

**1. Identification**

<b>Product identifier</b>	<b>PENNCOAT 221 HARDENER</b>
<b>Other means of identification</b>	Not available.
<b>Recommended use</b>	Corrosion Engineering
<b>Recommended restrictions</b>	None known.
<b>Manufacturer/Importer/Supplier/Distributor information</b>	
<b>Manufacturer</b>	
<b>Company Name</b>	ErgonArmor, a division of Ergon Asphalt & Emulsions, Inc.
<b>Address</b>	2829 Lakeland Drive Jackson, MS 39232 USA
<b>After hours telephone number</b>	1-800-222-7122
<b>Normal work hours telephone number</b>	1-877-982-7667
<b>Website</b>	www.ergonarmor.com
<b>E-mail</b>	sds@ergon.com
<b>Emergency 24-hour telephone number</b>	CHEMTREC: North America 1-800-424-9300 International 1-800-527-3887
<b>Information on operation hours</b>	8:00 a.m. to 5:00 p.m.

**2. Hazard(s) identification**

<b>Physical hazards</b>	Not classified.	
<b>Health hazards</b>	Acute toxicity, oral	Category 4
	Acute toxicity, dermal	Category 4
	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
	Sensitization, skin	Category 1
	Specific target organ toxicity, repeated exposure	Category 1
<b>Environmental hazards</b>	Not classified.	
<b>OSHA defined hazards</b>	Not classified.	

**Label elements**


<b>Signal word</b>	Danger
<b>Hazard statement</b>	Harmful if inhaled. Causes severe skin burns and eye damage. Harmful in contact with skin. Harmful if swallowed. May cause an allergic skin reaction.
<b>Prevention</b>	Observe good industrial hygiene practices. Obtain special instructions before use. Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe mist or vapor. Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash thoroughly after handling. Do not eat, drink or smoke when using this product.
<b>Response</b>	Wash hands after handling. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Wash contaminated clothing before reuse. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If skin irritation or rash occurs: Get medical advice/attention. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTER or doctor/physician. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

<b>Storage</b>	Store away from incompatible materials. Store locked up.
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Hazard(s) not otherwise classified (HNOC)</b>	None known.
<b>Supplemental information</b>	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	65 - 85
BENZYL ALCOHOL		100-51-6	5 - 20
NONYLPHENOL		25154-52-3	5 - 20
BENZENE, HYDROXY-		108-95-2	1 - 3

\*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

### 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. Call a physician if symptoms develop or persist.
<b>Skin contact</b>	Rinse skin with water/shower. Get medical attention if irritation develops and persists.
<b>Eye contact</b>	Rinse with water. Get medical attention if irritation develops and persists.
<b>Ingestion</b>	Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.
<b>Most important symptoms/effects, acute and delayed</b>	Direct contact with eyes may cause temporary irritation.
<b>Indication of immediate medical attention and special treatment needed</b>	Treat symptomatically.
<b>General information</b>	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

### 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Water fog. Foam. Dry chemical powder. 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>	During fire, gases hazardous to health may be formed.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Fire-fighting equipment/instructions</b>	Move containers from fire area if you can do so without risk.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.
<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>	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. For personal protection, see section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	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.  Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
<b>Environmental precautions</b>	Avoid discharge into drains, water courses or onto the ground.

## 7. Handling and storage

**Precautions for safe handling** Avoid prolonged exposure. Use care in handling/storage.

**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
BENZENE, HYDROXY- (CAS 108-95-2)	PEL	19 mg/m <sup>3</sup> 5 ppm

#### US. ACGIH Threshold Limit Values

Components	Type	Value
BENZENE, HYDROXY- (CAS 108-95-2)	TWA	5 ppm

#### US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
BENZENE, HYDROXY- (CAS 108-95-2)	Ceiling	60 mg/m <sup>3</sup>
	TWA	15.6 ppm 19 mg/m <sup>3</sup> 5 ppm

#### US. AIHA Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value
BENZYL ALCOHOL (CAS 100-51-6)	TWA	44.2 mg/m <sup>3</sup> 10 ppm

### Biological limit values

#### ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
BENZENE, HYDROXY- (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

BENZENE, HYDROXY- (CAS 108-95-2) Can be absorbed through the skin.

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

BENZENE, HYDROXY- (CAS 108-95-2) Skin designation applies.

#### US - Tennessee OELs: Skin designation

BENZENE, HYDROXY- (CAS 108-95-2) Can be absorbed through the skin.

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

BENZENE, HYDROXY- (CAS 108-95-2) Can be absorbed through the skin.

#### US NIOSH Pocket Guide to Chemical Hazards: Skin designation

BENZENE, HYDROXY- (CAS 108-95-2) Can be absorbed through the skin.

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

BENZENE, HYDROXY- (CAS 108-95-2) 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.

### Individual protection measures, such as personal protective equipment

**Eye/face protection** Wear safety glasses with side shields (or goggles).

**Hand protection** Wear protective gloves.

#### Skin protection

**Other** Wear appropriate chemical resistant clothing.

<b>Respiratory protection</b>	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>	Liquid.
<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>Color</b>	Light yellow
<b>Odor</b>	Amine-like.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	> 400 °F (> 204.44 °C)
<b>Flash point</b>	> 212.0 °F (> 100.0 °C) Tag Closed Cup
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not available.
<b>Upper/lower flammability or explosive limits</b>	
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Not available.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	816.8 °F (436 °C) estimated
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Other information</b>	
<b>Specific gravity</b>	1.1

## 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>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Avoid temperatures exceeding the flash point. Contact with incompatible materials.
<b>Incompatible materials</b>	Peroxides. Phenols.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Ingestion</b>	Expected to be a low ingestion hazard.
<b>Inhalation</b>	Prolonged inhalation may be harmful.
<b>Skin contact</b>	Causes skin irritation.
<b>Eye contact</b>	Causes severe eye burns.

**Symptoms related to the physical, chemical and toxicological characteristics**

Direct contact with eyes may cause temporary irritation.

**Information on toxicological effects****Acute toxicity**

<b>Product</b>	<b>Species</b>	<b>Test Results</b>
PENNCOAT 221 HARDENER (CAS Mixture)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	5648.0947 mg/kg estimated
	Rat	47497.3359 mg/kg estimated
<i>Inhalation</i>		
LC50	Rat	4733.3247 mg/l, 8 Hours estimated
<i>Oral</i>		
LD50	Cat	7.0998 g/kg estimated
	Dog	35.4988 g/kg estimated
	Mouse	5379.7979 mg/kg estimated
	Rabbit	9182.6494 mg/kg estimated
	Rat	3453.6152 mg/kg estimated
<i>Other</i>		
LD50	Mouse	2872.3557 mg/kg estimated
	Rat	1421.5701 mg/kg estimated

<b>Components</b>	<b>Species</b>	<b>Test Results</b>
BENZENE, HYDROXY- (CAS 108-95-2)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	850 mg/kg
	Rat	669 mg/kg
<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
BENZYL ALCOHOL (CAS 100-51-6)		
<b>Acute</b>		
<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

Components	Species	Test Results
NONYLPHENOL (CAS 25154-52-3)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	2140 mg/kg
<i>Oral</i>		
LD50	Rat	1600 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** This product is not expected to cause skin sensitization.

**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.

**IARC Monographs. Overall Evaluation of Carcinogenicity**

BENZENE, HYDROXY- (CAS 108-95-2) 3 Not classifiable as to carcinogenicity to humans.

**US. OSHA Specially 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** Skin.

**Aspiration hazard** Not available.

**Chronic effects** Prolonged inhalation may be harmful.

**Further information** This product has no known adverse effect on human health.

**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
PENNCOAT 221 HARDENER (CAS Mixture)		
Crustacea	EC50	Daphnia
		1.0004 mg/l, 48 hours estimated
Fish	LC50	Fish
		2.5545 mg/l, 96 hours estimated

Components	Species	Test Results
3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE (CAS 2855-13-2)		
<b>Aquatic</b>		
Crustacea	EC50	Water flea (Daphnia magna)
		14.6 - 21.5 mg/l, 48 hours
BENZENE, HYDROXY- (CAS 108-95-2)		
<b>Aquatic</b>		
Crustacea	EC50	Water flea (Daphnia obtusa)
		4.7 - 6.4 mg/l, 48 hours
Fish	LC50	Asiatic knifefish (Notopterus notopterus)
		8 - 8.25 mg/l, 96 hours
BENZYL ALCOHOL (CAS 100-51-6)		
<b>Aquatic</b>		
Fish	LC50	Bluegill (Lepomis macrochirus)
		10 mg/l, 96 hours
NONYLPHENOL (CAS 25154-52-3)		
<b>Aquatic</b>		
Crustacea	EC50	Water flea (Daphnia magna)
		0.076 - 0.0946 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)
		0.098 - 0.187 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)**

BENZENE, HYDROXY-	1.46
BENZYL ALCOHOL	1.1
NONYLPHENOL	5.71

**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** Collect and reclaim or dispose in sealed containers at licensed waste disposal site.

**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.

**US RCRA Hazardous Waste U List: Reference**

BENZENE, HYDROXY- (CAS 108-95-2)	U188
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**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

<b>UN number</b>	UN2735
<b>UN proper shipping name</b>	Amines, liquid, corrosive, n.o.s, or Polyamines, liquid, corrosive, n.o.s. (3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE), MARINE POLLUTANT
<b>Transport hazard class(es)</b>	
<b>Class</b>	8
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	8
<b>Packing group</b>	III
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	Yes
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Special provisions</b>	A3, A6, B10, N34, T14, TP2, TP27
<b>Packaging exceptions</b>	None
<b>Packaging non bulk</b>	201
<b>Packaging bulk</b>	243

#### IATA

<b>UN number</b>	UN2735
<b>UN proper shipping name</b>	Amines, liquid, corrosive, n.o.s. (3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE)
<b>Transport hazard class(es)</b>	
<b>Class</b>	8
<b>Subsidiary risk</b>	-
<b>Packing group</b>	III
<b>Environmental hazards</b>	No.
<b>ERG Code</b>	8L
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Other information</b>	
<b>Passenger and cargo aircraft</b>	Allowed.
<b>Cargo aircraft only</b>	Allowed.

#### IMDG

<b>UN number</b>	UN2735
<b>UN proper shipping name</b>	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S. (3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE)
<b>Transport hazard class(es)</b>	
<b>Class</b>	8

<b>Subsidiary risk</b>	-
<b>Packing group</b>	III
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	Yes
<b>EmS</b>	F-A, S-B
<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.

**DOT**



**IATA; IMDG**



**Marine pollutant**



## 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)**

BENZENE, HYDROXY- (CAS 108-95-2) Listed.

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

BENZENE, HYDROXY- (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)**

<b>Hazard categories</b>	Immediate Hazard - Yes
	Delayed Hazard - Yes
	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
BENZENE, HYDROXY-	108-95-2	1000		500 lbs	10000 lbs
<b>SARA 311/312 Hazardous chemical</b>	No				
<b>SARA 313 (TRI reporting)</b>					
Chemical name	CAS number	% by wt.			
BENZENE, HYDROXY-	108-95-2	1 - 3			

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

BENZENE, HYDROXY- (CAS 108-95-2)

**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 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**

BENZENE, HYDROXY- (CAS 108-95-2)

BENZYL ALCOHOL (CAS 100-51-6)

NONYLPHENOL (CAS 25154-52-3)

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

BENZENE, HYDROXY- (CAS 108-95-2) 500 LBS

**US. Pennsylvania RTK - Hazardous Substances**

BENZENE, HYDROXY- (CAS 108-95-2)

BENZYL ALCOHOL (CAS 100-51-6)

NONYLPHENOL (CAS 25154-52-3)

**US. Rhode Island RTK**

BENZENE, HYDROXY- (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.

**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
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**

<b>Issue date</b>	06-19-2015
<b>Revision date</b>	01-19-2016
<b>Version #</b>	02

**Disclaimer**

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  
Toxicological Information: Toxicological Data  
GHS: Classification