

1. Identification

Product identifier	PENNACHEM™ RESIN
Other means of identification	None.
Recommended use	Not available.
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: +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 3
Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	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. Causes serious eye irritation. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure.
Precautionary statement	
Prevention	Do not breathe dust/fume/gas/mist/vapors/spray. 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. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Observe good industrial hygiene practices.

Response	IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Specific treatment see Section 4 of this SDS. Get medical advice/attention if you feel unwell. Specific treatment (see this label). Take off contaminated clothing and wash it before reuse. In case of fire: Use appropriate media to extinguish.
Storage	Store in a well-ventilated place. Keep container tightly closed. 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	%
PROPRIETARY INGREDIENTS		N/A	55 - 75
STYRENE		100-42-5	25 - 45
Other components below reportable levels			1.88

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell. Oxygen or artificial respiration if needed.
Skin contact	Wash with plenty of soap and water. Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.
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 if irritation develops and persists.
Ingestion	Rinse mouth. Never give anything by mouth to a victim who is unconscious or is having convulsions. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Headache. Dizziness. Nausea, vomiting. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Irritating to mouth, throat, and stomach. Shortness of breath. Skin irritation. May cause redness and pain. Prolonged exposure may cause chronic effects.
Indication of immediate medical attention and special treatment needed	Treat symptomatically. Symptoms may be delayed.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Alcohol resistant foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Fire may produce irritating, corrosive and/or toxic gases. During fire, gases hazardous to health may be formed. Dust may form explosive mixture with air. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Vapors may accumulate in low or confined areas.
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.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Self-contained breathing apparatus and full protective clothing must be worn in case of fire. In the event of fire and/or explosion do not breathe fumes.
General fire hazards	Flammable liquid and vapor.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Do not breathe mist/vapors. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Keep unnecessary personnel away. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). 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. Wear appropriate personal protective equipment. 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). Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Cover with plastic sheet to prevent spreading. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS.

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 release to the environment. Avoid discharge into drains, water courses or onto the ground. Prevent further leakage or spillage if safe to do so.

7. Handling and storage

Precautions for safe handling

Avoid breathing dust/fume/gas/mist/vapors/spray. Provide adequate ventilation. Observe good industrial hygiene practices. Take precautionary measures against static discharges. Keep away from sources of ignition - No smoking. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Wear personal protective equipment. Do not empty into drains. Wash hands thoroughly after handling. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in tightly closed container. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Keep away from heat and sources of ignition. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

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

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

US. ACGIH Threshold Limit Values

Components	Type	Value
STYRENE (CAS 100-42-5)	STEL	20 ppm
	TWA	10 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
STYRENE (CAS 100-42-5)	STEL	425 mg/m ³
	TWA	100 ppm

Components	Type	Value
STYRENE (CAS 100-42-5)	STEL	215 mg/m ³
	TWA	50 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
STYRENE (CAS 100-42-5)	40 µg/l	Styrene	Urine	*

ACGIH Biological Exposure Indices**Components****Value****Determinant****Specimen****Sampling Time**

400 mg/g

Mandelic acid
plus
phenylglyoxylic
acidCreatinine in
urine

*

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

Exposure guidelines**US - California OELs: Skin designation**

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.

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; chemical goggles (if splashing is possible).

Skin protection**Hand protection**

Wear appropriate chemical resistant gloves.

OtherWear appropriate chemical resistant clothing. Use of an impervious apron is recommended.
Impervious 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**

Yellow Liquid.

Physical state

Liquid.

Form

Liquid.

Color

Yellow

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 point93.9 °F (34.4 °C) estimated
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	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

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. Hazardous polymerization can occur.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Contact with incompatible materials. Avoid temperatures exceeding the flash point. Exposure to air. Sunlight.
Incompatible materials	Strong acids. Bases. Strong oxidizing agents. Oxidizing agents. Aluminum. Amines. Halogens. Peroxides. Peroxides. Aluminum chlorides. Copper and copper alloys. Iron chloride. Metal salts.
Hazardous decomposition products	Hydrocarbons. Carbon dioxide. Carbon monoxide. Acrylic monomers.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye damage.
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	Irritating to eyes, respiratory system and skin. Exposure may cause temporary irritation, redness, or discomfort. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Irritating to mouth, throat, and stomach. May cause respiratory irritation. Shortness of breathe.
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Information on toxicological effects

Acute toxicity	Not known.
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Product	Species	Test Results
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PENNCHM™ RESIN

Acute		
Dermal		
LD50	Rabbit	42370 mg/kg
Inhalation		
LC50	Rat	65 mg/l, 4 Hours
Oral		
LD50	Rat	3 g/kg

Components	Species	Test Results
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STYRENE (CAS 100-42-5)

Acute		
Oral		
LD50	Rat	1 g/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 serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization	Not classified.
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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	Risk of cancer cannot be excluded with prolonged exposure.
IARC Monographs. Overall Evaluation of Carcinogenicity	
STYRENE (CAS 100-42-5)	2A Probably carcinogenic to humans.
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)	
Not listed.	
US. National Toxicology Program (NTP) Report on Carcinogens	
STYRENE (CAS 100-42-5)	Reasonably Anticipated to be a Human Carcinogen.
Reproductive toxicity	Not classified.
Specific target organ toxicity - single exposure	May cause respiratory irritation.
Specific target organ toxicity - repeated exposure	Causes damage to organs through prolonged or repeated exposure. Auditory organs.
Aspiration hazard	Not classified.
Chronic effects	Causes damage to organs through prolonged or repeated exposure. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity 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.

Product	Species	Test Results
PENNACHEM™ RESIN		
Aquatic		
Fish	LC50	Fish 92.2221, 96 hours
<i>Acute</i>		
Crustacea	EC50	Daphnia 1000, 48 hours estimated
Fish	LC50	Fish 15.5761, 96 hours estimated
Components	Species	Test Results
STYRENE (CAS 100-42-5)		
Aquatic		
Crustacea	EC50	Water flea (Daphnia) 42, 24 hours
<i>Acute</i>		
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)

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. Dispose of contents/container in accordance with local/regional/national/international regulations. Do not allow this material to drain into sewers/water supplies.
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	UN1866
UN proper shipping name	Resin solution, flammable
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	III
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	B1, B52, IB3, T2, TP1
Packaging exceptions	150
Packaging non bulk	173
Packaging bulk	242

IATA

UN number	UN1866
UN proper shipping name	Resin solution flammable
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	III
Environmental hazards	No.
ERG Code	3L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

IMDG

UN number	UN1866
UN proper shipping name	RESIN SOLUTION flammable
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	III
Environmental hazards	No.
Marine pollutant	F-E, S-E
EmS	
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Not established.

Annex II of MARPOL 73/78 and the IBC Code

DOT





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.

Toxic Substances Control Act (TSCA) One or more components of the mixture are not on the TSCA 8(b) inventory or are designated "inactive".

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

STYRENE (CAS 100-42-5) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

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
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
STYRENE	100-42-5	25 - 45

Other federal regulations

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

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) Contains component(s) regulated under the Safe Drinking Water Act.

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))

STYRENE (CAS 100-42-5)

California Proposition 65



WARNING: WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance

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 09-21-2022

Revision date 09-05-2023

Version # 04

NFPA ratings
Health: 2
Flammability: 3
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. Ergon Armor cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

Revision information

This document has undergone significant changes and should be reviewed in its entirety.