

MATERIAL SAFETY DATA SHEET

Bulk

Ashland Chemical Co.

Page 001
 Date Prepared: 01/26/98
 Date Printed: 02/07/98
 MSDS No: 304.0301384-003.008

AROPOL MR 12018

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Health: 2
 Flammability: 3
 Reactivity: 1

Material Identity

Product Name: AROPOL MR 12018
 Product Code: 502206
 General or Generic ID: UNSATURATED POLYESTER RESIN

Company

Ashland Chemical Co.
 P.O. Box 2219
 Columbus, OH 43216
 614-790-3333

Emergency Telephone Number:

1-800-ASHLAND (1-800-274-5263)
 24 hours everyday

Regulatory Information Number:
 1-800-325-3751

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	% (by weight)
POLYESTER RESIN	Trade Secret	56.0- 61.0
STYRENE	100-42-5	39.0- 39.0
COLLOIDAL SILICA	112945-52-5	1.0- 4.0

3. HAZARDS IDENTIFICATION

Potential Health Effects

Eye

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin

Can cause skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, burns and other skin damage. Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

Swallowing

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

Inhalation

Breathing of vapor or mist is possible. Breathing aerosol and/or mist is possible when material is sprayed. Aerosol and mist may present a greater risk of injury because more material may be present in the air than from vapor alone. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms usually occur at air concentrations higher than the recommended exposure limits (See Section 8).

Continued on next page

MATERIAL SAFETY DATA SHEET

Ashland Chemical Co.

Page 002

Date Prepared: 01/25/98

Date Printed: 02/07/98

MSDS No: 304.0301384-003.008

AROPOL MR 12018

Symptoms of Exposure

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: metallic taste, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, loss of coordination, confusion, liver damage.

Target Organ Effects

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals, and may aggravate pre-existing disorders of these organs in humans: mild, reversible kidney effects, effects on hearing, respiratory tract damage (nose, throat, and airways), testis damage liver damage. Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans, and may aggravate pre-existing disorders of these organs: central nervous system effects, mild effects on color vision, effects on hearing, respiratory tract damage (nose, throat, and airways)

Developmental Information

This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

Cancer Information

In 1993, the International Agency for Research on Cancer (IARC) classified styrene in group 2B (possibly carcinogenic to humans). IARC concluded that there was no convincing evidence for carcinogenic action of styrene in animals based on the animal studies which existed at that time. Rather, the IARC 2B listing was based on data for styrene oxide, a metabolite of styrene. Two recent lifetime studies with styrene, one in rats and one in mice, have been completed since the 1993 review. There was no increase in cancer in styrene-exposed rats. However, there was an increase in lung cancer in styrene-exposed mice. The relevance of the mouse lung cancer to humans is uncertain. Styrene exposure has not been associated with an increased incidence of cancer in workers including those in the reinforced plastics and composites plastics industries.

Other Health Effects

Styrene readily reacts with low concentrations of halogens (for example, fluorine, chlorine, bromine, or iodine) to form a tear-producing substance.

Primary Route(s) of Entry

Inhalation, Skin absorption, Skin contact, Eye contact.

4. FIRST AID MEASURES

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Continued on next page

MATERIAL SAFETY DATA SHEET

Ashland Chemical Co.

Page 003
Date Prepared: 01/26/98
Date Printed: 02/07/98
MSDS No: 304.0301384-003.008

AROPOL MR 12018

Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

Swallowing

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Note to Physicians

This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 3 - Swallowing) when deciding whether to induce vomiting. Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: respiratory tract, skin, lung (for example, asthma-like conditions), liver, central nervous system, male reproductive system, auditory system.

5. FIRE FIGHTING MEASURES

Flash Point

73.0 - 100.0 F (22.7 - 37.7 C)

Explosive Limit

(for component) Lower 1.1 Upper 6.1 %

Autoignition Temperature

No data

Hazardous Products of Combustion

May form: carbon dioxide and carbon monoxide, various hydrocarbons.

Fire and Explosion Hazards

Vapors are heavier than air and may travel along the ground or may be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electric motors, static discharge, or other ignition sources at locations distant from material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.

Extinguishing Media

regular foam, water fog, carbon dioxide, dry chemical.

Fire Fighting Instructions

Wear a self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode with appropriate turn-out gear and chemical resistant personal protective equipment. Refer to the personal protective equipment section of this MSDS. 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.

Continued on next page

MATERIAL SAFETY DATA SHEET

Ashland Chemical Co.

Page 004
Date Prepared: 01/26/98
Date Printed: 02/07/98
MSDS No: 304.0301384-003.008

AROPOL MR 12018

NFPA Rating

Health - 2, Flammability - 3, Reactivity - 1

6. ACCIDENTAL RELEASE MEASURES

Small Spill

Absorb liquid on vermiculite, floor absorbent, or other absorbent material and transfer to hood.

Large Spill

Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. All five-gallon pails and larger metal containers, including tank cars and tank trucks, should be grounded and/or bonded when material is transferred.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection

Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

Skin Protection

Wear resistant gloves such as: polyvinyl alcohol, Wear normal work clothing covering arms and legs..

Respiratory Protections

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

Engineering Controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

Continued on next page

MATERIAL SAFETY DATA SHEET

Ashland Chemical Co.

Page 005
Date Prepared: 01/26/98
Date Printed: 02/07/98
MSDS No: 304.0301384-003.008

AROPOL MR 12018

Exposure Guidelines

Component

POLYESTER RESIN

No exposure limits established

STYRENE (100-42-5)

OSHA VPEL 50.000 ppm - TWA - (see below)

OSHA VPEL 100.000 ppm - STEL

ACGIH TLV 20.000 ppm - TWA (Skin)

ACGIH TLV 40.000 ppm - STEL (Skin)

COLLOIDAL SILICA (112945-52-5)

No exposure limits established

OSHA has formally endorsed a styrene industry proposal for a voluntary 50 ppm workplace limit on styrene. Members of the Styrene Information and Research Council (SIRC), Composites Institute (CI), Composite Fabricators Association (CFA), International Cast Polymers Association (ICPA) and National Marine Manufacturers Association (NMMA) have agreed to use either engineering controls, work practices or respiratory protection to achieve this voluntary limit for styrene.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point

(for component) 293.4 F (145.2 C) @ 760 mmHg

Vapor Pressure

(for component) 4.500 mmHg @ 658.00 F

Specific Vapor Density

3.600 @ AIR=1

Specific Gravity

1.094 - 1.118 @ 77.00 F

Liquid Density

9.100 - 9.300 lbs/gal @ 77.00 F

1.094 - 1.118 kg/l @ 25.00 C

Percent Volatiles

37.0 - 42.0 %

Evaporation Rate

SLOWER THAN ETHYL ETHER

Appearance

HAZY, VISCOUS

State

LIQUID

Continued on next page

MATERIAL SAFETY DATA SHEET

Ashland Chemical Co.

Page 006
Date Prepared: 01/26/98
Date Printed: 02/07/98
MSDS No: 304.0301384-003.008

AROPOL MR 12018

Physical Form
HOMOGENEOUS SOLUTION

Color
COBALT

Odor
STYRENATED

pH
Not applicable

Viscosity
4000.0 - 5000.0 cps

Solubility in Water
NEGLIGIBLE

10. STABILITY AND REACTIVITY

Hazardous Polymerization
Product can undergo hazardous polymerization. Avoid exposure to excessive heat, peroxides and polymerization catalysts.

Hazardous Decomposition
May form: carbon dioxide and carbon monoxide, various hydrocarbons.

Chemical Stability
Stable.

Incompatibility
Avoid contact with: halogens, strong alkalies, strong mineral acids.

11. TOXICOLOGICAL INFORMATION

No data

12. ECOLOGICAL INFORMATION

No data

13. DISPOSAL CONSIDERATION

Waste Management Information
Contaminated absorbent may be deposited in a landfill in accordance with local, state and federal regulations. Destroy by liquid incineration in accordance with applicable regulations.

Continued on next page

MATERIAL SAFETY DATA SHEET

Ashland Chemical Co.

Page 007
 Date Prepared: 01/26/98
 Date Printed: 02/07/98
 MSDS No: 304.0301384-003.008

AROPOL MR 12018

14. TRANSPORT INFORMATION

DOT Information - 49 CFR 172.101

DOT Description:
 RESIN SOLUTION,3,UN1866,III

Container/Mode:
 55 GAL DRUM/TRUCK PACKAGE

NOS Component:
 None

RQ (Reportable Quantity) - 49 CFR 172.101

Product	Quantity (lbs)	Component
2563		STYRENE MONOMER

15. REGULATORY INFORMATION

US Federal Regulations

TSCA (Toxic Substances Control Act) Status

TSCA (UNITED STATES) The intentional ingredients of this product are listed.

CERCLA RQ - 40 CFR 302.4(a)

Component	RQ (lbs)
STYRENE	1000

SARA 302 Components - 40 CFR 355 Appendix A

None

Section 311/312 Hazard Class - 40 CFR 370.2

Immediate(X) Delayed(X) Fire(X) Reactive(X) Sudden Release of Pressure()

SARA 313 Components - 40 CFR 372.65

Section 313 Component(s)	CAS Number	%
STYRENE	100-42-5	39.00

International Regulations

Inventory Status

DSL (CANADA) The intentional ingredients of this product are listed.

State and Local Regulations

California Proposition 65

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains the following substance(s) known to the state of California to cause cancer.

BENZENE
 1,4-DIOXANE

New Jersey RTK Label Information

STYRENE MONOMER 100-42-5

MATERIAL SAFETY DATA SHEET

Ashland Chemical Co.

Page 008
Date Prepared: 01/26/98
Date Printed: 02/07/98
MSDS No: 304.0301384-003.008

AROPOL MR 12018

Pennsylvania RTK Label Information
BENZENE, ETHENYL-

100-42-5

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.