



1. Identification

Product identifier COMBAT 150-B
Other means of identification Not available.
Recommended use Not available.
Recommended restrictions None known.
Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company Name	Refractory Anchors, Inc.	Matrix Solutions, Inc.
Address	9836 S. 219th E. Ave. Broken Arrow, OK 74014 USA	9836 S. 219th E. Ave. Broken Arrow, OK 74014 USA
Telephone		
Website	800-331-3270	800-331-3270
E-mail	www.rai-1.com	www.endcorrosion.com
Emergency 24-hour phone number	sales@rai-1.com	sales@endcorrosion.com
Information on operation hours	CHEMTREC: 1-800-424-9300 8:00 am - 5:00 pm	CHEMTREC: 1-800-424-9300 8:00 am - 5:00 pm

2. Hazard(s) identification

Physical hazards Not classified.
Health hazards Skin corrosion/irritation Category 2
Serious eye damage/eye irritation Category 2
Sensitization, respiratory Category 1
Sensitization, skin Category 1
Environmental hazards Not classified.
OSHA defined hazards Not classified.

Label elements



Signal word Warning
Hazard statement Causes eye irritation. Causes skin irritation. May cause an allergic skin reaction.
Prevention Wear protective gloves. Wear eye/face protection. Wash thoroughly after handling.
Response Specific treatment see Section 4 of this SDS. Wash contaminated clothing before reuse. IF exposed or concerned: Get medical advice/attention. IF ON SKIN: Wash with plenty of soap and water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Storage Store in accordance with local/regional/national regulations.
Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC) None known.
Supplemental information Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
FORMALDEHYDE, POLYMER WITH N1,N2-BIS(2-AMINOETHYL)-1,2-ETHANEDIAMINE AND PHENOL		32610-77-8	10 - 30
MIXED CYCLOALIPHATIC AMINES		Mixture	10 - 20



Chemical name	Common name and synonyms	CAS number	%
4,4'-METHYLENEBIS(CYCLOHEXYLA MINE)		1761-71-3	5 - 15
PHENOL		108-95-2	1 - 10
TITANIUM DIOXIDE		13463-67-7	1 - 10
TRIENTINE		112-24-3	1 - 10
EPICHLOROHYDRIN		106-89-8	< 0.5
PROPRIETARY INGREDIENTS		N/A	0.002
Other components below reportable levels			35.4522599999

4. First-aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists. Wash contaminated clothing before reuse.
Eye contact	Rinse with water. Continue to rinse for at least 15 minutes. Get medical attention if irritation persists after washing.
Ingestion	Rinse mouth. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs. Call a POISON CENTER or doctor/physician if you feel unwell.
Most important symptoms/effects, acute and delayed	Direct contact with eyes may cause temporary irritation.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire-fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.
Environmental precautions	Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Avoid prolonged exposure. Observe good industrial hygiene practices.
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Conditions for safe storage, including any incompatibilities

Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
EPICHLOROHYDRIN (CAS 106-89-8)	PEL	19 mg/m3	
PHENOL (CAS 108-95-2)	PEL	5 ppm	
		19 mg/m3	
TITANIUM DIOXIDE (CAS 13463-67-7)	PEL	15 mg/m3	Total dust.

US. ACGIH Threshold Limit Values

Components	Type	Value
EPICHLOROHYDRIN (CAS 106-89-8)	TWA	0.5 ppm
PHENOL (CAS 108-95-2)	TWA	5 ppm
TITANIUM DIOXIDE (CAS 13463-67-7)	TWA	10 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
PHENOL (CAS 108-95-2)	Ceiling	60 mg/m3
		15.6 ppm
	TWA	19 mg/m3
		5 ppm

US. AIHA Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value
TRIENTINE (CAS 112-24-3)	TWA	6 mg/m3
		1 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
PHENOL (CAS 108-95-2)	250 mg/g	Phenol with hydrolysis	Creatinine in urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

EPICHLOROHYDRIN (CAS 106-89-8) Can be absorbed through the skin.
PHENOL (CAS 108-95-2) Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

EPICHLOROHYDRIN (CAS 106-89-8) Skin designation applies.
PHENOL (CAS 108-95-2) Skin designation applies.

US - Tennessee OELs: Skin designation

EPICHLOROHYDRIN (CAS 106-89-8) Can be absorbed through the skin.
PHENOL (CAS 108-95-2) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

EPICHLOROHYDRIN (CAS 106-89-8) Can be absorbed through the skin.
PHENOL (CAS 108-95-2) Can be absorbed through the skin.

US NIOSH Pocket Guide to Chemical Hazards: Skin designation

PHENOL (CAS 108-95-2) Can be absorbed through the skin.

US WEEL Guides: Skin designation

TRIENTINE (CAS 112-24-3) Can be absorbed through the skin.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

EPICHLOROHYDRIN (CAS 106-89-8) Can be absorbed through the skin.
PHENOL (CAS 108-95-2) Can be absorbed through the skin.

Appropriate engineering controls

Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.



Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses; chemical goggles (if splashing is possible).
Hand protection	Chemical resistant gloves are recommended. If contact with forearms is likely wear gauntlet style gloves.
Other	Wear suitable protective clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	Liquid.
Physical state	Liquid.
Form	Paste.
Color	Varies
Odor	Amine-like. Ammoniacal.
Odor threshold	Not available.
pH	Alkaline
Melting point/freezing point	Not available.
Initial boiling point and boiling range	359.15 °F (181.75 °C) estimated
Flash point	Not available. estimated
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available. estimated
Flammability limit - upper (%)	Not available. estimated
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	839.55 hPa estimated
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Partial
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	640 °F (337.78 °C) estimated
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Specific gravity	0.95

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.



11. Toxicological information

Information on likely routes of exposure

Ingestion	Expected to be a low ingestion hazard.
Inhalation	Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation.
Eye contact	Causes eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity

Product	Species	Test Results
EP-4900 Series Part B Coating and Lining (All Colors) (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	12235.7617 mg/kg estimated
	Rat	9784.707 mg/kg estimated
<i>Oral</i>		
LD50	Cat	1.4626 g/kg estimated
	Dog	7.3129 g/kg estimated
	Mouse	3918.2766 mg/kg estimated
	Rat	4437.3535 mg/kg estimated
<i>Other</i>		
LD50	Mouse	1638.0974 mg/kg estimated
	Rat	6598.7192 mg/kg estimated

Components	Species	Test Results
EPICHLOROHYDRIN (CAS 106-89-8)		
Acute		
<i>Dermal</i>		
LD50	Mouse	250 mg/kg
	Rabbit	300 mg/kg
<i>Inhalation</i>		
LC50	Rabbit	445 ppm, 4 Hours
	Rat	500 ppm, 4 Hours
		250 ppm, 8 Hours
<i>Oral</i>		
LD50	Guinea pig	178 mg/kg
	Mouse	195 mg/kg
	Rabbit	345 mg/kg
	Rat	40 mg/kg
<i>Other</i>		
LD50	Guinea pig	118 mg/kg
	Rabbit	118 mg/kg
	Rat	133 mg/kg

PHENOL (CAS 108-95-2)

Acute		
<i>Dermal</i>		
LD50	Rabbit	850 mg/kg
	Rat	669 mg/kg



Components	Species	Test Results
<i>Oral</i> LD50	Cat	0.1 g/kg
	Dog	0.5 g/kg
	Mouse	270 mg/kg
	Rat	317 mg/kg
<i>Other</i> LD50	Mouse	112 mg/kg
	Rat	460 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization May cause sensitization by skin contact.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA. This product contains crystalline silica. Silica is a known carcinogen; however in this encapsulated form the normal routes of exposure are unavailable.

IARC Monographs. Overall Evaluation of Carcinogenicity

EPICHLOROHYDRIN (CAS 106-89-8)	2A Probably carcinogenic to humans.
PHENOL (CAS 108-95-2)	3 Not classifiable as to carcinogenicity to humans.
TITANIUM DIOXIDE (CAS 13463-67-7)	2B Possibly carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens

EPICHLOROHYDRIN (CAS 106-89-8) Reasonably Anticipated to be a Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not available.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product contains a substance which is toxic to aquatic organisms.

Product	Species	Test Results
EP-4900 Series Part B Coating and Lining (All Colors) (CAS Mixture)		
Crustacea	EC50	Daphnia 578.9012 mg/l, 48 hours estimated
Fish	LC50	Fish 416.8871 mg/l, 96 hours estimated

Components	Species	Test Results
EPICHLOROHYDRIN (CAS 106-89-8)		
Aquatic		
Fish	LC50	Fathead minnow (<i>Pimephales promelas</i>) 9.1 - 12.3 mg/l, 96 hours
PHENOL (CAS 108-95-2)		
Aquatic		
Crustacea	EC50	Water flea (<i>Daphnia obtusa</i>) 4.7 - 6.4 mg/l, 48 hours
Fish	LC50	Asiatic knifefish (<i>Notopterus notopterus</i>) 8 - 8.25 mg/l, 96 hours
TITANIUM DIOXIDE (CAS 13463-67-7)		
Aquatic		
Crustacea	EC50	Water flea (<i>Daphnia magna</i>) > 1000 mg/l, 48 hours



Components	Species	Test Results
Fish	LC50	Mummichog (<i>Fundulus heteroclitus</i>) > 1000 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

EPICHLOROHYDRIN	0.45
PHENOL	1.46

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions When this product as supplied is to be discarded as waste, it does not meet the definition of a RCRA waste under 40 CFR 261.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

15. Regulatory information

US federal regulations All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

EPICHLOROHYDRIN (CAS 106-89-8)	Listed.
PHENOL (CAS 108-95-2)	Listed.

US EPCRA Section 304 Extremely Haz. Subs. & CERCLA Haz. Subs.: Section 304 EHS reportable quantity

EPICHLOROHYDRIN (CAS 106-89-8)	100 LBS
PHENOL (CAS 108-95-2)	1000 LBS

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
 Immediate Hazard - Yes
 Delayed Hazard - No
 Fire Hazard - No
 Pressure Hazard - No
 Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
PHENOL	108-95-2	1000		500 lbs	10000 lbs
EPICHLOROHYDRIN	106-89-8	100	1000 lbs		



SARA 311/312 No
Hazardous chemical

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
PHENOL	108-95-2	1 - 10
EPICHLOROHYDRIN	106-89-8	< 0.5

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

- EPICHLOROHYDRIN (CAS 106-89-8)
- PHENOL (CAS 108-95-2)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

- EPICHLOROHYDRIN (CAS 106-89-8)

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

- EPICHLOROHYDRIN (CAS 106-89-8)
- PHENOL (CAS 108-95-2)
- TITANIUM DIOXIDE (CAS 13463-67-7)
- TRIENTINE (CAS 112-24-3)

US. New Jersey Worker and Community Right-to-Know Act

- EPICHLOROHYDRIN (CAS 106-89-8) 500 LBS
- PHENOL (CAS 108-95-2) 500 LBS

US. Pennsylvania RTK - Hazardous Substances

- EPICHLOROHYDRIN (CAS 106-89-8)
- PHENOL (CAS 108-95-2)
- TITANIUM DIOXIDE (CAS 13463-67-7)
- TRIENTINE (CAS 112-24-3)

US. Rhode Island RTK

- EPICHLOROHYDRIN (CAS 106-89-8)
- PHENOL (CAS 108-95-2)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

- EPICHLOROHYDRIN (CAS 106-89-8) Listed: October 1, 1987
- TITANIUM DIOXIDE (CAS 13463-67-7) Listed: September 2, 2011

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

- EPICHLOROHYDRIN (CAS 106-89-8) Listed: September 1, 1996

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision



Version #

01

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.