

MATERIAL SAFETY DATA SHEET

MANUFACTURER: MAR-FLEX

500 Business Parkway, Carlisle, OH 45005

EMERGENCY TELEPHONE 800-535-5053

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: MAR-FLEX INJECTION EPOXY PART A

SYNONYM: THERMOSETTING RESIN

CHEMICAL FAMILY: EPOXIDE

DATE: FEBRUARY, 2010

SECTION II - HAZARDOUS INGREDIENTS AND OTHER COMPONENTS

<u>INGREDIENT</u>	<u>% BY WEIGHT</u>	<u>EXPOSURE LIMITS</u>	<u>CAS #</u>
Diglycidyl ether resin mixture	65-95%	N.E.	25068-38-6
Proprietary diluent	5-35%	50 PPM-PEL	98-00-0
N-Butyl glycidylether	0-10%	_____	2426-08-6

SECTION III - PHYSICAL DATA

Boiling Point: >200°F

VP: N.A.

VD: N.A.

Solubility in water: SLIGHT

Evaporation rate: N.A.

SP GR: 1.1 - 1.2

% Volatile by volume: <3%

Color: Clear

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: 490°F CL.

Flammable Limits: UK

Extinguishing Media: Carbon dioxide, foam, water spray

Special fire fighting procedures: Use self-contained breathing apparatus. Unusual fire and explosion hazards: Decomposition and combustion products may be toxic.

SECTION V - HEALTH HAZARD DATA

Primary Route(s) of Entry: Inhalation, skin contact.

Toxicological Data: LD SOs provided are the lowest values for typed of bisphenol A, diglycidal ether resins used. Oral: LD₅₀ (rabbit) > 4000 MG/KG

Skin irritation: (rabbit) moderate irritation

Eye irritation: (rabbits) mild irritation

Sensitization: Sensitizer

Effects of Overexposure: Irritation, sensitization and dertitis.

Medical conditions generally aggravated by exposure: allergy eczema, skin conditions

PART A (CONT'D)

Carcinogenicity: None of the components of this material are listed as carcinogens by NTP, LARC, or OSHA.

In order to comply with California Proposition 65, we feel obligated to advise that some of our products may conceivably contain trace contaminants of some of the listed chemicals. While not necessarily added to our products as ingredients, some listed chemicals may be present in the raw materials from suppliers and over which we have no control. Therefore, even though some of the listed substances may not be present, a significant risk as defined by the regulations in order to comply with California law, we feel obligated to make the following statement:

WARNING: Our products may contain trace amounts of some chemicals considered by the State of California to be carcinogens or reproductive toxicants.

Emergency and first aid procedures:

Eyes: Flush with water for at least 15 minutes. If any ill effects develop, seek medical attention.

Skin: Wash with soap and water. Wash contaminated clothing before reuse.

Inhalation: Remove to fresh air and give oxygen if breathing is difficult.

Ingestion: Give large quantities of water and induce vomiting. Get medical attention.

SECTION VI - REACTIVITY DATA

Stability: Stable

Conditions to Avoid: Elevated temperatures

Incompatibility Materials to Avoid: Strong oxidizers, strong acids or bases in bulk.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, aldehydes and other organics.

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled: Avoid all personal contact. Wipe with rag for small spills. For larger spills, use absorbent material. Collect waste in designated container. Flush contaminated areas with water.

Waste Disposal Method: Dispose in accordance with federal, state and local regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Respiratory Protection: Avoid breathing vapors. Use adequate ventilation.

Ventilation: Good mechanical ventilation and local exhaust.

Eye Protection: Safety glasses.

Protective Gloves: Rubber or polyethylene.

Protective Equipment: Disposable containers and paper on work area. Use of barrier cream recommended. Use appropriate equipment to prevent eye or skin contact.

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage: Causes irritation. May cause allergic skin reaction. Avoid contact with eyes, skin and clothing. Store in cool, dry area in closed cartridges.

Other precautions: Avoid breathing vapors, use with good ventilation. Wash hands thoroughly with soap and water after every use.

Health	Flammability	Reactivity	Personal Protection
2	1	0	B

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. Emecole makes no warranties, express or implied, and assumes no responsibility in connection with any use of this information.

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SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: MAR-FLEX INJECTION EPOXY PART B

SYNONYM: EPOXY HARDENER

CHEMICAL FAMILY: MODIFIED POLYAMINE/POLYAMIDE COMPOSITION

DATE: FEBRUARY, 2010

SECTION II - HAZARDOUS INGREDIENTS AND OTHER COMPONENTS

<u>INGREDIENT</u>	<u>% BY WEIGHT</u>	<u>EXPOSURE LIMITS</u>	<u>CAS #</u>
Proprietary Polyamine/ Polyamide Blend	<70	N.E.	UK
Proprietary Diluent	10-15	10 PPM-ACGIH-TWA	98-00-0
Diethylene Triamine	<5	1 PPM-SKIN-ACGIH	111-40-0
Proprietary Polymercaptan	<15	N.E.	N.E.

SECTION III - PHYSICAL DATA

Boiling Point: NOT DETERMINED (>200° F)

VD: N.A.

Solubility in water: SLIGHT

Evaporation Rate: N.A.

SP. GR: .98 - .99

% Volatile by Weight: <3%

Color: Straw

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: 185 f PMCC

Flammable Limits: Unknown

Extinguishing Media: Foam, dry chemicals, CO2

Unusual Fire and Explosion Hazards: None

Special Fire Fighting Procedures: Avoid breathing smoke. Self-contained breathing apparatus.

SECTION V - HEALTH HAZARD DATA

Primary Route(s) of Entry: Inhalation, skin contact

Toxicological Data: Polyamine resin, oral rat LD 50 <5 CC/KG

Irritation Data: Polyamine resin eye – rabbit conjunctival irritant. Skin rabbit – mild irritant

Effects of Overexposure:

Acute: Will cause burns to skin and eyes. High concentrations of vapor can cause irritation of respiratory tract, nausea and vomiting. Chronic prolonged or repeated exposure may cause asthma and skin sensitization or other allergic response.

Medical conditions generally aggravated by exposure: Allergy, eczema, skin conditions.

PART B (CONT'D)

Carcinogenicity: None of the components of this material are listed as carcinogens by NTP, LARC, or OSHA.

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WARNING: Our products may contain trace amounts of some chemicals considered by the State of California to be carcinogens or reproductive toxicants.

Emergency and first aid procedures:

Eyes: Flush with water for at least 15 minutes. If any ill effects develop, seek medical attention.

Skin: Immediately deluge skin with plenty of water. Remove contaminated clothing and shoes.

Inhalation: Remove to fresh air if affected. Administer oxygen if necessary. Seek medical attention.

Ingestion: If swallowed and conscious, give plenty of water and induce vomiting. Seek medical attention.

SECTION VI - REACTIVITY DATA

Stability: Stable

Incompatibility (materials to avoid): Strong oxidizing agents, acids.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, nitrogen oxides.

Hazardous Polymerization: Will not occur.

Conditions to Avoid: Mixing with oxidizers or epoxy resins in quantities over 1#.

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled: Soak up with inert material or scrape up. Collect waste in designated waste containers. Avoid personal contact. Flush contaminated area with water.

Waste Disposal Method: Dispose in accordance with federal, state and local regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Respiratory Protection: Use adequate ventilation. Avoid breathing vapors.

Ventilation: Normal ventilation should be adequate. Local if vapors are vented.

Eye Protection: Safety glasses.

Protective Gloves: Rubber or impervious gloves recommended.

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage: Store away from heat and open flame.

Other Precautions: Avoid breathing vapors of heated material. Wash hands with soap and water after every usage. Use adequate ventilation. Keep containers tightly closed when not in use.

Health	Flammability	Reactivity	Personal Protection
2	2	0	B

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PRODUCT DATA SHEET

Mar-flex

500 Business Parkway, Carlisle, OH 45005

www.Mar-flex.com 1-800-498-1411

Mar-flex Crack Seal and Port Adhesive

GENERAL DESCRIPTION

Mar-flex Crack Seal and Port Adhesive 1:1 is a high modulus epoxy gel designed for surface sealing of cracks prior to injection and for attaching surface ports. It can also be used for bonding miscellaneous materials to concrete.

AREAS OF APPLICATION

As with any epoxy adhesive, surface preparation is critical. Concrete surfaces should be cleaned by wire brushing or other mechanical means. All loose or unsound material must be removed. Surfaces should be dry and dust free to insure a superior bond. Application onto wet surfaces is not recommended.

CLEAN UP

Use M.E.K. Xylene, or any other solvent. Clean equipment immediately after use.

SAFETY PRECAUTIONS

This product can cause skin irritation. Always wear protective clothing. Wash contaminated area with soap and water never solvent. In case of eye contact, flush with water for 15 minutes; immediately see a physician.

TECHNICAL DATA

<u>PROPERTIES</u>	<u>PART A</u>	<u>PART B</u>	<u>MIXED</u>
Solids by Volume	100%	100%	_____
Color	White	Black	Grey
Shelf Life	1 year	1 year	_____
Weight by Gallon	9.9 - 10.1 lbs	9.9-10.1 lbs	9.9 - 10.1 lbs
Mix Ratio (Vol.)	_____	_____	1:1
Pot Life: (3 oz)	_____	_____	10-20 minutes
Gel Time (5 mil)	_____	_____	1 - 2 hours
Final Cure	_____	_____	1 - 3 days
Viscosity	_____	_____	Non sag gel
Hardness (Shore)	_____	_____	80-D
Ultimate Pull Out Strength	_____	_____	18,000 lbs (Concrete Failure)

PHYSICAL PROPERTIES

Tensile Strength,	ASTM D - 638	6,000 psi
Tensile Elongation	ASTM D - 638	3-4%
Compressive Strength	ASTM D - 695	13,500 psi
Bond Strength	ASTM C - 321	2,400 psi
Flexural Strength	ASTM D -790	8,000 psi
Deflection temp	ASTM D - 648	190°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 priced 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.

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500 Business Parkway, Carlisle, OH 45005
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SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: MAR-FLEX CRACK SEAL AND PORT ADHESIVE, PART A

SYNONYM: THERMOSETTING RESIN

CHEMICAL FAMILY: MODIFIED EPOXY RESIN

DATE: FEBRUARY, 2010

SECTION II - HAZARDOUS INGREDIENTS AND OTHER COMPONENTS

<u>INGREDIENT</u>	<u>% BY WEIGHT</u>	<u>EXPOSURE LIMITS</u>	<u>CAS #</u>
Bisphenol a/diglycidyl Ether Resin	50-90	NE.	25068-38-6
Inert Powder	10-50	NE.	14807-96-6
Fumed silica	0-5		067762-90-7

SECTION III - PHYSICAL DATA

Boiling Point: >200°F

VP: >1 TORR @ 180°C

VD: >1 (air = 1)

Evaporation Rate: <1 (butyl acetate = 1)

Solubility in Water: Insoluble

SP GR: 1.32 (water = 1)

% Volatile by VL: NIL

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: >200°C

Flammable Limits: Acrid smoke/fumes

Extinguishing Media: Carbon dioxide, dry chemicals, foam, water spray.

Explosive Limits: LEL – NE

Special fire fighting procedures: Use self-contained breathing apparatus.

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

SECTION V – HEALTH HAZARD DATA

Primary Route(s) of Entry: Inhalation, skin contact

Toxicological Data: LD SOs provided are the lowest values for type of bisphenol A diglycidal ether resins used.

Oral LD₀₁: (rabbit) > 4000 mg/kg

Skin Irritation: (rabbits) Moderate irritation

Eye Irritation: (rabbits) Mild irritation

Sensitization: Sensitizer

PART A (CONT'D)

Effects of Overexposure: Irritation, sensitization, and dermatitis.

Medical Conditions Generally Aggravated by Exposure: Allergy, eczema, skin conditions

Carcinogenicity: None of the components of this material are listed as carcinogens by NTP, IARC, or OSHA.

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Emergency and first aid procedures:

Eyes: Flush with water for at least 15 minutes. If any ill effects develop, seek medical attention.

Skin: Wash with soap and water. Wash contaminated clothing before reuse.

Inhalation: Remove to fresh air and give oxygen if breathing is difficult.

Ingestion: Give large quantities of water and induce vomiting. Get medical attention.

SECTION VI – REACTIVITY DATA

Stability: Stable

Conditions to Avoid: Elevated temperatures

Incompatibility Materials to Avoid: Strong oxidizers, strong acids or bases in bulk.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, aldehydes and other organics.

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled: Avoid all personal contact. Wipe with rag for small spills. For larger spills, use absorbent material. Collect waste in designated container. Flush contaminated areas with water.

Waste Disposal Method: Dispose in accordance with federal, state and local regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Respiratory Protection: Avoid breathing vapors. Use adequate ventilation.

Ventilation: Good mechanical ventilation and local exhaust.

Eye Protection: Safety glasses.

Protective Gloves: Rubber or polyethylene.

Protective Equipment: Disposable containers and paper on work area. Use of barrier cream recommended. Use appropriate equipment to prevent eye or skin contact.

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage: Causes irritation. May cause allergic skin reaction. Avoid contact with eyes, skin or clothing. Store in cool, dry area in closed cartridges.

Other precautions: Avoid breathing vapors, use with good ventilation. Wash hands thoroughly with soap and water after every use.

Health	Flammability	Reactivity	Personal Protection
2	1	0	B

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SYNONYM: EPOXY HARDENER

CHEMICAL FAMILY: MODIFIED POLYAMINE

DATE: FEBRUARY, 2010

SECTION II - HAZARDOUS INGREDIENTS AND OTHER COMPONENTS

<u>INGREDIENT</u>	<u>% BY WEIGHT</u>	<u>EXPOSURE LIMITS</u>	<u>CAS #</u>
Proprietary Polyamine/polyamide blend	<70	NE.	UK
Inert Powders	60-80	NE.	14807-96-6
Fumed silica	0-5	NE.	067762-90-7

SECTION III - PHYSICAL DATA

Appearance: Paste

Boiling Point: Not Determined (>200°F)

VP: N.D.

VD: Not determined (air = 1)

Evaporation Rate: <1 (butyl acetate = 1)

Solubility in Water: Appreciable

Color: Black

SP GR: >1.91 +/- .02 (water = 1)

% Volatile by VL: <1

Odor: Skunk like, pinc -0. 1

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: 185°F (PMCC)

Flammable Limits: Unknown

Extinguishing Media: Foam, dry chemicals, CO2

Special fire fighting procedures: Avoid breathing smoke. Use self-contained breathing apparatus.

SECTION V - HEALTH HAZARD DATA

Primary Route(s) of Entry: Inhalation, skin contact

Toxicological Data: Polyamine Resin

Oral LD0: (rat) LD50-<5 CC/KG

Skin Irritation: (rabbits) Mild irritant

Eye Irritation: (rabbits) Conjunctival irritant

Effects of Overexposure: **Acute:** Will cause burns to skin and eyes. High concentrations of vapor can cause irritation of respiratory tract, nausea, and vomiting. **Chronic:** Prolonged or repeated exposure may cause asthma and skin sensitization or other allergic response.

Medical Conditions Generally Aggravated by Exposure: Allergy, eczema, skin conditions

Carcinogenicity: None of the components of this material are listed as carcinogens by NTP, IARC, or OSHA.

PART B (CONT'D)

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Skin: Immediately deluge skin with plenty of water. Remove contaminated clothing and shoes.

Inhalation: Remove to fresh air and give oxygen if breathing is difficult. Seek medical attention

Ingestion: If swallowed and conscious, give plenty of water and induce vomiting. Seek medical attention.

SECTION VI – REACTIVITY DATA

Stability: Stable

Conditions to Avoid: Mixing with oxidizers or epoxy resins in quantities over 1#.

Incompatibility Materials to Avoid: Strong oxidizing agents, acids.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, nitrogen oxides.

Hazardous Polymerization: Will not occur.

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled: Soak up with inert material or scrape up. Collect waste in designated waste containers. Avoid personal contact. Flush contaminated area with water.

Waste Disposal Method: Dispose in accordance with federal, state and local regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Respiratory Protection: Avoid breathing vapors. Use adequate ventilation.

Ventilation: Normal ventilation should be adequate. Local if vapors are vented.

Eye Protection: Safety glasses.

Protective Gloves: Rubber or impervious gloves recommended.

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage: Store away from heat and open flame.

Other precautions: Avoid breathing vapors of heated material. Wash hands with soap and water after every use.

Adequate ventilation: Keep containers tightly closed when not in use.

Health	Flammability	Reactivity	Personal Protection
2	1	0	B

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