

**1. Identification**
**Product identifier**                    **Pentrowel 250 Resin (All Colors)**
**Other means of identification**   Not available.

**Recommended use**                    Corrosion Engineering

**Recommended restrictions**        None known.

**Manufacturer/Importer/Supplier/Distributor information**
**Manufacturer**
**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**                    Skin corrosion/irritation                    Category 2  
                                                  Serious eye damage/eye irritation        Category 2B  
                                                  Sensitization, skin                            Category 1B

**Environmental hazards**            Not classified.

**OSHA defined hazards**            Not classified.

**Label elements**

**Signal word**                            Warning

**Hazard statement**                    Causes skin irritation. Causes serious eye irritation. May cause an allergic skin reaction.

**Prevention**                            Wear protective gloves. Wear eye/face protection. Wash thoroughly after handling. Avoid breathing mist or vapor. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment.

**Response**                                Specific treatment see Section 4 of this SDS. Wash contaminated clothing before reuse. 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. If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention.

**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	%
BISPHENOL A-(EPICHLORHYDRIN) EPOXY RESIN		25068-38-6	70 - 90

Chemical name	Common name and synonyms	CAS number	%
CASHEW, NUTSHELL LIQ., GLYCIDYL ETHERS		171263-25-5	10 - 30
[(TOLYLOXY)METHYL]OXIRANE		26447-14-3	5 - 15
EPICHLOROHYDRIN		106-89-8	0.0548624999
Other components below reportable levels			20 - 40

**Composition comments** Other components in this product are considered non-hazardous under the criteria specified in 29 CFR 1910.1200 (Hazard Communication Standard).

#### 4. First-aid measures

<b>Inhalation</b>	If breathing is difficult, remove 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. Get medical attention, if needed.
<b>Skin contact</b>	Remove contaminated clothing immediately and wash skin with soap and water. Call a POISON CENTER or doctor/physician if you feel unwell. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. For minor skin contact, avoid spreading material on unaffected skin. Take off contaminated clothing and wash before reuse.
<b>Eye contact</b>	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. Get medical attention immediately.
<b>Ingestion</b>	Call a physician or poison control center immediately. Rinse mouth thoroughly. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting without advice from poison control center. 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.
<b>Most important symptoms/effects, acute and delayed</b>	Skin irritation. May cause an allergic skin reaction. Dermatitis. Rash. Irritant effects. May cause redness and pain. Prolonged exposure may cause chronic effects.
<b>Indication of immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
<b>General information</b>	Take off contaminated clothing and shoes immediately. In case of shortness of breath, give oxygen. IF exposed or concerned: Get medical advice/attention. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

#### 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Water fog. Foam. Dry chemical powder. Alcohol foam. Carbon dioxide (CO <sub>2</sub> ).
<b>Unsuitable extinguishing media</b>	Water. Do not use water jet as an extinguisher, as this will spread the fire.
<b>Specific hazards arising from the chemical</b>	Fire may produce irritating, corrosive and/or toxic gases.
<b>Special protective equipment and precautions for firefighters</b>	Wear suitable protective equipment. Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
<b>Fire-fighting equipment/instructions</b>	Move containers from fire area if you can do so without risk. 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.
<b>Specific methods</b>	In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers.
<b>General fire hazards</b>	No unusual fire or explosion hazards noted.

#### 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Avoid skin contact and inhalation of vapors during disposal of spills. 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.
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**Methods and materials for containment and cleaning up**

Extinguish all flames in the vicinity.

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 to 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. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

**7. Handling and storage**

**Precautions for safe handling**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Do not breathe mist or vapor. Do not get this material in contact with eyes. Do not taste or swallow. Avoid contact with skin. Avoid prolonged exposure. Avoid contact with clothing. Do not use in areas without adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash thoroughly after handling. Avoid release to the environment. Do not empty into drains.

**Conditions for safe storage, including any incompatibilities**

CAUTION Store locked up. Keep away from heat, sparks and open flame. Store in a closed container away from incompatible materials. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children. Store in accordance with local/regional/national/international regulation.

**8. Exposure controls/personal protection**

**Occupational exposure limits**

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

Components	Type	Value
EPICHLOROHYDRIN (CAS 106-89-8)	PEL	19 mg/m3
		5 ppm

**US. ACGIH Threshold Limit Values**

Components	Type	Value
EPICHLOROHYDRIN (CAS 106-89-8)	TWA	0.5 ppm

**Biological limit values**

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

**Exposure guidelines**

**US - California OELs: Skin designation**

EPICHLOROHYDRIN (CAS 106-89-8) Can be absorbed through the skin.

**US - Minnesota Haz Subs: Skin designation applies**

EPICHLOROHYDRIN (CAS 106-89-8) Skin designation applies.

**US - Tennessee OELs: Skin designation**

EPICHLOROHYDRIN (CAS 106-89-8) Can be absorbed through the skin.

**US ACGIH Threshold Limit Values: Skin designation**

EPICHLOROHYDRIN (CAS 106-89-8) 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.

**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**

Safety glasses. If risk of splashing, wear safety goggles or face shield.

**Hand protection**

Chemical resistant gloves are recommended. If contact with forearms is likely wear gauntlet style gloves.

**Other**

Wear appropriate clothing to prevent any possibility of skin contact.

**Respiratory protection**

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene considerations</b>	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

<b>Appearance</b>	Clear, straw colored liquid
<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>Color</b>	Varies
<b>Odor</b>	Mild. Sweet.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Not Applicable
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	> 230.0 °F (> 110.0 °C) Pensky-Martens Closed Cup
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not available.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Heavier than air
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Insoluble
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not Evaluated
<b>Other information</b>	
<b>Specific gravity</b>	1.11 at 25° C

## 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Stable.
<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Heat, flames and sparks. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
<b>Incompatible materials</b>	Peroxides. Chlorine. Strong acids, alkalis and oxidizing agents.
<b>Hazardous decomposition products</b>	If product is burned hazardous gases such as oxides of carbon and nitrogen and various hydrocarbons may be produced.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Ingestion</b>	Suspected of causing cancer by ingestion. However, ingestion is not likely to be a primary route of occupational exposure.
<b>Inhalation</b>	Prolonged inhalation may be harmful.
<b>Skin contact</b>	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
Penntrowel 250 Resin (All Colors) (CAS Mixture)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Mouse	4136.0029 mg/kg estimated
	Rat	17391.3047 mg/kg estimated
<i>Inhalation</i>		
LC50	Rat	53.0435 mg/l, 4 Hours estimated
<i>Oral</i>		
LD50	Guinea pig	13739.8047 mg/kg estimated
	Mouse	14191.957 mg/kg estimated
	Rat	27229.4082 mg/kg estimated
<i>Other</i>		
LD50	Mouse	8.5217 g/kg estimated

Components	Species	Test Results
[(TOLYLOXY)METHYL]OXIRANE (CAS 26447-14-3)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Mouse	480 mg/kg
	Rat	> 2000 mg/kg
<i>Inhalation</i>		
LC50	Rat	> 6.1 mg/l, 4 Hours
<i>Oral</i>		
LD50	Guinea pig	1650 mg/kg
	Mouse	1700 mg/kg
	Rat	> 5000 mg/kg
<i>Other</i>		
LD50	Mouse	0.98 g/kg

## EPICHLOROHYDRIN (CAS 106-89-8)

**Acute***Dermal*

LD50	Mouse	250 mg/kg
	Rabbit	300 mg/kg

*Inhalation*

LC50	Rabbit	445 ppm, 4 Hours
	Rat	500 ppm, 4 Hours
		250 ppm, 8 Hours

*Oral*

LD50	Guinea pig	178 mg/kg
	Mouse	195 mg/kg
	Rabbit	345 mg/kg
	Rat	40 mg/kg

*Other*

LD50	Guinea pig	118 mg/kg
	Rabbit	118 mg/kg

Components	Species	Test Results
	Rat	133 mg/kg

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

<b>Skin corrosion/irritation</b>	Corrosive to skin and eyes.
<b>Serious eye damage/eye irritation</b>	Direct contact with eyes may cause temporary irritation.
<b>Respiratory or skin sensitization</b>	
<b>Respiratory sensitization</b>	Not available.
<b>Skin sensitization</b>	May cause sensitization by skin contact.
<b>Germ cell mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
<b>Carcinogenicity</b>	Possible cancer hazard based on tests with laboratory animals. This product contains crystalline silica. Silica is a known carcinogen; however in this encapsulated form the normal routes of exposure are unavailable.
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>	
EPICHLOROHYDRIN (CAS 106-89-8)	2A Probably carcinogenic to humans.
<b>US. National Toxicology Program (NTP) Report on Carcinogens</b>	
EPICHLOROHYDRIN (CAS 106-89-8)	Reasonably Anticipated to be a Human Carcinogen.
<b>US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b>	
	Not listed.
<b>Reproductive toxicity</b>	This product is not expected to cause reproductive or developmental effects.
<b>Specific target organ toxicity - single exposure</b>	Not classified.
<b>Specific target organ toxicity - repeated exposure</b>	Not classified.
<b>Aspiration hazard</b>	Not available.
<b>Chronic effects</b>	Prolonged inhalation may be harmful.

## 12. Ecological information

<b>Ecotoxicity</b>	The product components are 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.
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Product	Species	Test Results
Penntrowel 250 Resin (All Colors) (CAS Mixture)		
Crustacea	EC50	Daphnia
		6.75 mg/l, 48 hours estimated
Fish	LC50	Fish
		3.7496 mg/l, 96 hours estimated

Components	Species	Test Results
EPICHLOROHYDRIN (CAS 106-89-8)		
<b>Aquatic</b>		
Fish	LC50	Fathead minnow (Pimephales promelas)
		9.1 - 12.3 mg/l, 96 hours

<b>Persistence and degradability</b>	No data is available on the degradability of this product.
<b>Bioaccumulative potential</b>	Not available.
<b>Partition coefficient n-octanol / water (log Kow)</b>	
Penntrowel 250 Resin (All Colors)	> 3
EPICHLOROHYDRIN	0.45
<b>Mobility in soil</b>	No data available.
<b>Other adverse effects</b>	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

<b>Disposal instructions</b>	Dispose in accordance with all applicable regulations. 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.
<b>Local disposal regulations</b>	Dispose in accordance with all applicable regulations.
<b>Hazardous waste code</b>	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. Offer rinsed packaging material to local recycling facilities.

**14. Transport information**

**DOT**

Not regulated as dangerous goods.

**IATA**

Not regulated as dangerous goods.

**IMDG**

<b>UN number</b>	UN3082
<b>UN proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPICHLOROHYDRIN)
<b>Transport hazard class(es)</b>	
<b>Class</b>	9
<b>Subsidiary risk</b>	-
<b>Packing group</b>	III
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	Yes
<b>EmS</b>	F-A, S-F
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

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

**IMDG**



**Marine pollutant**



**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.

**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.

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

EPICHLOROHYDRIN (CAS 106-89-8) 100 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
EPICHLOROHYDRIN	106-89-8	100	1000 lbs		

**SARA 311/312 Hazardous chemical**  
Yes

**SARA 313 (TRI reporting)**  
Not regulated.

### Other federal regulations

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

EPICHLOROHYDRIN (CAS 106-89-8)

#### 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)

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

EPICHLOROHYDRIN (CAS 106-89-8) 500 LBS

#### US. Pennsylvania RTK - Hazardous Substances

EPICHLOROHYDRIN (CAS 106-89-8)

#### US. Rhode Island RTK

EPICHLOROHYDRIN (CAS 106-89-8)

#### US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

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

EPICHLOROHYDRIN (CAS 106-89-8) Listed: October 1, 1987

#### 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

**Issue date** 04-17-2015

Material name: Penntrowel 250 Resin (All Colors)

5726 Version #: 02 Revision date: 01-14-2016 Issue date: 04-17-2015

SDS US

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**Revision date** 01-14-2016

**Version #** 02

**References** EPA: AQUIRE database  
US. IARC Monographs on Occupational Exposures to Chemical Agents  
HSDB® - Hazardous Substances Data Bank  
IARC Monographs. Overall Evaluation of Carcinogenicity  
National Toxicology Program (NTP) Report on Carcinogens  
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

**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** Product and Company Identification: Product and Company Identification  
Physical & Chemical Properties: Multiple Properties  
Toxicological Information: Toxicological Data  
GHS: Classification