



Mar-Flex Waterproofing
& Building Products
500 Business Pkwy.
Carlisle, OH 45005
(800) 498-1411
www.mar-flex.com

4121

CARBON FIBER STAPLE EPOXY

CHARACTERISTICS

The gel and cure times are affected by ambient temperature and epoxy mass, or glue line thickness. Curing data is based on 72° F (22° C) ambient temperature. Warmer temperatures and a larger mass will increase cure speed, reducing cure time. Cure time is reduced by approximately one half with every 18° F (10° C) increase in temperature. A smaller mass or cooler temperature will reduce the cure speed. Always dispense adhesive at 70° F or above to assure the proper mix ratio.

HANDLING CHARACTERISTICS

Mix ratio (Resin:Hardener by weight)	2.12:1	Do Not Use ratio by weight in Product Data Sheet
Mix ratio (Resin:Hardener by volume)	2.0:1	
Mixed Density (lb/gal)	9.3	
Pot life of 70ml @ 72° F ASTM C-881	10 MIN	
Working time (1/2" bead)	20 MIN	
Clamps off cure time (1/16" bond line) @ 75° F	2 hr	
Minimum cure temperature	45° F	

CURED CHARACTERISTIC

	<u>ATSM</u>	
Tensile Strength (psi)	ASTM D-638	7100
Tensile Elongation (%)	ASTM D-638	4.0 min.
Tensile Modulus (x 10 ³ psi)	ASTM D-638	3.80
Flexural Strength (psi)	ASTM D-790	12,500
Flexural Modulus (x 10 ⁵ psi)	ASTM D-790	3.75
Hardness (Shore D) 1 day	ASTM D-2240	78
2 weeks	ASTM D-2240	85
Compression Yield (psi) 2 weeks	ASTM D-695	10,720
Onset of Tg by DSC		125° F
Heat Deflection Temperature	ASTM D-648	130° F

WARRANTY

Recommendations concerning the performance or use of this product are based upon independent test reports believed to be reliable. If the product is proven to be defective, at the option of the Manufacturer, it will be either replaced or the purchase price refunded. The Manufacturer will not be liable in excess of the purchase price. The user will be responsible for deciding if the product is suitable for his application and will assume all risk associated with the use of the product. This warranty is in lieu of any other warranty expressed or implied, including but not limited to an implied warranty of merchantability or an implied warranty of fitness for a particular use.



Safety Data Sheet (SDS)

1. Identification

PRODUCT NAME: MAR-FLEX STAPLE EPOXY, PART A
 SYNONYM: Epoxy Resin
 MANUFACTURER / SUPPLIER: Mar-flex Waterproofing and Building Products
 500 Business Pkwy, Carlisle, OH 45005

Toll Free: (800) 498-1411 / Main Phone: (513) 422-7285 / Fax: (513) 422-7282
 Email: info@mar-flex.com / Website: www.mar-flex.com

2. Hazard(s) Identification

Signal Word: **WARNING**



Skin Contact: May be mildly irritating to skin. Contact with hot material can cause thermal burns which may result in permanent damage. May cause skin sensitization.

Eye Contact: May be mildly irritating to the eyes. Contact with hot material can cause thermal burns resulting in permanent damage or blindness.

Ingestion: Irritation of the gastrointestinal tract with any or all of the following symptoms; nausea, vomiting, lethargy, diarrhea.

Inhalation: Not expected to be a relevant route of exposure, however, under conditions where exposure to vapors or mists is possible could cause respiratory tract infection.

Oral: LD₅₀ > 2000 mg/kg **Dermal Toxicity:** LD₅₀ (rabbits) > 2000 mg/kg

Precautionary Statements: Do not handle until all safety precautions have been read and understood. Do not breathe vapors. In case of inadequate ventilation wear respiratory protection. Wear protective gloves and eye protection. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Store locked up. Keep away from children. Dispose of contents and container in accordance with applicable local, regional and national regulations.

Hazard Statements:

Causes skin and eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Prolonged exposure may cause skin sensitization. May cause respiratory irritation.

Chronic: (Possible longer term effects) Repeated and/or prolonged exposure may cause skin sensitization, repeated exposures to low molecular weight epoxy resins of this type are not anticipated to cause any significant adverse effects.

Medical Conditions Generally Aggravated by Exposure: Asthma, chronic respiratory disease (e.g. bronchitis, emphysema), eye disease, skin disorders and allergies.

Carcinogenicity: Many studies have been conducted to assess the potential carcinogenicity of diglycidyl ether of bisphenol A (DGEBA). Although some weak evidence of carcinogenicity has been reported in animals, when all the data is considered, the weight of the evidence does not show that DGEBA is carcinogenic. Indeed, the most recent review of the available data by the International Agency for Research on Cancer (IARC) has concluded that DGEBA is not classified as a carcinogen. DGEBA did not cause birth defects or other adverse effects on the fetus when pregnant rabbits were exposed by skin contact, the most likely route of exposure, or when pregnant rats or rabbits were exposed orally. In animal studies, this product has not been shown to interfere with reproduction.

OSHA	ACGIH	NTP	IARC	OTHER
N/A	N/A	N/A	N/A	N/A

3. Composition / Information on Ingredients

INGREDIENT	BY WEIGHT	CAS #
Reaction Product of epichlorhydrin & bisphenol A	100 %	025085-99-8



Safety Data Sheet (SDS)

4. First Aid Measures

Eyes: Flush with water. Rest eyes for 30 minutes. If any ill effects persist, seek medical attention.

Skin: In case of contact with hot product, immediately flood the affected area with cold water. Wipe excess material from exposed area. Flush exposed skin with water and follow by washing with soap if available. Carefully remove clothing; if clothing is stuck to a burn area, do not pull it off, but cut around it. Cover burn area with clean material. Transport to nearest medical facility for additional treatment.

Ingestion: Single dose oral toxicity is considered to be extremely low. No hazards anticipated from swallowing small amounts of incidental to normal handling operations.

Inhalation: Remove to fresh air, keep warm and at rest. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility immediately.

5. Fire Fighting Measures

Flash Point: > 200 °F (93.3 °C)

Flammable Limits: LEL - N/D

Flammable Limits: UEL - N/D

Extinguishing Media: Water fog or fine spray, carbon dioxide, dry chemical, foam. Do not use direct water stream. May spread fire. Alcohol resistant foams (ATC type) are preferred if available. General purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively. Water fog, applied gently may be used as a blanket fire extinguisher.

Protective equipment: Do not enter confined space without bunker gear (helmet with face shield, bunker coats, gloves and rubber boots), including a positive pressure NIOSH approved self-contained breathing apparatus.

Hazardous Decomposition Products: Can react vigorously with strong oxidizing agents, strong lewis or mineral acid, and strong mineral and organic bases. Avoid contact with water or liquids. Do not allow molten product to contact water or other liquids. This can cause violent eruptions, splatter hot material or ignite flammable material. Reaction with some curing agents may produce considerable heat and possible violent decomposition.

Unusual fire and explosion hazards: Decomposition and combustion products may be toxic.

Comment: Material will not burn unless preheated. Personnel in vicinity and downwind should be evacuated.

6. Accidental Release Measures

Spill: Evacuate spill area. With adequate ventilation and appropriate personal protective equipment

Clean up: Absorb with material such as sand, or polypropylene or polyethylene fiber products. Collect in suitable and properly label containers. Remove residual using hot soapy water. Residual can be removed with solvent. Solvents are not recommended for clean-up unless recommended exposure guidelines and safe handling practices for the specific solvent are followed. Consult appropriate solvent SDS for handling instructions.

Disposal: If this product becomes a waste, it would not be a hazardous waste by RCRA criteria (40 CFR 261). Place in an appropriate disposal facility in compliance with local and federal regulations. Chemical additions, processing, storage, or otherwise altering this material may make the waste management information presented in this SDS incomplete, inaccurate or otherwise inappropriate. Waste characterization and disposal compliance is the responsibility solely of the party generating the waste or deciding to discard or dispose of the material.

Refer to RCRA 40 CFR 261 and/or any other appropriate federal, state or local requirements for proper classification information.

Do not heat or cut empty containers with electric or gas torch.



Safety Data Sheet (SDS)

7. Handling and Storage

Storage: Stored between 40°F and 90°F (4.4°C - 32.2°C) in sealed containers. Store indoors in a cool, well ventilated area. Avoid high temperatures.

Handling: Use personal protective equipment when transferring material to or from drums, totes or other containers. Safety glasses and gloves are the minimum protection. Additional precautions must be used when splash hazards are present.

CONDITIONS TO AVOID (if unstable): Avoid high temperatures.

INCOMPATIBILITY (Materials to Avoid): Can react vigorously with strong oxidizing agents, strong lewis or mineral acid, and strong mineral and organic bases. Avoid contact with water or liquids. Do not allow molten product to contact water or other liquids. This can cause violent eruptions, splatter hot material or ignite flammable material. Reaction with some curing agents may produce considerable heat and possible violent decomposition.



Signal Word: DANGER

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

8. Exposure Controls / Personal Protection

Engineering Controls: No specific controls needed

Exposure: Use with adequate ventilation. No respiratory protection is usually required under normal conditions of use. Respiratory protection may be needed where material is used in confined space. **Persons with known respiratory or allergic problems should not be exposed to this product.**

Ventilation: General/local ventilation typically controls exposure levels very adequately. Respiratory Protection: A positive pressure self-contained breathing apparatus can be used in emergencies or other unusual situations. All equipment must be NIOSH/MSHA approved and maintained.

Eye Protection: Avoid contact with eyes. Wear chemical splash goggles or safety glasses or full face shield must be used consistent with splash hazard present. If vapor exposure causes eye discomfort, use a full face piece respirator or air supplied hood.

Protective Clothing: Wear clothing and gloves impervious to chemical under conditions of use. Materials may include butyl rubber, EVAL-Laminate, nitrile rubber, neoprene and Saranex coated Tyvek.

Hygienic Practices: Provide readily accessible eye wash stations and safety showers. Wash at the end of each work shift and before eating, smoking or using the toilet. Promptly remove clothing that becomes contaminated. Use appropriate hand and skin lotions to protect the skin. Discard contaminated leather articles.

9. Physical and Chemical Properties

Vapor Pressure: 0.03 mbar at 171°F (77°C)

Relative Density: 1.16-1.17

Physical State: Viscous Liquid

Color: Clear

Odor: Slightly musty

Flash Point: 480 °F (249°C) (Pensky-Martens)

Boiling Point: > 500 °F (>260 °C)

Solubility In Water: Negligible

Freezing Point: Not Determined

Flammable Limits: LEL: N/D UEL: N/D

Safety Data Sheet (SDS)

10. Stability and Reactivity

Stability: Stable under recommended storage conditions. Avoid high temperature, container contamination and moisture

Hazardous Polymerization: Will not occur by itself. Masses of more than one pound (0.5 kg) of product plus an aliphatic amine will cause irreversible polymerization with considerable heat build-up.

Incompatible Materials: Can react vigorously with strong oxidizing agents, strong lewis or mineral acid, and strong mineral and organic bases. Avoid contact with water or liquids. Do not allow molten product to contact water or other liquids. This can cause violent eruptions, splatter hot material or ignite flammable material. Reaction with some curing agents may produce considerable heat and possible violent decomposition.

Hazardous Decomposition Products: Hazardous decomposition products depend on temperature, air supply and the presence of other materials. Uncontrolled exothermic reaction of epoxy resins release phenolics, carbon monoxide and water.

Unusual fire and explosion hazards: Decomposition and combustion products may be toxic.



Signal Word: DANGER

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

11. Toxicological Information

Component:	Oral LD ₅₀ (rat)	Dermal LD ₅₀ (rabbit)
Reaction Product of epichlorhydrin & bisphenol A 025085-99-8	>2000.00 mg/kg	>2000.00 mg/kg (Estimate)

(Toxicity data from similar products. Industrial chemicals such as this material with acute toxicity values shown above and whose vapors or mists are not likely to be encountered by humans when used in any reasonably foreseeable manner would not require a toxic label according to U.S. domestic and international transport regulations.)

Carcinogenicity:

IARC: Not classified as a carcinogen

NTP: Not classified as a carcinogen

OSHA: Not classified as a carcinogen

ACGIH: Not classified as a carcinogen

OTHER ACUTE EFFECTS: No Data.

IRRITATION EFFECTS DATA: No Data.

12. Ecological Information

Comments: No information.



Safety Data Sheet (SDS)

13. Disposal Considerations

Disposal: Any disposal practice must be in compliance with all federal, state and local laws and regulations. Chemical additions, processing, storage, or otherwise altering this material may make the waste management information presented in this SDS incomplete, inaccurate or otherwise inappropriate. Waste characterization and disposal compliance is the responsibility solely of the party generating the waste or deciding to discard or dispose of the material.

RCRA Hazard Class: If discarded as purchased, this material is not a hazardous waste under RCA 40 CFR 261.

Container Disposal: Drums/containers should be decontaminated and either passed to an approved drum recycler or destroyed.

RCRA/EPA Waste Information: The generation of waste should be avoided or minimized whenever possible. Chemical waste, even small quantities, should never be poured down drains, sewers or waterways.

14. Transport Information

DOT (Domestic surface): Not regulated below RQ (reportable quantity) (Class 55)

IMO (Ocean): Not regulated

ICAO (AIR): Not regulated

15. Regulatory Information

TSCA Section 8(b) - Inventory Status: Chemical components listed on TSCA Inventory.

TSCA Section 12(b) - Export Notification: This product does not contain any chemical(s) that are subject to a Section 12(b) export notification.

SARA Title: III

Section 311/312 Hazard Categories:

Section 313 Toxic Chemicals: This product does not contain a toxic chemical for routine annual 'Toxic Chemical Release Reporting' under Sec. 313 (40 CFR 372).

CERCLA: Not listed

INTERNATIONAL REGULATIONS

Canadian Inventory Status: All components included on the Domestic Substances List (DSL).

STATE REGULATIONS

PROPOSITION 65 SUBSTANCES (component(s) known to the State of California to cause cancer and/or reproductive toxicity and subject to warning and discharge requirements under the "Safe Drinking Water and Toxic Enforcement Act of 1986")

Epichlorohydrin (< 2 ppm) Carcinogenic.

NEW JERSEY TRADE SECRET REGISTRY NUMBER(S)

Phenol, 4, 4'-(-1methylethylidene)bis-, polymer with (chloromethyl) oxirane.

PENNSYLVANIA TRADE SECRET REGISTRY NUMBER(S)

Phenol, 4, 4'-(-1methylethylidene)bis-, polymer with (chloromethyl) oxirane.

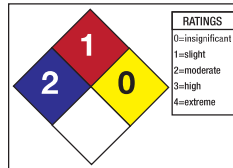
RCRA Status: Not hazardous if discarded in its purchased form. However, under RCRA (40 CFR 261). it is the responsibility of the product user to determine at the time of disposal whether a material containing this product or derived from this product should be classified as hazardous waste (40 CFR 261.20-24).

Safety Data Sheet (SDS)

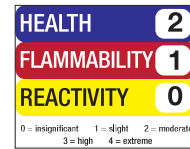
16. Other Information

All statements, technical information and recommendations contained herein are based upon available scientific test or data which we believe to be reliable since we cannot anticipate all conditions under which this information and our products or the products of other manufacturers in combination with our products may be used. Mar-Flex makes no warranties, express or implied, and assumes no responsibility in connection with any use of this information.

NFPA Ratings:



HMIS Ratings:





Safety Data Sheet (SDS)

1. Identification

PRODUCT NAME: MAR-FLEX STAPLE EPOXY, PART B
SYNONYM: Epoxy Hardener
MANUFACTURER / SUPPLIER: Mar-flex Waterproofing and Building Products
500 Business Pkwy, Carlisle, OH 45005

Toll Free: (800) 498-1411 / Main Phone: (513) 422-7285 / Fax: (513) 422-7282
Email: info@mar-flex.com / Website: www.mar-flex.com

2. Hazard(s) Identification

Signal Word: WARNING

Primary Route(s) of Entry: Eye Contact, Skin Contact, Ingestion, Inhalation, Skin Absorption.

Skin Contact: Severe irritant, may cause skin sensitization, corrosive.

Eye Contact: Severe irritant, corrosive.

Inhalation: Severe irritant, corrosive.

Precautionary Statements: Do not handle until all safety precautions have been read and understood. Do not breathe vapors. In case of inadequate ventilation wear respiratory protection. Wear protective gloves and eye protection. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Store locked up. Keep away from children. Dispose of contents and container in accordance with applicable local, regional and national regulations.

Signal Word: DANGER



Hazard Statement: Corrosive to eyes. Corrosive to respiratory system. Corrosive to skin. Severe eye irritant. Severe respiratory tract irritant. Severe skin irritant. May cause skin sensitization.

Target Organs: Eye Skin Respiratory system

Signs And Symptoms Of Exposure (Acute Effects)

Product vapor in low concentrations can cause lacrimation, conjunctivitis and corneal edema when absorbed into the tissue of the eye from the atmosphere. Corneal edema may give rise to a perception of "blue haze" or "fog" around lights. The effect is transient and has no known residual effect. Burns of the eye may cause blindness. Contact with the skin may cause dryness (defatting), itching and/or rash. Contact of undiluted product with the eyes or skin quickly causes severe irritation and pain and may cause burns, necrosis and permanent injury. Inhalation of vapors may severely damage contacted tissue and produce scarring. Inhalation of aerosols and mists may severely damage contacted tissue and produce scarring. Risk of exposure to hazardous concentrations of vapor under normal working conditions in a well-ventilated space is minimal. However, conditions such as spraying, or sudden release of hot liquid, which generate an aerosol, mists or fog should be avoided. Product is absorbed through the skin and may cause nausea, headache and general discomfort.

Exposure (Possible Longer Term Effects): Repeated and/or prolonged exposure may cause allergic reaction/sensitization. Repeated and/or prolonged exposures may result in: adverse respiratory effects (such as cough, tightness of chest or shortness of breath), adverse eye effects (such as conjunctivitis or corneal damage), adverse skin effects (such as defatting, rash, or irritation), adverse skin effects (such as rash, irritation or corrosion). Effects from inhalation of vapors may be delayed. Dryness of nasal passages may be experienced when material is inhaled over a long period of time. Repeated and/or prolonged exposure to low concentrations of vapor may cause: sore throat which are transient.



Safety Data Sheet (SDS)

3. Composition / Information on Ingredients

INGREDIENT	BY WEIGHT	CAS #
Diethylenetriamine (DETA)	< 15.00%	111-40-0
4,4'-isopropylidendiphenol-Epichlorohdrin polymer	< 10.00%	80-05-7
Phenol 4-Nonyl-, Branched	< 50.00%	84852-15-3
N-Aminoethylpiperazine	> 20.00%	140-31-8

4. First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes. Seek immediate medical attention.

Skin: Remove contaminated clothing and shoes. Remove product and immediately flush affected area with water for at least 15 minutes. Destroy contaminated leather apparel. Cover the affected area with a sterile dressing or clean sheeting and transport for medical care. Do not apply greases or ointments. Control shock, if present. Launder contaminated clothing prior to reuse.

Ingestion: Give 3 or 4 glasses of milk or water to drink. **Do not induce vomiting.** Seek immediate medical attention. (Never give anything by mouth to an unconscious person.) Prevent aspiration of vomit. Turn victim's head to the side.

Inhalation: Remove to fresh air, keep warm and at rest. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility immediately.

NOTE TO PHYSICIAN:

SIGNS AND SYMPTOMS OF EXPOSURE (Acute effects)

Product vapor in low concentrations can cause lacrimation, conjunctivitis and corneal edema when absorbed into the tissue of the eye from the atmosphere. Corneal edema may give rise to a perception of "blue haze" or "fog" around lights. The effect is transient and has no known residual effect. Burns of the eye may cause blindness. Contact with the skin may cause dryness (defatting), itching and/or rash. Contact of undiluted product with the eyes or skin quickly causes severe irritation and pain and may cause burns, necrosis and permanent injury. Inhalation of vapors may severely damage contacted tissue and produce scarring. Inhalation of aerosols and mists may severely damage contacted tissue and produce scarring.

5. Fire Fighting Measures

Flash Point: > 200 °F (93.3 °C) **Flammable Limits:** LEL: N/D UEL: N/D

Extinguishing Media: In case of large fire use: water spray, alcohol foam. In case of small fire use: carbon dioxide (CO₂), dry chemical, dry sand or limestone.

Protective equipment: Wear positive pressure self contained breathing apparatus with full face piece and full protective clothing.

Fire Fighting Procedures: Ignition will give rise to a Class B fire. In case of large fire use: water spray, alcohol foam. In case of small fire use: carbon dioxide (CO₂), dry chemical, dry sand or limestone.

Unusual fire and explosion hazards: May generate toxic or irritating combustion products. Contact of liquid with skin must be prevented. Sudden reaction and fire may result if product is mixed with an oxidizing agent.

Hazardous Decomposition Products: (from burning, heating, or reaction with other materials). Nitrogen oxide can react with water vapors to form corrosive nitric acid (TLV=2 ppm). Carbon Monoxide in a fire. Carbon Dioxide in a fire.

May generate carbon monoxide gas. May generate toxic nitrogen oxide gases. May generate ammonia gas. Personnel in vicinity and downwind should be evacuated.



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6. Accidental Release Measures

Spill: Evacuate spill area. With adequate ventilation and appropriate personal protective equipment (self-contained breathing apparatus and butyl rubber protective clothing), Reduce vapor spreading with a water spray. Shut off or remove all sources of the leak, if possible. Construct a dike to prevent spreading (includes molten liquids until they freeze).

Clean up: cover the area with an inert absorbent such as earth, sand or non-reactive absorbent and place in an appropriate chemical waste container. Transfer to containers by suction, preparatory for later disposal. Flush area with water spray. For large spills, recover spilled material with a vacuum truck.

Disposal: Any disposal practice must be in compliance with all federal, state and local laws and regulations. Chemical additions, processing, storage, or otherwise altering this material may make the waste management information presented in this SDS incomplete, inaccurate or otherwise inappropriate. Waste characterization and disposal compliance is the responsibility solely of the party generating the waste or deciding to discard or dispose of the material.

Refer to RCRA 4 CFR 261 and/or any other appropriate federal, state or local requirements for proper classification information.

Container Disposal: Drums/containers must be thoroughly drained to process or storage vessels before removal to an appropriate area for subsequent decontamination. Drums/containers must be decontaminated in properly ventilated areas by personnel protected from the inhalation of isocyanate vapors. Spray or pour 1 to 5 gallons of decontamination solution into the drum making sure the walls are well rinsed. Let the drum/container soak unsealed for 48 hours. Pour out the decontamination solution and triple rise the empty container. Puncture or otherwise destroy the rinsed container before disposal.

CAUTION: *Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.*

Do not heat or cut empty containers with electric or gas torch.

7. Handling and Storage

Storage: Store away from head and open flame in sealed containers. Opened containers must be handled properly to prevent moisture contamination.

Handling: Use personal protective equipment when transferring material to or from drums, totes or other containers. Safety glasses and gloves are the minimum protection. Additional precautions must be used when splash hazards are present. Do not smoke, open flames, space heaters or other ignition sources near pouring operations.

Other Precautions: Avoid breathing vapors of heated material.

CAUTION: *Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place. Spraying, or sudden release of hot liquid, which generate an aerosol, mists or fog should be avoided.*



Safety Data Sheet (SDS)

8. Exposure Controls / Personal Protection

Engineering Controls: No specific controls needed

Exposure:

Primary Route(s) of Entry: Eye Contact, Skin Contact, Ingestion, Inhalation, Skin Absorption, Exposure Standards, No standards established for the product. Maintain air contaminant concentrations in the workplace at the lowest feasible levels.

Health Hazards: Corrosive to eyes. Corrosive to respiratory system. Corrosive to skin. Severe eye irritant. Severe respiratory tract irritant. Severe skin irritant. May cause skin sensitization.

Ventilation: Respiratory Protection: Not required under normal conditions in a well-ventilated workplace. An organic vapor respirator national institute for occupational safety and health (NIOSH) approved for organic vapors is recommended under emergency conditions.

Eye Protection: Chemical splash goggles or safety glasses with full face shield must be used consistent with splash hazard present. If vapor exposure causes eye discomfort, use a full face piece respirator or air supplied hood.

Hand Protection: Neoprene rubber gloves. Impermeable gloves. Cuffed Butyl rubber gloves. Nitrile rubber gloves. The breakthrough time of the selected glove(s) must be greater than the intended use period.

Protective Clothing: Impervious clothing. Slicker suit. Rubber boots. Full rubber suit (rain gear), butyl or latex protective clothing.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: *Asthma, Chronic Respiratory Disease (e.g. Bronchitis, Emphysema), Eye disease, Skin disorders and Allergies.*

WORK AND HYGIENIC PRACTICES: *Provide readily accessible eye wash stations and safety showers. Wash at the end of each work shift and before eating, smoking or using the toilet. Promptly remove clothing that becomes contaminated. Use appropriate hand and skin lotions to protect the skin. Discard contaminated leather articles*

9. Physical and Chemical Properties

Vapor Pressure: <2.0 MMHG

Vapor Density: N/A

Solubility In Water: Completely (100%)

Flash Point: > 230 °F (110 °C)

Boiling Point: >392 °F (200 °C)

Physical State: Gel

Specific Gravity: > 1.0 WATER=1

Color: Yellow

Odor: Irritating

PH: Alkaline

Evaporation Rate: <1 (BUDAC = 1)

Percent Volatile: N/A

10. Stability and Reactivity

Stability: Stable under recommended storage conditions.

Hazardous Polymerization: Will not occur.

Incompatible Materials:): Mineral acids (i.e. sulfuric, phosphoric, etc.). Organic acids (i.e. acetic acid, citric acid etc.). Oxidizing Agents (i.e. perchlorates, nitrates etc.). Reactive metals (i.e. sodium, calcium, zinc etc.). Sodium or Calcium Hypochlorite. Product slowly corrodes copper, aluminum, zinc and galvanized surfaces. Reaction with peroxides may result in violent decomposition of peroxide possibly creating an explosion. Materials reactive Wlth hydroxyl Compounds. A reaction accompanied by large heat release occurs when the product is mixed with acids. Heat generated may be sufficient to cause vigorous boiling creating a hazard due to splashing or splattering of hot material.

Hazardous Decomposition Products: (from burning, heating, or reaction with other materials). Nitrogen oxide can react with water vapors to form corrosive nitric acid (TLV=2 ppm). Carbon Monoxide in a fire. Carbon Dioxide in a fire. Ammonia when heated. Nitrogen Oxides in a fire. Irritating and toxic fumes at elevated temperatures. Nitric acid in a fire. Aldehydes. The oxides of nitrogen gases (except nitrous oxide) emitted on decomposition are highly toxic.



Safety Data Sheet (SDS)

11. Toxicological Information

Acute Oral Toxicity (LD₅₀, Rat): >1080.00 mg/kg (Estimate)

Acute Dermal Toxicity (LD₅₀, Rabbit): >1090.00 mg/kg

Acute Inhalation Toxicity (Lc50, Rat): >10.0 mg/L / 1 hr (No Deaths) (Estimate)

Irritation Effects Data: Corrosive to the eyes of a rabbit. Severe irritant to the skin of a rabbit.

Chronic/Subchronic Data: Component has caused skin and respiratory sensitization in humans.

Other Data: Toxicity data from similar products. Industrial chemicals such as this material with acute toxicity values shown above and whose vapors or mists are not likely to be encountered by humans when used in any reasonably foreseeable manner would not require a toxic label according to U.S. domestic and international transport regulations.

Irritation Effects Data: Corrosive to the skin of a rabbit.

Carcinogenicity:

IARC: This product contains no carcinogens in concentrations of 0.1 percent or greater.

NTP: This product contains no carcinogens in concentrations of 0.1 percent or greater.

OSHA: This product contains no carcinogens in concentrations of 0.1 percent or greater.

ACGIH: This product contains no carcinogens in concentrations of 0.1 percent or greater.

Any person developing asthmatic reaction or other sensitization should be removed from further exposure.

12. Ecological Information

Ecotoxicological Information: No testing for a product as a whole.

13. Disposal Considerations

Disposal: Any disposal practice must be in compliance with all federal, state and local laws and regulations. Chemical additions, processing, storage, or otherwise altering this material may make the waste management information presented in this SDS incomplete, inaccurate or otherwise inappropriate. Waste characterization and disposal compliance is the responsibility solely of the party generating the waste or deciding to discard or dispose of the material.

RCRA Hazard Class: If discarded as purchased, this material is not a hazardous waste under RCA 40 CFR 261.

Container Disposal: Drums/containers should be decontaminated and either passed to an approved drum recycler or destroyed.

CAUTION: *Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.*

RCRA/EPA Waste Information: The generation of waste should be avoided or minimized whenever possible. Chemical waste, even small quantities, should never be poured down drains, sewers or waterways.

Safety Data Sheet (SDS)

14. Transport Information

DOT (Domestic surface) Non-Bulk Shipping Name:

Liquid, corrosive, n.o.s. (Aliphatic Amine), Class 8, UN1760, PG III, NAERG Guide No.: 153

DOT (Domestic surface) Bulk Shipping Name:

Liquid, corrosive, n.o.s. (Aliphatic Amine), Class 8, UN1760, PG III, NAERG Guide No.: 153

IMO (Ocean) Shipping Data: Refer to Bill of Lading.**ICAO/IATA (AIR) Shipping Data:**

Liquid, corrosive, n.o.s. (Aliphatic Amine), Class 8, UN1760, PG III, NAERG Guide No.: 153

D.O.T Class: Corrosive Liquid, N.O.S. UN/NA Number 1760

Signal Word: DANGER

Hazardous Ingredient(s): Aliphatic Amine



D.O.T. Labels: Corrosive, N.O.S.

15. Regulatory Information

TSCA Status: All components are included in the **EPA Toxic Substances Control Act (TSCA)** Chemical Substance Inventory. (TSCA) 12(b) COMPONENTS: None

OSHA Hazard Communication Standard (29CFR1910.1200) hazard class(es): Corrosive. Sensitizer.

SARA Title: III

Section 311/312 Hazard Categories: Acute, Chronic, Sensitizing substance

Section 312 (40CFR370) hazard class: Immediate Health Hazard. Delayed Health Hazard

Section 313 (40CFR372) toxic chemicals above "de minimis" level: None

STATE REGULATIONS

Proposition 65 Substances (component(s) known to the State of California to cause cancer and/or reproductive toxicity and subject to warning and discharge requirements under the "Safe Drinking Water and Toxic Enforcement Act of 1986"): None

New Jersey Right-To-Know Chemical List: The following is required composition information.

N-Aminoethyl Piperazine

California Hazardous Substance List: The following is required composition information.

N-Aminoethyl Piperazine

Pennsylvania Trade Right-To-Know Chemical List: The following is required composition information.

N-Aminoethyl Piperazine

Massachusetts Trade Right-To-Know Chemical List: The following is required composition information.

N-Aminoethyl Piperazine

INTERNATIONAL REGULATIONS- CANADA

DSL: Included on inventory.

WHMIS Hazard Classification: Class D Division 1B, Class D Division 2B, Class E Corrosive.

WHMIS Ingredient Disclosure List: Aminoethyl Piperazine, 1-(2-, (AEP)

WHMIS Trade Secret Registry Number(S): None

This product has been classified in accordance with the hazard criteria of the CPR and the SDS contains all the information required by the CPR: None

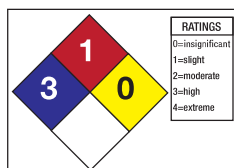
WHMIS Symbols: Test tube/hand, Stylized T

Safety Data Sheet (SDS)

16. Other Information

All statements, technical information and recommendations contained herein are based upon available scientific test or data which we believe to be reliable since we cannot anticipate all conditions under which this information and our products or the products of other manufacturers in combination with our products may be used. Mar-Flex makes no warranties, express or implied, and assumes no responsibility in connection with any use of this information.

NFPA Ratings:



HMIS Ratings:

