SAFETY DATA SHEET

1. Identification

Product identifier	**PENNCOAT™ 332 DARK GRAY RESIN**
Other means of identification	None.
Recommended use	Chemical Resistant Lining
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: 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 3
Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2
	Sensitization, skin	Category 1
	Germ cell mutagenicity	Category 1
	Carcinogenicity	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 Flammable liquid and vapor. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May cause genetic defects. May cause cancer. Causes damage to organs through prolonged or repeated exposure.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing must not be allowed out of the workplace.

Response	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/attention. Specific treatment see Section 4 of this SDS. If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media to extinguish. Get medical advice/attention if you feel unwell.
Storage	Store in a well-ventilated place. Keep cool. 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	%
STYRENE		100-42-5	20 - 50
METHACRYLIC ACID		79-41-4	1 - 5
MICROCRYSTALLINE SILICA		14808-60-7	0. 1 - 1
AROMATIC 100 - 7.29		64742-95-6	0.185 - 0.195
COBALT(II) 2-ETHYLHEXANOATE		136-52-7	0.080 - 0.125
ETHYLBENZENE		100-41-4	0.080 - 0.105
Other components below reportable levels			61.06

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Call a physician if symptoms develop or persist.
Skin contact	Wash off with soap and water. Take off immediately all contaminated clothing. Wash clothing separately before reuse. Get medical attention if irritation develops and persists.
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. Get medical attention immediately.
Ingestion	Rinse mouth. Do not induce vomiting. Never give liquid to an unconscious person. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical attention.
Most important symptoms/effects, acute and delayed	Skin irritation. Irritating to mouth, throat, and stomach. Contact may cause redness, burning, drying, and cracking of the skin, and skin damage. Causes serious eye irritation. May cause an allergic skin reaction.
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	Keep victim warm. Keep victim under observation. 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 spray. Foam. Dry chemical. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards arising from the chemical	Fire may produce irritating, corrosive and/or toxic gases.
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. Structural firefighters protective clothing will only provide limited protection.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk. In the event of fire, cool tanks with water spray. Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Eliminate all sources of ignition. Keep unnecessary personnel away. Ensure adequate ventilation. Do not breathe mist or vapor. Keep people away from and upwind of spill/leak. Do not touch or walk through spilled material. 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

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area).

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.

Environmental precautions

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. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid contact with eyes, skin, and clothing. When using do not eat or drink. Avoid breathing dust/fume/gas/mist/vapors/spray. Take precautionary measures against static discharges. Use explosion-proof equipment. Flammable vapors may accumulate in the container. Floors, walls and other surfaces in the hazard area must be cleaned regularly. Use non-sparking tools. Ground/bond container and receiving equipment. Avoid prolonged exposure. Observe good industrial hygiene practices. Provide adequate ventilation. Wash thoroughly after handling. Wash contaminated clothing before reuse.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep containers tightly closed. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in cool place. Keep container in a well-ventilated place.

8. Exposure controls/personal protection

Occupational exposure limits

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

Components	Type	Value	Form
ETHYLBENZENE (CAS 100-41-4)	PEL	435 mg/m3	
		100 ppm	
MICROCRYSTALLINE SILICA (CAS 14808-60-7)	PEL	0.05 mg/m3	Respirable dust.

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value
STYRENE (CAS 100-42-5)	Ceiling	200 ppm
	TWA	100 ppm

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value	Form
MICROCRYSTALLINE SILICA (CAS 14808-60-7)	TWA	0.1 mg/m3	Respirable.
		2.4 mppcf	Respirable.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
COBALT(II) 2-ETHYLHEXANOATE (CAS 136-52-7)	TWA	0.02 mg/m3	Inhalable fraction.
ETHYLBENZENE (CAS 100-41-4)	TWA	20 ppm	

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
METHACRYLIC ACID (CAS 79-41-4)	TWA	20 ppm	
MICROCRYSTALLINE SILICA (CAS 14808-60-7)	TWA	0.025 mg/m3	Respirable fraction.
STYRENE (CAS 100-42-5)	STEL	20 ppm	
	TWA	10 ppm	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
ETHYLBENZENE (CAS 100-41-4)	STEL	545 mg/m3	
		125 ppm	
	TWA	435 mg/m3	
		100 ppm	
METHACRYLIC ACID (CAS 79-41-4)	TWA	70 mg/m3	
		20 ppm	
MICROCRYSTALLINE SILICA (CAS 14808-60-7)	TWA	0.05 mg/m3	Respirable dust.
STYRENE (CAS 100-42-5)	STEL	425 mg/m3	
		100 ppm	
	TWA	215 mg/m3	
		50 ppm	

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
COBALT(II) 2-ETHYLHEXANOATE (CAS 136-52-7)	15 µg/l	Cobalt	Urine	*
ETHYLBENZENE (CAS 100-41-4)	0.15 g/g	Sum of mandelic acid and phenylglyoxylic acid	Creatinine in urine	*
STYRENE (CAS 100-42-5)	40 µg/l	Styrene	Urine	*
	400 mg/g	Mandelic acid plus phenylglyoxylic acid	Creatinine in urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

METHACRYLIC ACID (CAS 79-41-4)	Can be absorbed through the skin.
STYRENE (CAS 100-42-5)	Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

STYRENE (CAS 100-42-5)	Skin designation applies.

US - Tennessee OELs: Skin designation

METHACRYLIC ACID (CAS 79-41-4)	Can be absorbed through the skin.

US NIOSH Pocket Guide to Chemical Hazards: Skin designation

METHACRYLIC ACID (CAS 79-41-4)	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 safety glasses with side shields (or goggles).

Skin protection	
Hand protection	Wear protective gloves.
Other	Wear appropriate chemical resistant clothing.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
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	
Physical state	Liquid.
Form	Liquid.
Color	Gray
Odor	Not available.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	84.9 °F (29.4 °C)
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
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	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	9.82 lb/gal

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	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	None known.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

Information on likely routes of exposure	
Inhalation	Prolonged inhalation may be harmful.

Skin contact Causes skin irritation. May cause an allergic skin reaction.

Eye contact Causes serious eye irritation.

Ingestion Expected to be a low ingestion hazard. However, ingestion is not likely to be a primary route of occupational exposure.

Symptoms related to the physical, chemical and toxicological characteristics Causes serious eye irritation. Exposed individuals may experience eye tearing, redness, and discomfort. May cause an allergic skin reaction. Dermatitis. Skin irritation.

Information on toxicological effects

Acute toxicity

Components	Species	Test Results
ETHYLBENZENE (CAS 100-41-4)		
Acute		
Dermal		
LD50	Rabbit	17800 mg/kg
Oral		
LD50	Rat	3500 mg/kg
METHACRYLIC ACID (CAS 79-41-4)		
Acute		
Dermal		
LD50	Rabbit	500 mg/kg
Inhalation		
LC50	-	7.1 mg/l, 4 Hours
Oral		
LD50	Rat	1060 mg/kg
STYRENE (CAS 100-42-5)		
Acute		
Oral		
LD50	Rat	1 g/kg

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation May cause eye irritation.

Respiratory or skin sensitization

ACGIH sensitization

Cobalt and inorganic compounds, inhalable fraction, as Co (CAS 136-52-7)	Dermal sensitization
	Respiratory sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization May cause an allergic skin reaction.

Germ cell mutagenicity May cause genetic defects.

Carcinogenicity May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

AROMATIC 100 - 7.29 (CAS 64742-95-6)	3 Not classifiable as to carcinogenicity to humans.
ETHYLBENZENE (CAS 100-41-4)	2B Possibly carcinogenic to humans.
MICROCRYSTALLINE SILICA (CAS 14808-60-7)	1 Carcinogenic to humans.
STYRENE (CAS 100-42-5)	2A Probably carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

MICROCRYSTALLINE SILICA (CAS 14808-60-7)	Cancer

US. National Toxicology Program (NTP) Report on Carcinogens

COBALT(II) 2-ETHYLHEXANOATE (CAS 136-52-7)	Reasonably Anticipated to be a Human Carcinogen.
MICROCRYSTALLINE SILICA (CAS 14808-60-7)	Known To Be Human Carcinogen.
STYRENE (CAS 100-42-5)	Reasonably Anticipated to be a Human Carcinogen.

Reproductive toxicity Not available.

Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	Not an aspiration hazard.
Chronic effects	Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity Not expected to be harmful to aquatic organisms.

Product		**Species**	**Test Results**
PENNCOAT™ 332 DARK GRAY RESIN			
Aquatic			
Fish	LC50	Fish	76.195, 96 hours
Acute			
Crustacea	EC50	Daphnia	1522.2222, 48 hours estimated
Fish	LC50	Fish	14.5281, 96 hours estimated
Components		**Species**	**Test Results**
ETHYLBENZENE (CAS 100-41-4)			
Aquatic			
Acute			
Crustacea	EC50	Water flea (Daphnia magna)	>= 1.37 - <= 4.4 mg/l, 48 hours
Fish	LC50	Atlantic silverside (Menidia menidia)	>= 4.4 - <= 5.7 mg/l, 96 hours
STYRENE (CAS 100-42-5)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia)	42, 24 hours
Acute			
Fish	LC50	Sheepshead minnow (Cyprinodon variegatus)	>= 5.1 - <= 16 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)

ETHYLBENZENE	3.15
METHACRYLIC ACID	0.93
STYRENE	2.95

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	UN1263
UN proper shipping name	Paint related material including paint thinning, drying, removing, or reducing compound

Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	III
Special precautions for user	Not available.
Special provisions	B1, B52, IB3, T2, TP1, TP29
Packaging exceptions	150
Packaging non bulk	173
Packaging bulk	242

IATA

UN number	UN1263
UN proper shipping name	Paint related material (including paint thinning or reducing compounds)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	III
Environmental hazards	No.
ERG Code	3L
Special precautions for user	Not available.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

IMDG

UN number	UN1263
UN proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-E
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

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)

COBALT(II) 2-ETHYLHEXANOATE (CAS 136-52-7)	Listed.
ETHYLBENZENE (CAS 100-41-4)	Listed.
STYRENE (CAS 100-42-5)	Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

MICROCRYSTALLINE SILICA (CAS 14808-60-7)	Cancer lung effects immune system effects kidney effects

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories
Flammable (gases, aerosols, liquids, or solids)
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitization
Germ cell mutagenicity
Carcinogenicity
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
STYRENE	100-42-5	20 - 50

Other federal regulations

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

COBALT(II) 2-ETHYLHEXANOATE (CAS 136-52-7)
ETHYLBENZENE (CAS 100-41-4)
STYRENE (CAS 100-42-5)

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

STYRENE (CAS 100-42-5)	Other Flavoring Substances with OSHA PEL's

US state regulations

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

AROMATIC 100 - 7.29 (CAS 64742-95-6)
COBALT(II) 2-ETHYLHEXANOATE (CAS 136-52-7)

ETHYLBENZENE (CAS 100-41-4)
MICROCRYSTALLINE SILICA (CAS 14808-60-7)
STYRENE (CAS 100-42-5)

California Proposition 65

WARNING: WARNING: This product contains a chemical known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance

ETHYLBENZENE (CAS 100-41-4)	Listed: June 11, 2004
MICROCRYSTALLINE SILICA (CAS 14808-60-7)	Listed: October 1, 1988
STYRENE (CAS 100-42-5)	Listed: April 22, 2016

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 05-25-2023

Version # 01

NFPA ratings Health: 2
Flammability: 3
Instability: 0

Disclaimer The information in the sheet was written based on the best knowledge and experience currently available.