Studies: Lab rats fed high doses of triethylenetetramine (TETA) showed adverse fetal effects that are believed to be associated with a copper deficiency caused by the chelating activity of TETA. Dermal application of TETA to lab rabbits did not cause reproductive effects. Life-time mouse skin painting studies with TETA did not show any carcinogenic potential. Ames test results for TETA were positive for mutagenic activity.

Emergency and First Aid Procedures:

In case of contact, immediately flush eyes and skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Destroy contaminated leather items such as belts and shoes.

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

If swallowed, DO NOT INDUCE VOMITING. If fully conscious, give large quantities of water or milk. Get medical attention immediately.

## SECTION VII – SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled: Avoid all personal contact. Ventilate area. Contain spill and soak up with inert absorbent, such as clay or sand, and place in a covered container for disposal. Wash contaminated area with soapy water. **WARNING: USE OF SOLVENTS MAY IMPOSE DISTINCT HAZARD(S) AND SHOULD BE AVOIDED.**

Waste Disposal Method: Suggest packaging in a DOT approved container and transport to an EPA approved treatment, storage and disposal (TSD) facility. Follow all applicable Federal, state and/or local regulations. This material is resistant to biodegradation. A large spill could be toxic to biomass in a treatment plant or could be toxic to aquatic organisms. Avoid discharge to sewers or to natural water.

## SECTION VIII – RECOMMENDED CONTROL MEASURES

Respiratory Protection: For vapor protection, use NIOSH/MSHA approved respiratory protection for organic vapors as necessary. In emergency situations or confined spaces, use air supplied NIOSH/MSHA approved respiratory protection.

Ventilation: Good general ventilation must be provided for even small applications. Local exhaust ventilation may be necessary due to high curing temperatures which cause significant levels of vapors to be released.

Personal Protective Equipment: Impermeable gloves, such as supported butyl rubber, are recommended. Consult with the glove manufacturer in all cases of glove selection. Chemical goggles recommended.

Other Protective Equipment or Measures: Face shields, full-body protection, boots as required by user conditions and equipment. Eye wash and safety shower facilities should be available for emergency use.

## SECTION IX – SPECIAL PRECAUTIONS

Precautions to be Taken in Handling & Storing (including hygienic practices):

Do not get in eyes, on skin or on clothing. Use butyl rubber gloves and chemical goggles when mixing with resin. Wash thoroughly after handling. Do not breathe vapor. Use only with adequate ventilation. Do not swallow.

Do not mix activator (hardener) and resin together until actually ready to use. Do not leave activated resin in container for more than 10 minutes as temperature may reach 350 degrees F.

Keep away from children.

Store in a cool, dry location. Keep container tightly closed when not in use.

Since emptied containers retain product residues and hazards, continue to observe all given precautions.

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