

1. Identification

Product identifier **PENNCOAT™ 210 Hardener**

Other means of identification None.

Recommended use Not available.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name

Armor Limited, Inc.
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 CHEMTRAC 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 Flammable liquids Category 4

Health hazards Acute toxicity, oral Category 4

Acute toxicity, inhalation Category 4

Skin corrosion/irritation Category 1B

Serious eye damage/eye irritation Category 1

Sensitization, skin Category 1A

Germ cell mutagenicity Category 2

Reproductive toxicity (fertility, the unborn child) Category 2

Specific target organ toxicity, repeated exposure Category 2

Environmental hazards Hazardous to the aquatic environment, acute hazard Category 2

Hazardous to the aquatic environment, long-term hazard Category 2

OSHA defined hazards Not classified.

Label elements



Signal word

Danger

Hazard statement

Combustible liquid. Causes serious eye damage. Suspected of damaging fertility or the unborn child by ingestion. May cause damage to organs through prolonged or repeated exposure by inhalation. Suspected of causing genetic defects. Harmful if inhaled. Harmful if swallowed. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Precautionary statement**Prevention**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Avoid breathing dust/fume/gas/mist/vapors/spray. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. Do not eat, drink or smoke when using this product. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Avoid release to the environment. Use only outdoors or in a well-ventilated area. Wash thoroughly after handling.

Response

IF SWALLOWED: Immediately call a POISON CENTER/doctor/. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. If skin irritation or rash occurs: Get medical advice/attention. 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 ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. Wash contaminated clothing before reuse. Specific treatment (see this label). In case of fire: Use appropriate media to extinguish. Collect spillage.

Storage

Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.

Disposal

Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

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	%
1,3-PROPANEDIAMINE, N-[3-(TRIDECYLOXY)PROPYL]-, BRANCHED		68479-04-9	20 - 30
Polyoxypropylene diamine		9046-10-0	15 - 20
2-PIPERAZIN-1-YLETHYLAMINE		140-31-8	10 - 20
PHENOL, 4-NONYL-, BRANCHED		84852-15-3	10 - 20
2,2'-IMINODI(ETHYLAMINE)		111-40-0	5 - 15
4,4'-ISOPROPYLIDENEDIPHENOL		80-05-7	5 - 15
Other components below reportable levels			7.5

4. First-aid measures**Inhalation**

If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Move to fresh air. 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. Call a POISON CENTER or doctor/physician if you feel unwell. Call a physician if symptoms develop or persist.

Skin contact

Take off immediately all contaminated clothing. Remove and isolate contaminated clothing and shoes. Immediately flush skin with plenty of water. Wash off with soap and plenty of water. For minor skin contact, avoid spreading material on unaffected skin. Get medical attention if irritation develops and persists. Wash clothing separately before reuse.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion

Rinse mouth. Do not induce vomiting. Do not use mouth-to-mouth method if victim ingested the substance. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms/effects, acute and delayed

Mild skin irritation. Irritation of eyes and mucous membranes. Prolonged exposure may cause chronic effects. Irritant effects.

Indication of immediate medical attention and special treatment needed

In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information IF exposed or concerned: Get medical advice/attention. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media Water spray. Water fog. Foam. Carbon dioxide (CO2). Powder.

Unsuitable extinguishing media Not available.

Specific hazards arising from the chemical No unusual fire or explosion hazards noted.

Special protective equipment and precautions for firefighters Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

Fire fighting equipment/instructions Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage.

Specific methods In the event of fire, cool tanks with water spray. Move container from fire area if it can be done without risk.

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. Ventilate closed spaces before entering them. Avoid inhalation of vapors or mists. Avoid skin contact and inhalation of vapors during disposal of spills.

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 plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth or absorbent material then place into containers. Prevent product from entering drains.

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

Environmental precautions

7. Handling and storage

Precautions for safe handling

Do not get this material in contact with eyes. Do not get this material in contact with skin. Avoid breathing vapor. Do not get this material on clothing. Use personal protective equipment as required. Do not use in areas without adequate ventilation. Avoid prolonged exposure. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities Keep away from heat, sparks and open flame. Store in a well-ventilated place. Store in original tightly closed container. Store in a closed container away from incompatible materials. Keep away from food, drink and animal feedingstuffs.

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)

Can be absorbed through the skin.

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.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Wear approved safety goggles.

Skin protection**Hand protection**

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

Other

Avoid contact with the skin. Wear appropriate chemical resistant clothing. Chemical resistant gloves.

Respiratory protection

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

Thermal hazards

Not available.

General hygiene considerations

Do not get in eyes. Avoid contact with eyes. Avoid contact with skin. Avoid contact with clothing. Wash hands before breaks and immediately after handling the product. Keep away from food and drink. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties**Appearance**

Liquid.

Physical state

Liquid.

Form

Liquid.

Color

light yellow to amber

Odor

Amine-like.

Odor threshold

Not available.

pH

Not available.

Melting point/freezing point

Not available.

Initial boiling point and boiling range

> 400 °F (> 204.44 °C)

Flash point

> 212.0 °F (> 100.0 °C) Tag Closed Cup

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

1.03 (77 °F (25 °C))

Solubility(ies)**Solubility (water)**

Not available.

Partition coefficient (n-octanol/water)

Not available.

Auto-ignition temperature

644 °F (340 °C) estimated

Decomposition temperature

Not available.

Viscosity

Not available.

Other information

Percent volatile 15 % estimated

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 acids. Alkaline metals. Peroxides. Phenols.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information**Information on likely routes of exposure**

Inhalation	Harmful if inhaled.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	Harmful if swallowed.

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

Information on toxicological effects**Acute toxicity**

Components	Species	Test Results
4,4'-ISOPROPYLIDENEDIPHENOL (CAS 80-05-7)		
Acute		
Oral		
LD50	Rat	3300 mg/kg

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

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Causes eye irritation.

Respiratory or skin sensitization

Respiratory sensitization	Not available.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	Suspected of causing genetic defects.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity	Suspected of damaging fertility or the unborn child.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not available.
Chronic effects	May cause eczema-like skin disorders (dermatitis).

12. Ecological information

Ecotoxicity

The product contains a substance which is harmful to aquatic organisms.

Product	Species	Test Results	
PENNCOAT™ 210 Hardener			
Aquatic			
Crustacea	EC50	Daphnia	0.252 mg/l, 48 hours estimated
Fish	LC50	Fish	0.8121 mg/l, 96 hours estimated
Components	Species	Test Results	
2,2'-IMINODI(ETHYLAMINE) (CAS 111-40-0)			
Aquatic			
Fish	LC50	Guppy (Poecilia reticulata)	1014 mg/l, 96 hours
2-PIPERAZIN-1-YLETHYLAMINE (CAS 140-31-8)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	1950 - 2460 mg/l, 96 hours
4,4'-ISOPROPYLIDENEDIPHENOL (CAS 80-05-7)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	9.2 - 11.4 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	3.6 - 5.4 mg/l, 96 hours
PHENOL, 4-NONYL-, BRANCHED (CAS 84852-15-3)			
Aquatic			
Crustacea	EC50	Clam (Mulinia lateralis)	0.0379 mg/l, 48 hours
Fish	LC50	Winter flounder (Pleuronectes americanus)	0.017 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)

4,4'-ISOPROPYLIDENEDIPHENOL	3.32
PHENOL, 4-NONYL-, BRANCHED	5.71

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. This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous 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.

14. Transport information

DOT

UN number	UN2735
UN proper shipping name	Polyamines, liquid, corrosive, n.o.s. (2-PIPERAZIN-1-YLETHYLAMINE), MARINE POLLUTANT
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Label(s)	8
Packing group	III

Environmental hazards

Marine pollutant	Yes
Special precautions for user	Not available.
Special provisions	IB3, T7, TP1, TP28
Packaging exceptions	154
Packaging non bulk	203
Packaging bulk	241

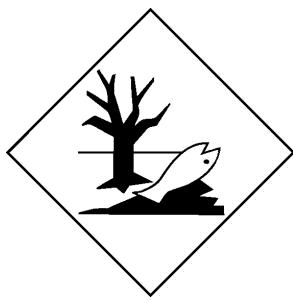
IATA

UN number	UN2735
UN proper shipping name	Polyamines, liquid, corrosive, n.o.s. (2-PIPERAZIN-1-YLETHYLAMINE)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
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	UN2735
UN proper shipping name	Polyamines, liquid, corrosive, n.o.s. (2-PIPERAZIN-1-YLETHYLAMINE), MARINE POLLUTANT
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
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**

Marine pollutant**General information**

DOT Regulated Marine Pollutant. IMDG Regulated 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)

PHENOL, 4-NONYL-, BRANCHED (CAS 84852-15-3)

1.0 % One-Time Export Notification only.

TSCA Chemical Action Plans, Chemicals of Concern

4,4'-ISOPROPYLIDENEDIPHENOL (CAS 80-05-7)

Bisphenol A Action Plan

PHENOL, 4-NONYL-, BRANCHED (CAS 84852-15-3)

Nonylphenol (NP) and Nonylphenol Ethoxylates (NPEs) Action Plan

CERCLA Hazardous Substance List (40 CFR 302.4)

4,4'-ISOPROPYLIDENEDIPHENOL (CAS 80-05-7)

Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)**SARA 302 Extremely hazardous substance**

Not listed.

Classified hazard categories

Flammable (gases, aerosols, liquids, or solids)

Acute toxicity (any route of exposure)

Skin corrosion or irritation

Serious eye damage or eye irritation

Respiratory or skin sensitization

Germ cell mutagenicity

Reproductive toxicity

Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
4,4'-ISOPROPYLIDENEDIPHENOL	80-05-7	5 - 15
PHENOL, 4-NONYL-, BRANCHED	84852-15-3	10 - 20

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

4,4'-ISOPROPYLIDENEDIPHENOL (CAS 80-05-7)

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

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

California Proposition 65**California Proposition 65 - CRT: Listed date/Female reproductive toxin**

4,4'-ISOPROPYLIDENEDIPHENOL (CAS 80-05-7) Listed: May 11, 2015

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

4,4'-ISOPROPYLIDENEDIPHENOL (CAS 80-05-7)

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)	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	05-17-2021
Version #	01
Further information	HMIS® is a registered trade and service mark of the NPCA.
NFPA ratings	Health: 3 Flammability: 2 Instability: 0
References	ACGIH EPA: AQUIRE database NLM: Hazardous Substances Data Base US. IARC Monographs on Occupational Exposures to Chemical Agents 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: Alternate Trade Names Hazard(s) identification: Response Hazard(s) identification: Prevention Hazard(s) identification: Storage Hazard(s) identification: Hazard statement Hazard(s) identification: GHS Symbols Hazard(s) identification: Supplemental information Toxicological information: Mutagenicity Toxicological information: Reproductivity Toxicological information: Corrosivity Toxicological information: Ingestion Toxicological information: Inhalation HazReg Data: International Inventories