



1. Identification

Product identifier COMBAT 86-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	800-331-3270	800-331-3270
Website	www.rai-1.com	www.endcorrosion.com
E-mail	sales@rai-1.com	sales@endcorrosion.com
Emergency 24-hour phone number	CHEMTREC: 1-800-424-9300	CHEMTREC: 1-800-424-9300
Information on operation hours	8:00 am - 5:00 pm	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, skin Category 1
Environmental hazards Not classified.
OSHA defined hazards Not classified.

Label elements



Signal word Warning
Hazard statement Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation.
Prevention Wear protective gloves. Wear eye/face protection. Avoid breathing mist or vapor. Avoid release to the environment. Wash thoroughly after handling. Use personal protective equipment as required. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Contaminated work clothing should not be allowed out of the workplace.
Response Specific treatment see Section 4 of this SDS. 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. Take off contaminated clothing and wash before reuse. If eye irritation persists: Get medical advice/attention. If skin irritation or rash occurs: Get medical advice/attention. Collect spillage.
Storage Store locked up.
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	%
3-AMINOMETHYL-3,5,5-TRIMETHYL CYCLOHEXYLAMINE		2855-13-2	20 - 30



Chemical name	Common name and synonyms	CAS number	%
BENZYL ALCOHOL		100-51-6	10 - 40
TRIMETHYLHEXAMETHYLENE DIAMINE		25620-58-0	5 - 10
[3-(aminoethyl)phenyl]methanamine		1477-55-0	2 - 10
3-AMINOPROPYLTRIETHOXYSILANE		919-30-2	1 - 5

4. First-aid measures

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.

Skin contact

Remove contaminated clothing immediately and wash skin with soap and water. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. For minor skin contact, avoid spreading material on unaffected skin. Wash contaminated clothing before reuse. Wash clothing separately before reuse.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. If a contact lens is present, DO NOT delay irrigation or attempt to remove the lens. Continue rinsing. Call a physician or poison control center immediately.

Ingestion

Call a physician or poison control center immediately. If swallowed, rinse mouth with water (only if the person is conscious). Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms/effects, acute and delayed

Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause an allergic skin reaction. Dermatitis. Rash.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media

Water fog. Alcohol foam. Foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media

Water. Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical

Fire may produce irritating, corrosive and/or toxic gases.

Special protective equipment and precautions for firefighters

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire-fighting equipment/instructions

In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers. Cool containers exposed to flames with water until well after the fire is out. Water runoff can cause environmental damage.

Specific methods

In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers.

General fire hazards

No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.



Methods and materials for containment and cleaning up

Extinguish all flames in the vicinity. This product is miscible in water.

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. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. 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.

Never return spills in original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Do not handle until all safety precautions have been read and understood. Do not get this material in contact with eyes. When using do not eat or drink. Do not get this material in contact with skin. Do not taste or swallow. Avoid prolonged exposure. Use personal protective equipment as required. Do not get this material on clothing. Observe good industrial hygiene practices. Do not breathe dust/fume/gas/mist/vapors/spray. Wash hands thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Store locked up. Store away from incompatible materials (see Section 10 of the SDS). Keep away from food, drink and animal feedingstuffs.

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
[3-(aminoethyl)phenyl]methanamine (CAS 1477-55-0)	Ceiling	0.1 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
[3-(aminoethyl)phenyl]methanamine (CAS 1477-55-0)	Ceiling	0.1 mg/m3

US. AIHA Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value
BENZYL ALCOHOL (CAS 100-51-6)	TWA	44.2 mg/m3
		10 ppm

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

US - California OELs: Skin designation

[3-(aminoethyl)phenyl]methanamine (CAS 1477-55-0) Can be absorbed through the skin.

US - Tennessee OELs: Skin designation

[3-(aminoethyl)phenyl]methanamine (CAS 1477-55-0) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

[3-(aminoethyl)phenyl]methanamine (CAS 1477-55-0) Can be absorbed through the skin.

US NIOSH Pocket Guide to Chemical Hazards: Skin designation

[3-(aminoethyl)phenyl]methanamine (CAS 1477-55-0) Can be absorbed through the skin.

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Ensure adequate ventilation, especially in confined areas. General ventilation normally adequate. Provide adequate general and local exhaust ventilation.

Individual protection measures, such as personal protective equipment

Eye/face protection

Do not get in eyes. Avoid contact with eyes. Wear eye/face protection. Chemical goggles are recommended. Face-shield. Wear chemical protective equipment that is specifically recommended by the manufacturer. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Hand protection

Wear protective gloves.



Skin protection

Other

Do not get this material in contact with skin. Avoid contact with the skin. Do not get this material on clothing. Wear appropriate chemical resistant clothing. Structural firefighters protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations. Chemical resistant gloves. Wear protective gloves. Wear chemical protective equipment that is specifically recommended by the manufacturer. It may provide little or no thermal protection.

Skin protection

Respiratory protection

Do not breathe dust/fume/gas/mist/vapors/spray. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Thermal hazards

Not available.

General hygiene considerations

When using, do not eat, drink or smoke. Do not get in eyes. Do not get this material in contact with skin. Do not get this material on clothing. Avoid contact with eyes. Avoid contact with skin. Wash hands after handling. Wash hands before breaks and immediately after handling the product. Wash hands after handling and before eating. Contaminated work clothing should not be allowed out of the workplace. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance	Not available.
Physical state	Liquid.
Form	Liquid.
Color	Not available.
Odor	Not available.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	212 °F (100 °C) estimated
Flash point	> 200.0 °F (> 93.3 °C)
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	816.8 °F (436 °C) estimated
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Percent volatile	< 10 %

10. Stability and reactivity

Reactivity	Not available.
Chemical stability	Stable under normal temperature conditions.
Possibility of hazardous reactions	Not available.
Conditions to avoid	Avoid temperatures exceeding the flash point.



Incompatible materials Peroxides. Phenols.
Hazardous decomposition products Irritating and/or toxic fumes and gases may be emitted upon the products decomposition.

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. Harmful in contact with skin.
Eye contact Causes eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics Irritation of eyes and mucous membranes.

Information on toxicological effects

Acute toxicity

Product	Species	Test Results
RI80 Part B (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	4993.9072 mg/kg estimated
<i>Inhalation</i>		
LC50	Rat	2496.9536 mg/l, 8 Hours estimated
<i>Oral</i>		
LD50	Mouse	3945.1868 mg/kg estimated
	Rabbit	4844.0903 mg/kg estimated
	Rat	3071.2532 mg/kg estimated
<i>Other</i>		
LD50	Mouse	2372.106 mg/kg estimated
	Rat	784.0435 mg/kg estimated

Components	Species	Test Results
BENZYL ALCOHOL (CAS 100-51-6)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	2000 mg/kg
<i>Inhalation</i>		
LC50	Rat	1000 mg/l, 8 Hours
<i>Oral</i>		
LD50	Mouse	1580 mg/kg
	Rabbit	1940 mg/kg
	Rat	1230 - 3100 mg/kg
<i>Other</i>		
LD50	Mouse	950 mg/kg
	Rat	314 mg/kg

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

Skin corrosion/irritation Irritating and may cause redness and pain.
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.

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

Accumulation in aquatic organisms is expected. Contains a substance which causes risk of hazardous effects to the environment. Expected to be toxic to aquatic organisms. May cause long-term adverse effects in the environment. Toxic to aquatic life with long lasting effects. Harmful to aquatic life with long lasting effects. The product contains a substance which may cause long-term adverse effects in the environment.

Product	Species	Test Results
RI80 Part B (CAS Mixture)		
Crustacea	EC50	Daphnia
		57.2873 mg/l, 48 hours estimated
Fish	LC50	Fish
		403.6742 mg/l, 96 hours estimated
Components	Species	Test Results
3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE (CAS 2855-13-2)		
Aquatic		
Crustacea	EC50	Water flea (Daphnia magna)
		14.6 - 21.5 mg/l, 48 hours
BENZYL ALCOHOL (CAS 100-51-6)		
Aquatic		
Fish	LC50	Bluegill (Lepomis macrochirus)
		10 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

Not available.

Partition coefficient n-octanol / water (log Kow)

BENZYL ALCOHOL 1.1

Mobility in soil

Not available.

Other adverse effects

Not available.

13. Disposal considerations

Disposal instructions

Not regulated. Contract with a disposal operator licensed by the Law on Disposal and Cleaning. Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. Dispose in accordance with all applicable regulations. When your own wastewater treatment plant is not available, collect entire waste and then charge to a licensed industrial waste management professional with manifests for industrial waste.

Hazardous waste code

Not applicable.

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). Avoid discharge into water courses or onto the ground.

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

UN number UN2735



UN proper shipping name Amines, liquid, corrosive, n.o.s. (TRIMETHYLHEXAMETHYLENE DIAMINE)
Transport hazard class(es)
Class 8
Subsidiary risk -
Packing group III
Special precautions for user Not available.

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.

DOT



15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

CERCLA/SARA Hazardous Substances - Not applicable.

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

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

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

Not listed.

SARA 311/312

No

Hazardous chemical

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

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

Not regulated.

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

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)

Hazardous substance

Safe Drinking Water Act (SDWA)

Not regulated.



US state regulations

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. Massachusetts RTK - Substance List

[3-(aminoethyl)phenyl]methanamine (CAS 1477-55-0)
BENZYL ALCOHOL (CAS 100-51-6)

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

Not regulated.

US. Pennsylvania RTK - Hazardous Substances

[3-(aminoethyl)phenyl]methanamine (CAS 1477-55-0)
BENZYL ALCOHOL (CAS 100-51-6)

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

Not Listed.

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)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
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

Issue date	05-18-2015
Version #	01
Further information	HMIS® is a registered trade and service mark of the NPCA.

References

ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
Korea. Accidental Release Prevention Substances (Presidential Decree of Toxic Chemical Control Law, Executive Order No. 19203)
Korea. Dangerous Substances Threshold Quantity (Presidential Decree of Dangerous Substances Safety Management Act No. 18406, Schedule 1)
Korea. Harmful Substances Prohibited from Manufacturing (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 29)
Korea. Harmful Substances Requiring Permission for Manufacture or Use (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 30)
Korea. Non-Toxic Chemicals List (National Institute of Environment Research (NIER) Public Notice No. 1997-10, as amended)
Korea. Observational Chemicals (Ministerial Decree of TCCL Article 6)
Korea. OELs. Regulation for Permitted Concentration of Hazardous Substances (Ministry of Labor (MOL) Public Notice No. 1986-45, as amended)
Korea. Prohibited Chemical Substances (TCCL Article 11)
Korea. Regulated volatile organic compounds (VOCs) (MOE Notice No. 2001-36, March 8, 2001, as amended)
Korea. Restricted Chemical Substances (TCCL Article 11)
Korea. Toxic Chemical Control Law (TCCL), Existing Chemicals Inventory (KECI)
Korea. Toxic Chemical Control Law (TCCL), pre-1997 List
Korea. Toxic Chemicals (TCCL Article 10)
Korea. Toxic Release Inventory (TRI) Chemicals (TCCL Article 14)
Taiwan. Dangerous Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)
Taiwan. Industrial Precursor Chemicals (Categories and Regulations Governing Inspection and Declaration of Industrial Precursor Chemicals, MOEA Decree No. 87, as amended)
Taiwan. OELs. (Standards on Workplace Atmosphere of Dangerous and Hazardous Materials)
Taiwan. Toxic Chemical Substances (TCS) (List of Toxic Chemical Substances announced by the Environmental Protection Administration)
Taiwan. Toxic Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)
HSDB® - Hazardous Substances Data Bank
JIS Z 7250: 2005 Safety data sheet for chemical products-Part 1:Content and order of sections
JCIA GHS Guideline, October 2008
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices
Japan Society for Occupational Health, Recommendation of Occupational Exposure Limits
GOST 30333-2007 - Chemical production safety passport. General requirements

Disclaimer

This safety data sheet was prepared in accordance with the Safety Data Sheet for Chemical Products (JIS Z 7250:2005). Additional information is given in the Material Safety Data Sheet. The information in the sheet was written based on the best knowledge and experience currently available.

Revision Information

Product and Company Identification: Product and Company Identification
Composition / Information on Ingredients: Ingredients
Physical & Chemical Properties: Multiple Properties
Transport Information: Material Transportation Information
Regulatory Information: United States
GHS: Classification