

1. Identification

Product identifier **PENNTROWELTM EPOXY HARDENER**

Other means of identification None.

Recommended use Curing agents, epoxy-like

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name Armor Limited, Inc.
Address 2410 US-15 South, Sumter, SC 29150

After hours telephone number 1-877-982-7667

Normal work hours telephone number 1-877-982-7667

Website www.armor-inc.com

E-mail customerservice@armor-inc.com

Emergency 24-hour telephone number CHEMTREC North America: +1-800-424-9300, International: +1-703-527-3887

Information on operation hours 8:00 a.m. to 5:00 p.m.

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards

Acute toxicity, oral	Category 4
Acute toxicity, dermal	Category 4
Acute toxicity, inhalation	Category 2
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Sensitization, skin	Category 1
Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation

Environmental hazards Not classified.

OSHA defined hazards Not classified.

Label elements



Signal word Danger

Hazard statement Harmful if swallowed. Harmful in contact with skin. Fatal if inhaled. Causes severe skin burns and eye damage. Causes serious eye damage. May cause an allergic skin reaction. May cause respiratory irritation.

Precautionary statement

Prevention

Avoid breathing dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Do not eat, drink or smoke when using this product. Contaminated work clothing must not be allowed out of the workplace. In case of inadequate ventilation wear respiratory protection.

Response	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation or rash occurs: Get medical advice/attention. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician. Wash contaminated clothing before reuse. Take off contaminated clothing and wash it before reuse. Specific treatment is urgent (see this label).
Storage	Store in a well-ventilated place. Keep container tightly closed. 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	None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
2,2'-IMINODI(ETHYLAMINE)		111-40-0	100

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, trained personnel should give oxygen. Do not use mouth-to-mouth method if victim inhaled the substance. Call a physician or poison control center immediately.
Skin contact	Wash off immediately with soap and plenty of water. Immediately remove contaminated clothing. Wash contaminated clothing before reuse. Call a physician or poison control center immediately.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Hold eyelids apart, initiate and maintain gentle and continuous irrigation until the patient receives medical care. Call a physician or poison control center immediately.
Ingestion	Rinse mouth thoroughly. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not use mouth-to-mouth method if victim ingested the substance. When risk of unconsciousness, place and transport the victim in secured side position. Call a poison control center immediately.
Most important symptoms/effects, acute and delayed	Coughing. Defatting of the skin. Dermatitis. Shortness of breath. May cause allergic skin reaction. May cause severe irritation or burns to the eyes, skin, gastrointestinal tract, and respiratory system. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause redness and pain. May cause skin dryness or cracking.
Indication of immediate medical attention and special treatment needed	Treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. 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. IF exposed or concerned: Get medical advice/attention. In case of shortness of breath, give oxygen. Keep victim under observation. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media	Use water fog, alcohol-resistant foam, dry chemical or carbon dioxide (CO2) to extinguish flames. Dry sand. Limestone powder.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Incomplete combustion may form carbon monoxide. Burning produces noxious and toxic fumes. May generate ammonia gas.
Special protective equipment and precautions for firefighters	Wear suitable protective equipment. 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. Do not get water inside container.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not touch or walk through spilled material. Ventilate closed spaces before entering them. Ensure adequate ventilation. Avoid inhalation of vapors or mists.

Methods and materials for containment and cleaning up

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with DRY earth, DRY sand, or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain. Do not get water on spilled substance or inside containers.

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

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

In case of insufficient ventilation, wear suitable respiratory equipment. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/fume/gas/mist/vapors/spray. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not get this material on clothing. Use personal protective equipment as required. Wash hands thoroughly after handling. Do not empty into drains.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in a well-ventilated place. Keep container tightly closed. Store in cool, dry place. Do not store near acids. Store in steel containers preferably located outdoors, above ground, and surrounded by dikes to contain spills or leaks.

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
2,2'-IMINODI(ETHYLAMINE) (CAS 111-40-0)	TWA	1 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
2,2'-IMINODI(ETHYLAMINE) (CAS 111-40-0)	TWA	4 mg/m ³
		1 ppm

Biological limit values

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

Exposure guidelines

US - California OELs: Skin designation

2,2'-IMINODI(ETHYLAMINE) (CAS 111-40-0) Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

2,2'-IMINODI(ETHYLAMINE) (CAS 111-40-0) Skin designation applies.

US ACGIH Threshold Limit Values: Skin designation

2,2'-IMINODI(ETHYLAMINE) (CAS 111-40-0) Danger of cutaneous absorption

US NIOSH Pocket Guide to Chemical Hazards: Skin designation

2,2'-IMINODI(ETHYLAMINE) (CAS 111-40-0) 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. Provide eyewash station and safety shower.

Individual protection measures, such as personal protective equipment

Eye/face protection

Chemical goggles and face shield are recommended.

Skin protection

Hand protection

Chemical resistant gloves are recommended. If contact with forearms is likely wear gauntlet style gloves. Butyl rubber or Viton gloves are recommended. Neoprene gloves are recommended.

Other

Wear appropriate chemical resistant clothing. Use of impervious boots is recommended. Wear an impervious suit.

Respiratory protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. During spraying, wear suitable respiratory equipment.

Thermal hazards	Not available.
General hygiene considerations	Do not get in eyes, on skin, on clothing. Wash hands after handling. Keep away from food and drink. Contaminated work clothing should not be allowed out of the workplace. 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	Amber Liquid
Physical state	Liquid.
Form	Liquid.
Color	Amber.
Odor	Amine.
Odor threshold	Not available.
pH	12
Melting point/freezing point	Not available.
Initial boiling point and boiling range	404.6 °F (207 °C)
Flash point	210.0 °F (98.9 °C) Pensky-Martens Closed Cup
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	0 - 0.18 hPa @21°C
Vapor density	13.038
Relative density	0.94
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	750.2 °F (399 °C) estimated
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	0.94 g/cm3 @21°C

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	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid high temperatures. Avoid temperatures exceeding the flash point.
Incompatible materials	N-Nitrosamines, many of which are known to be potent carcinogens, may be formed when the product comes in contact with nitrous acid, nitrites or atmospheres with high nitrous oxide concentrations. Nitrous acid and other nitrosating agents Organic acids (i.e. acetic acid, citric acid etc.). Incompatible with oxidizing agents. Avoid contact with acids. Product corrodes copper, aluminum, zinc, and galvanized surfaces. Mineral Acid Sodium hypochlorite. Reaction with peroxides may result in violent decomposition of peroxide possibly creating an explosion.
Hazardous decomposition products	Nitric Acid. Carbon dioxide. Nitrogen oxides (NOx). Ammonia. Carbon monoxide. Nitrogen oxide can react with water vapors to form corrosive nitric acid. Nitrosamine.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Fatal if inhaled. May cause irritation to the respiratory system.
Skin contact	Causes severe skin burns and eye damage. May cause an allergic skin reaction.
Eye contact	Causes serious eye damage.
Ingestion	Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics May cause an allergic skin reaction. May cause severe irritation or burns to the eyes, skin, gastrointestinal tract, and respiratory system. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause redness and pain. Coughing. Repeated exposure may cause skin dryness and cracking. Defatting of the skin. Shortness of breath.

Information on toxicological effects

Acute toxicity Fatal if inhaled. Harmful in contact with skin. Harmful if swallowed.

Product	Species	Test Results
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PENNTROWEL™ EPOXY HARDENER

Acute

Oral

LD50	Rat	1080 mg/kg
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Components	Species	Test Results
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2,2'-IMINODI(ETHYLAMINE) (CAS 111-40-0)

Acute

Oral

LD50	Rat	1080 mg/kg
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* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization May cause an allergic skin reaction. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

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

Carcinogenicity Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity Not classified.

Specific target organ toxicity - single exposure Respiratory tract irritation.

Specific target organ toxicity - repeated exposure Not available.

Aspiration hazard Not available.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Product			Species	Test Results
PENNTROWEL™ EPOXY HARDENER				
Aquatic				
Fish	LC50	Fish	1014, 96 hours	
Acute				
Fish	LC50	Fish	1014, 96 hours estimated	
Components		Species	Test Results	
2,2'-IMINODI(ETHYLAMINE) (CAS 111-40-0)				
Aquatic				
Acute				
Fish	LC50	Guppy (Poecilia reticulata)	1014, 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.
Mobility in soil	Not available.
Other adverse effects	Not available.

13. Disposal considerations

Disposal instructions	Dispose of contents/container in accordance with local/regional/national/international regulations. Do not discharge into drains, water courses or onto the ground.
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. 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	UN2079
UN proper shipping name	Diethylenetriamine (RQ = 2290)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Label(s)	8
Packing group	II
Special precautions for user	Not available.
Special provisions	B2, IB2, T7, TP2
Packaging exceptions	154
Packaging non bulk	202
Packaging bulk	242

IATA	
UN number	UN2079
UN proper shipping name	Diethylenetriamine
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	8L
Special precautions for user	Not available.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

IMDG

UN number	UN2079
UN proper shipping name	DIETHYLENETRIAMINE
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-A, S-B
Special precautions for user	Not available.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

DOT



IATA; IMDG



General information

If shipped below RQ, this product is not subject to hazardous materials regulations.

15. Regulatory information

US federal regulations

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

Toxic Substances Control Act (TSCA)

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

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical

Yes

Classified hazard categories

Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitization
Specific target organ toxicity (single or repeated exposure)

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.

Safe Drinking Water Act (SDWA)

Not regulated.

US state regulations**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.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	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)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	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 06-02-2022

Version # 01

NFPA ratings
 Health: 3
 Flammability: 1
 Instability: 0

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.

Revision information This document has undergone significant changes and should be reviewed in its entirety.