SAFETY DATA SHEET

1. Identification

Product identifier	**PENNCOAT 221 HARDENER**
Other means of identification	None.
Recommended use	Corrosion Engineering
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name	ErgonArmor, a division of Ergon Asphalt & Emulsions, Inc.
Address	2829 Lakeland Drive Jackson, MS 39232 USA
After hours telephone number	1-800-222-7122
Normal work hours telephone number	1-877-982-7667
Website	www.ergonarmor.com
E-mail	sds@ergon.com
Emergency 24-hour telephone number	CHEMTREC: North America 1-800-424-9300 International 1-800-527-3887
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 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
Environmental hazards	Not classified.	
OSHA defined hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	Harmful if inhaled. Causes severe skin burns and eye damage. Harmful in contact with skin. Harmful if swallowed. May cause an allergic skin reaction.

Precautionary statement

Prevention	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.

Response	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.
Storage	Store away from incompatible materials. 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	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

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

5. Fire-fighting measures

Suitable extinguishing media	Water fog. 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	During fire, gases hazardous to health may be formed:
Special protective equipment and precautions for firefighters	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.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
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. 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.

Methods and materials for containment and cleaning up

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. Prevent entry into waterways, sewer, basements or confined areas.

Environmental precautions

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.

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/m3
		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/m3
		15.6 ppm
	TWA	19 mg/m3
		5 ppm

US. 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

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).

Skin protection

Hand protection Wear protective gloves.

Other Wear appropriate chemical resistant clothing.

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

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations 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 Liquid.

Physical state Liquid.

Form Liquid.

Color Light yellow

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

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

Specific gravity 1.1

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 temperatures exceeding the flash point. Contact with incompatible materials.

Incompatible materials Peroxides. Phenols.

Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation Prolonged inhalation may be harmful.

Skin contact Causes skin irritation.

Eye contact Causes severe eye burns.

Ingestion Expected to be a low ingestion hazard.

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
BENZYL ALCOHOL (CAS 100-51-6)		
Acute		
Dermal		
LD50	Rabbit	2000 mg/kg
Inhalation		
LC50	Rat	1000 mg/l, 8 Hours
NONYLPHENOL (CAS 25154-52-3)		
Acute		
Dermal		
LD50	Rabbit	2140 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.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

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			
Aquatic			
Crustacea	EC50	Daphnia	1.0002 mg/l, 48 hours estimated
Fish	LC50	Fish	2.5539 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
BENZENE, HYDROXY- (CAS 108-95-2)			
Aquatic			
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)			
Aquatic			
Fish	LC50	Bluegill (Lepomis macrochirus)	10 mg/l, 96 hours
NONYLPHENOL (CAS 25154-52-3)			
Aquatic			
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.

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

UN number	UN2735
UN proper shipping name	Amines, liquid, corrosive, n.o.s, or Polyamines, liquid, corrosive, n.o.s. (3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE), 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	A3, A6, B10, N34, T14, TP2, TP27
Packaging exceptions	None
Packaging non bulk	201
Packaging bulk	243

IATA

UN number	UN2735
UN proper shipping name	Amines, liquid, corrosive, n.o.s. (3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE)
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	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S. (3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE), 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	Not available.

DOT

IATA; IMDG

Marine pollutant

General information DOT Regulated Marine Pollutant. IMDG Regulated 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)

NONYLPHENOL (CAS 25154-52-3) 1.0 % One-Time Export Notification only.

TSCA Chemical Action Plans, Chemicals of Concern

NONYLPHENOL (CAS 25154-52-3) Nonylphenol (NP) and Nonylphenol Ethoxylates (NPEs) Action Plan

CERCLA Hazardous Substance List (40 CFR 302.4)

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

SARA 304 Emergency release notification

BENZENE, HYDROXY- (CAS 108-95-2) 1000 LBS

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity (pounds)	Threshold planning quantity (pounds)	Threshold planning quantity, lower value (pounds)	Threshold planning quantity, upper value (pounds)
BENZENE, HYDROXY-	108-95-2	1000		500	10000

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)

Chemical name	CAS number	% by wt.
BENZENE, HYDROXY-	108-95-2	1 - 3
NONYLPHENOL	25154-52-3	5 - 20

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.

FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace

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

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.

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.

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

BENZENE, HYDROXY- (CAS 108-95-2)
NONYLPHENOL (CAS 25154-52-3)

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 06-19-2015

Revision date 07-29-2019

Version # 03

NFPA ratings Health: 4
Flammability: 0
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

Hazard(s) identification: Response
Hazard(s) identification: Hazard statement
Hazard(s) identification: Supplemental information
Fire-fighting measures: Specific hazards arising from the chemical
Other information, including date of preparation or last revision: Disclaimer
GHS: Classification