AR-196 Resin

SECTION 1. IDENTIFICATION

Product Identifier	AR-196 Resin
Other Means of Identification	Mortar Resin
Product Family	Vinyl Ester Resin
Recommended Use	Mixed with another component to form a corrosion-resistant mortar.
Restrictions on Use	None known.
Manufacturer/Supplier Identifier	The Stebbins Engineering and Manufacturing Company, 363 Eastern Boulevard, Watertown, NY, 13601, (315) 782-3000, www.stebbinseng.com
Emergency Phone No.	Chemtrec - Within North America, 1-800-424-9300, 24 hours Stebbins 24 Hour Contact-, 1-315-788-6624
SDS No.	001

SECTION 2. HAZARD IDENTIFICATION

Classified according to Canada's Hazardous Products Regulations (WHMIS 2015) and the US Hazard Communication Standard (HCS 2012).

Classification

Flammable liquid - Category 3; Combustible dust - Category 1; Skin irritation - Category 2; Eye irritation - Category 2A; Skin sensitization - Category 1B; Specific target organ toxicity (single exposure) - Category 3; Specific target organ toxicity (repeated exposure) - Category 1; Aquatic hazard (Acute) - Category 2

Label Elements

Signal Word:
Danger

Hazard Statement(s):
H226 Flammable liquid and vapour.
May form combustible dust concentrations in air.
May become electrostatically charged.
Sparks may ignite liquid and vapour.
Hazardous polymerization may occur.
H313 + H333 May be harmful in contact with skin or if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H372 Causes damage to organs through prolonged or repeated exposure.

Precautionary Statement(s):

Prevention:
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, sparks, open flames, and hot surfaces. – No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P242 Use only non-sparking tools.
P241 Use explosion-proof electrical/ventilating/lighting//equipment.
P243 Take precautionary measures against static discharge.
P260 Do not breathe vapours.
P264 Wash hands and skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of water.
P332 + P313 If skin irritation occurs: Get medical advice/attention.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P314 Get medical advice/attention if you feel unwell.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P370 + P378 In case of fire: Use dry chemical powder, appropriate foam to extinguish.
Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
Disposal:
P501 Dispose of contents and container in accordance with local, regional, national and international regulations.
Static Accumulating Liquid

Other Hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture:

Chemical Name	CAS No.	%	Other Identifiers	Other Names
Vinyl Ester Resin	CBI	55 - 60 %	None	vinyl ester
Styrene	100-42-5	40 - 45 %	None	Styrene Monomer
N,N-DIETHYLANILINE	91-66-7	0.1 - 1 %	None	Diethylaniline Benzenamine

Notes

Chemical nature: Static Accumulator

CBI = Confidential Business Information.
**This ingredient is a component of the complex mixture.
Vinyl Ester Resin: Not Classified under any Hazard Classification.

*The actual concentration or concentration range is withheld as a trade secret.

Concentrations are expressed in % weight/weight.

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

Move to fresh air. Keep victim calm and warm. Call a Poison Centre or doctor if you feel unwell. Get medical advice or attention if you feel unwell or are concerned.

Skin Contact

Take off contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Wash gently and thoroughly with lukewarm, gently flowing water and mild soap for 5 minutes. Get medical advice or attention if you feel unwell or are concerned. Thoroughly clean clothing, shoes and leather goods before reuse or dispose of safely.

Eye Contact

Remove contact lenses, if present and easy to do. Rinse the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes, while holding the eyelid(s) open. If eye irritation persists, get medical advice or attention.

Ingestion

Rinse mouth with water. Do not give milk or alcoholic beverages. Never give anything by mouth if person is rapidly losing consciousness, or is unconscious or convulsing. Do not induce vomiting. Get medical advice or attention if you feel unwell or are concerned.

First-aid Comments

Get medical advice or attention if you feel unwell or are concerned.

Most Important Symptoms and Effects, Acute and Delayed

Signs and symptoms of exposure to this material may include: if inhaled and/or swallowed and/or on skin: at high concentrations can irritate the nose and throat. May cause respiratory irritation. Symptoms may include headache, nausea, dizziness, drowsiness and confusion. Symptoms may include nausea, vomiting, stomach cramps and diarrhea. Can irritate the nose and throat. In rare cases, may cause an allergic skin reaction. May cause mild irritation.

Immediate Medical Attention and Special Treatment

Target Organs

Respiratory system, skin.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

If dust is generated, dust can combust. Carbon dioxide, dry chemical powder, appropriate foam, water spray or fog.

Unsuitable Extinguishing Media

Do not use water jet.

Specific Hazards Arising from the Product

Combustible dust. May form combustible dust concentration in air. Can ignite if strongly heated. Can be ignited by static discharge. May accumulate in hazardous amounts in low-lying areas especially inside confined spaces, resulting in a fire hazard. Closed containers may rupture violently when heated releasing contents. Heating increases the release of toxic vapour.
In a fire, the following hazardous materials may be generated: very toxic carbon monoxide, carbon dioxide; irritating chemicals; toxic chemicals.

Special Protective Equipment and Precautions for Fire-fighters

In the event of fire, wear self-contained breathing apparatus. Approach fire from upwind to avoid hazardous vapours or gases. Polymerization will take place under fire conditions. If polymerization occurs in a closed container, there is a possibility it will rupture violently. Cool storage container with water, if exposed to fire.
Fire-fighters may enter the area if positive pressure SCBA and full Bunker Gear is worn.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Use the personal protective equipment recommended in Section 8 of this safety data sheet. Eliminate all ignition sources if safe to do so. May accumulate in hazardous amounts in low-lying areas especially inside confined spaces, if ventilation is

not sufficient.

Environmental Precautions

It is good practice to prevent releases into the environment. If the spill is inside a building, prevent product from entering drains, ventilation systems and confined areas.

Methods and Materials for Containment and Cleaning Up

Contain and soak up spill with absorbent that does not react with spilled product. Collect using shovel/scoop or approved HEPA vacuum and place in a suitable container for disposal. Place used absorbent into suitable, covered, labelled containers for disposal.

Other Information

Report spills to local health, safety and environmental authorities, as required.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Avoid breathing in this product. Do NOT eat, drink or store food in work areas. Do NOT smoke in work areas. Keep containers tightly closed when not in use or empty. Only use where there is adequate ventilation. Do not use at elevated temperatures without a thorough safety assessment. Electrically bond and ground equipment. Ground clips must contact bare metal. Wash hands thoroughly after handling this product and before eating, using the washroom or leaving work area. Do not get in eyes, on skin or on clothing. Only use where there is adequate ventilation. Avoid generating vapours or mists. Avoid release to the environment.

Conditions for Safe Storage

Store in an area that is: well-ventilated, dry, cool, out of direct sunlight and away from heat and ignition sources. Store between: 50°F (10°C) and 81°F (27°C).

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

	ACGIH TLV®		OSHA PEL		AIHA WEEL	
Chemical Name	**TWA**	**STEL**	**TWA**	**Ceiling**	**8-hr TWA**	**TWA**
Styrene	20 ppm	40 ppm	100 ppm	200 ppm		

Canada:
British Columbia: 50 ppm, 8 hour TWA
Alberta: 50 ppm, 8 hour TWA
Quebec: 50 ppm, 8 hour TWA
Ontario: 50 mg/m^3, 8 hour TWA;
213 ppm, 15 minutes
Saskatchewan: 215 ppm, 15 minutes

Consult local authorities for provincial or state exposure limits.

STYRENE-Exposure-Permissible Concentration-Basis
TWA - 20 ppm (85 mg/m3) - CA AB OEL
STEL - 85 ppm (170 mg/m3) - CA AB OEL
TWA - 20 ppm - CA BC OEL
STEL - 40 ppm - CA BC OEL
TWA - 35 ppm - CA ON OEL
STEL - 100 ppm - CA ON OEL
STEV - 100 ppm (426 mg/m3) - CA QC OEL
TWAEV - 50 ppm (213 mg/m3) - CA QC OEL

TLV® = Threshold Limit Value. TWA = Time-Weighted Average. STEL = Short-term Exposure Limit. PEL = Permissible Exposure Limits.

Appropriate Engineering Controls

Use non-sparking ventilation systems, approved explosion-proof equipment and intrinsically safe electrical systems in areas where this product is used and stored. Control static electricity discharges which includes bonding of equipment to ground. Use local exhaust ventilation and enclosure, if necessary, to control amount in the air.

Individual Protection Measures

Eye/Face Protection

Wear approved safety glasses. When there is potential for eye exposure to Liquid, vopor or mist, wear safety goggles.

Skin Protection

Cover as much exposed skin as possible. Hygiene measures wash hands before breaks and at the end of a workday. When using do not eat or drink. When using do not smoke.

Respiratory Protection

Wear a NIOSH approved air-purifying respirator with an organic vapour cartridge.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance	Clear yellow viscous liquid. Particle Size: Not applicable
Odour	Sweet
Odour Threshold	Not available
pH	~ 4.8
Melting Point/Freezing Point	Not available (melting); Not available (freezing)
Boiling point/Initial boiling point	294 ºF (146 ºC)
Boiling Range	Not available
Flash Point	84 ºF (29 ºC) (closed cup)
Evaporation Rate	> 1 (diethyl ether = 1)
Upper/Lower Flammability or Explosive Limit	6.1% (upper); 1.1% (lower)
Vapour Pressure	6.398 mm Hg (0.853 kPa) at 25 ºC (77 ºF)
Vapour Density (air = 1)	> 1
Relative Density (water = 1)	1.08 at 68 ºF (20 ºC)
Solubility	Insoluble in water; Not available (in other liquids)
Partition Coefficient, n-Octanol/Water (Log Kow)	Not available
Auto-ignition Temperature	914 ºF (490 ºC) (Styrene)
Decomposition Temperature	Not available
Viscosity	> 20.5 mm2/s (kinematic); Not available (dynamic)

Other Information

Physical State	Liquid	
Bulk Density	~ 67 lb/ft3 (1 kg/L)	
Other Physical Property 1	Flammability (solid, gas): (during processing).	May form combustuble dust concentrations in air
Other Physical Property 2	Flammability (Liquid):	Static accumulating liquid

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions of use. No Decomposition of: stored and applied as directed.

Chemical Stability

Normally stable.

Possibility of Hazardous Reactions

None expected under normal conditions of storage and use. May polymerize violently: With vapours and fine dust in sufficient concentrations, and in the presence of an ignition source. This may cause an explosion.

Conditions to Avoid

Open flames, sparks, static discharge, heat and other ignition sources. Sunlight. Prolonged storage. Prolonged exposure to high temperatures. >100°F (38°C).

Incompatible Materials

Avoid: strong acids (e.g. hydrochloric acid), organic acids (e.g. acetic acid), strong bases (e.g. sodium hydroxide), halogens (e.g. chlorine), oxidizing agents (e.g. peroxides), copper alloys, copper. Iron chloride, metal salts.

Hazardous Decomposition Products

Very toxic carbon monoxide, carbon dioxide; toxic chemicals; irritating chemicals.

SECTION 11. TOXICOLOGICAL INFORMATION

May be fatal by: ingestion.

Likely Routes of Exposure

Inhalation; skin contact; skin absorption; eye contact.

Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Styrene	~ 2,800 ppm (4-hour exposure) (vapour)	> 2,000 mg/kg (rat)	> 2,000 mg/kg (rat)
N,N-DIETHYLANILINE	1,920 mg/m3 (rat) (4-hour exposure) (vapour)	782 mg/kg (rat)	

LC50 (Inhalation)

LC50 in Humans:
No observed adverse effects
Level: 100 ppm
Exsposure time: 7 hrs.
Test atmosphere: vapor

LD50 (Oral)

> 2,000 mg/kg (rat)

LD50 (Dermal)

> 2,000 mg/kg (rat)
Method: OECD Test Guideline 402
Assessment: No adverse effect has been observed in accute dermal toxicity tests.

Skin Corrosion/Irritation

Human experience shows mild irritation.

Remarks: Repeated exposure may cause skin dryness or cracking. May cause skin irritation and/or dermatitis.

Serious Eye Damage/Irritation

May cause serious eye irritation based on information for closely related materials. The vapour also irritates the eyes.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

STOL - single exposure: may cause respiratory irritation.
A high concentration can displace oxygen in the air. If less oxygen is available to breathe, symptoms such as rapid breathing, rapid heart rate, clumsiness, emotional upsets and fatigue can result. As less oxygen becomes available, nausea and vomiting, collapse, convulsions, coma and death can occur. Symptoms occur more quickly with physical effort. Lack of oxygen can cause permanent damage to organs including the brain and heart. At high concentrations harmful effects on the liver, nose and throat irritation.

(Styrene) exposure route: inhalation (vapor)
Species: Guinea pig
Assessment: Does not cause respiratory sensitisation.
Results: negative.

Skin Absorption

(Styrene) can cause skin irritation. Abrasive. Causes dry, irritated skin.
Exposure route: Skin contact
Species: Guinea pig
Assessment: Does not cause skin sensitisation.
Results: negative
Species: Human
615 mg/kg
Application Route: Skin contact
Not classified skin sensitisation respiratory sensitisation not classified skin sensitisation.

Ingestion

Styrene:
It may be fatal if swallowed and enters the airways.

Aspiration Hazard

May be drawn into the lungs (aspirated) if swallowed or vomited.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

May cause harmful effects on the liver, irritation of the respiratory system. May cause respiratory tract injury. May cause effects on the central nervous system. May cause Symptoms may include dry, red, cracked skin (dermatitis).
At high concentrations may cause hearing loss. (Styrene) assessment: Causes damage to organs through prolonged or repeated exposure. Styrene: Exposure routes: inhalation (vapor)
Target Organs: Auditory system repeated dose toxicity
Components: Styrene:
Species: Human
85 mg/m3
Application Route: inhalation (vapor) species: Human
615 mg/mm3
Application route: Skin contact
May be fatal if swallowed and enters airways.

Respiratory and/or Skin Sensitization

Not a respiratory sensitizer. Not a skin sensitizer.

Carcinogenicity

California Proposition 65: Styrene has been tested for carcinogenicity in rats and mice. Styrene caused lung tumors in mice only. These tumors are not considered to be relevant to humans.

(Styrene) IARC: Group 2B – Possibly carcinogenic to humans. OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens. NTP: Reasonably anticipated human carcinogen.

Reproductive Toxicity

Development of Offspring

Not classified conclusions cannot be drawn from the limited studies available.

Sexual Function and Fertility

Does not cause effects on sexual function or fertility.

Effects on or via Lactation

Does not cause effects on or via lactation.

Germ Cell Mutagenicity

Not known to be a mutagen.

Interactive Effects

No information was located.

SECTION 12. ECOLOGICAL INFORMATION

This material should be considered toxic to aquatic organisms.

Ecotoxicity

Acute aquatic toxicity Category 2; Toxic to aquatic life

Long-term (chronic) aquatic hazard. (Styrene)
Toxicity to daphnia and other aquatic invertebrates
(Chronic toxicity)

Toxicity to bacteria EC50 (activated sludge): ca. 500 mg/l
Toxicity to soil dwelling organisms NOEC (Eisenia fetida (earthworms)): 34 mg/kg Exposure time: 14 days
Method: OECD Test Guideline 207.

Acute Aquatic Toxicity

Chemical Name	LC50 Fish	EC50 Crustacea	ErC50 Aquatic Plants	ErC50 Algae
Styrene	4.02-10 mg/L (Pimephales promelas (fathead minnow); 96-hour; flow-through)	4.7 mg/L (Daphnia magna (water flea); 48-hour; flow-through)		4.9 mg/L (Selenastrum capricornutum (algae); 72-hour)

Chronic Aquatic Toxicity

Chemical Name	NOEC Fish	EC50 Fish	NOEC Crustacea	EC50 Crustacea
Styrene	0.1-1.01 mg/L (Pimephales promelas (fathead minnow); fresh water)		1.01 mg/L (Daphnia magna (water flea); 21-day; fresh water; semi-static)	

Persistence and Degradability

(Styrene) Biodegradability: Readily Biodegradation: >60%, 10 days.

Bioaccumulative Potential

(Styrene) bio-concentration factor (BCF): <100 n-Octanol/Water Partition Coefficient (Log Kow): 2.96 77 F (25 C).

Mobility in Soil

(Styrene) Soil/water partition coefficient (Koc) 352.

Other Adverse Effects

(Styrene) product:
Additional ecological information:
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Toxic to aquatic life.

Results of PBT and vPvB assessment: components:
Styrene:
Results of PBT and vPvB assessment:
This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

Contact local environmental authorities for approved disposal or recycling methods in your jurisdiction.

SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
US DOT	UN1866	resin solution, flammable	3	III
IMO (Marine)	UN1866	resin solution, flammable	3	III
IATA (Air)	UN1866	resin solution, flammable	3	III
Canadian TDG	UN1866	resin solution, flammable	3	III

Environmental Hazards Not applicable

Special Precautions Not applicable

Transport in Bulk according to International Maritime Organization Instruments

Not applicable

Emergency Response Guide No. 127

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

All ingredients are listed on the DSL or are not required to be listed.

USA

Toxic Substances Control Act (TSCA) Section 8(b)

All ingredients are listed on the TSCA Inventory.

Additional USA Regulatory Lists

SARA Title III - Section 313: Styrene: > 40 < 45%
SARA Title III - Section 311/312: Reactivity Hazard Fire Hazard Acute Health Hazard Chronic Health Hazard
Massachusetts Right To Know:
New Jersey Right To Know:
Pennsylvania Right To Know:
California Proposition 65: WARNING: This product can expose you to chemicals including styrene, benzene, which is/are known to the State of California to cause cancer, and ethanediol, benzene, toluene, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov. cancer (Benzene) Reproductive harm: (Benzene) (Toluene)
CERCLA: 2304lb (Product) 1000 lbs. (Styrene)

Custom Regulatory 1

The components of this product are reported in the following inventories:
TSCA: On the inventory, or in compliance with the inventory
DSL: This product contains one or several components that are not on the Canadian DSL and have annual quantity limits.
AICS: On the inventory, or in compliance with the inventory
ENCS: On the inventory, or in compliance with the inventory
KECI: On the inventory, or in compliance with the inventory
PICCS: Not in compliance with the inventory
IECSC: On the inventory, or in compliance with the inventory
REACH: On the inventory, or in compliance with the inventory
NZIOC: On the inventory, or in compliance with the inventory
TCSI: On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

NFPA Rating	**Health - 2** **Flammability - 3** **Instability - 2**
	Based on Styrene
SDS Prepared By	B.E.R.
Phone No.	(315) 782-3000
Date of Preparation	January 29, 2016
Date of Last Revision	June 30, 2023
Revision Indicators	Revision 7 Updated: . Toxicological, Ecological, and Exposure Controls/Personal Protection Information SECTION 11. TOXICOLOGICAL INFORMATION; Carcinogenicity. SECTION 12. ECOLOGICAL INFORMATION; Acute Aquatic Toxicity; reviewed and approved
Key to Abbreviations	ACGIH® = American Conference of Governmental Industrial Hygienists HSDB® = Hazardous Substances Data Bank IARC = International Agency for Research on Cancer NFPA = National Fire Protection Association NIOSH = National Institute for Occupational Safety and Health NTP = National Toxicology Program OSHA = US Occupational Safety and Health Administration
References	CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS). HSDB® database. US National Library of Medicine. Available from Canadian Centre for Occupational Health and Safety (CCOHS). NIOSH Pocket Guide database. National Institute for Occupational Safety and Health. Available from Canadian Centre for Occupational Health and Safety (CCOHS). Registry of Toxic Effects of Chemical Substances (RTECS®) database. Dassault Systèmes/BIOVIA ("BIOVIA"). Available from Canadian Centre for Occupational Health and Safety (CCOHS).
Additional Information	HMIS Rating Health : 2* Flammability : 3 Reactivity : 2 * = Chronic
Disclaimer	NOTE: The information contained herein is, to the best of our knowledge, accurate and reliable. However, no warranty is expressed or implied regarding the accuracy of this information, or the results to be obtained from the use thereof.