Material Safety Data Sheet
Revision Date: 16/Mar/2015

1. PRODUCT AND COMPANY IDENTIFICATION

Product Description: POLYLITE® 33419-01
SAP ID(s): 203041 ; 203042
Material Code: 33419-01
Chemical Family: Polyester Resin
Intended Use: CIPP

Manufacturer/Supplier:
Reichhold, Inc.
Corporate Headquarters
P.O. Box 13582
Research Triangle Park, NC 27709
USA
Tel +1-919-990-7500
Fax +1-919-767-8602

Emergency Telephone (Chemtrec) 1-800-424-9300
E-mail address prodsafety@reichhold.com

2. HAZARDS IDENTIFICATION

Primary Routes of Entry
Eye contact, Ingestion, Inhalation, Skin Contact, Skin absorption.

Acute effects
- Eyes: Irritating to eyes.
- Skin: Harmful by skin absorption. Contact causes skin irritation. Prolonged skin contact may defat the skin and produce dermatitis.
- Inhalation: Harmful by inhalation. May cause irritation of respiratory tract. Inhalation of high vapor concentrations can cause CNS-depression and narcosis.
- Ingestion: Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration hazard if swallowed - can enter lungs and cause damage. Ingestion is not an anticipated route of exposure for this material in industrial use.

Chronic Effects
This material contains a chemical which is listed by the International Agency for Research on Cancer (IARC) as a group 2B cancer causing agent (possibly carcinogenic to humans). The National Toxicology Program (NTP) has listed a chemical in this material as reasonably anticipated to be a human carcinogen.

Target organ(s)
Liver, Central nervous system (CNS), Respiratory system, Kidney.

HMIS:
Health: 2*
Flammability: 3
Reactivity: 1

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>Weight-%</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyester Resin</td>
<td>Proprietary</td>
<td>61 - 63</td>
<td>Not Hazardous</td>
</tr>
<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>36.1</td>
<td>Hazardous</td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

Skin Contact
Wash off with warm water and soap. Remove contaminated clothing and shoes. If skin irritation persists, call a physician. Wash contaminated clothing before reuse.

Eye Contact
Immediately flush eyes for at least 15 minutes. Get medical attention.

Inhalation
Remove person to fresh air. If signs/symptoms continue, get medical attention. Keep patient warm and at rest. If not breathing, give artificial respiration. If breathing is labored, administer oxygen. Get medical attention immediately.

Ingestion
Do not induce vomiting. Potential for aspiration if swallowed. This material may enter the lungs during vomiting. Never give anything by mouth to an unconscious person. GET IMMEDIATE MEDICAL ATTENTION.

5. FIRE-FIGHTING MEASURES

Flammability
Flammable liquid.

Suitable Extinguishing Media
Carbon dioxide (CO2), Foam, Dry chemical, Water spray.

Hazardous combustion products
Combustion may produce carbon monoxide, carbon dioxide and irritating or toxic vapors and gases.

Fire/Explosion Hazard:
Flammable. Vapors may form explosive mixtures with air. Flash back possible over considerable distance. This material may polymerize (react) when its container is exposed to heat (as during a fire). This polymerization increases pressure inside a closed container and may result in the violent rupture of the container. Empty containers may retain product residue (liquid and/or vapor). Do not pressurize, cut, weld, braze, solder, drill, grind, or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death.

Protective Equipment and Precautions for Firefighters:
Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. Thoroughly decontaminate all protective equipment after use. Evacuate all persons from the fire area to a safe location. Move non-burning material, as feasible, to a safe location as soon as possible. Fire fighters should be protected from potential explosion hazard while extinguishing the blaze. DO NOT extinguish a fire resulting from the flow of this flammable liquid until the flow of liquid is effectively shut off. This precaution will help prevent the accumulation of an explosive vapor-air mixture after the initial fire is extinguished. Use water spray to cool fire-exposed containers.

NFPA Rating
Health 2  Flammability 3  Instability 1

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Remove all sources of ignition. Evacuate personnel to safe areas. Avoid contact with skin and eyes. Use personal protective equipment as required. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Environmental Precautions
Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Prevent product from entering drains. Soak up with inert absorbent material and dispose of as hazardous waste. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Methods for Containment
Prevent spilled material from 1) contaminating soil, 2) entering sanitary sewers, storm sewers, and drainage systems, and 3) entering bodies of water or ditches that lead to waterways. Prevent spreading over a wide area (e.g. by containment or oil barriers).
Methods for Clean-up
Soak up with inert absorbent material. Remove from surface water (e.g. by skimming or siphoning). Dispose of contaminated material as waste according to item 13.

Other Information
All equipment used when handling the product must be grounded

7. HANDLING AND STORAGE

Handling
Do not breathe vapor or mist. Avoid contact with eyes, skin and clothing. Take off contaminated clothing and wash before reuse. Ensure adequate ventilation. Ground and bond containers when transferring material. Use spark-proof tools and explosion-proof equipment. Consult your supplier of promoters and catalysts for additional instructions on proper mixing and usage. Empty containers may retain product residue (liquid and/or vapor). Do not pressurize, cut, weld, braze, solder, drill, grind, or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death. Empty drums should be completely drained and properly bunged. Empty drums should be promptly returned to a drum reconditioner or properly disposed. Do not use compressed air for filling, discharging or handling. Wash hands before breaks and immediately after handling the product.

Storage
Keep away from heat and sources of ignition. No smoking. Keep away from direct sunlight. Keep containers tightly closed in a cool, well-ventilated place. To ensure maximum stability and maintain optimum resin properties, resins should be stored in closed containers at temperatures below 77°F (25°C).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits

Styrene (CAS #: 100-42-5)

ACGIH - TLV
20 ppm TWA
40 ppm STEL

OSHA PEL
100 ppm TWA
200 ppm Ceiling

Industry PEL
While the federal workplace exposure limit for styrene is 100 ppm, OSHA accepted the styrene industry's proposal to voluntarily meet a PEL of 50 ppm on an 8 hour TWA and a Short Term Exposure Limit (STEL) of 100 ppm, 15 minute exposure.

Canada - Alberta OELs
40 ppm STEL
170 mg/m³ STEL
20 ppm TWA
85 mg/m³ TWA

Canada - Ontario OELs
35 ppm TWA
100 ppm STEL

Canada - British Columbia OELs
50 ppm TWA
75 ppm STEL

NIOSH IDLH
700 ppm Immediately dangerous to life or health IDLH

Mexico OEL
100 ppm STEL
425 mg/m³ STEL
50 ppm TWA
215 mg/m³ TWA

Silica, Amorphous, Fumed, Cryst.-Free (CAS #: 112945-52-5)

OSHA PEL
20 mppcf, 80 mg/m³%SiO2 TWA

NIOSH IDLH
3000 mg/m³ - Immediately dangerous to life or health (IDLH)
POLYLITE® 33419-01

Legend
ACGIH (American Conference of Governmental Industrial Hygienists)
TLV® (Threshold Limit Value)
TWA (time-weighted average)
STEL - Short Term Exposure Limit
OSHA - Occupational Safety and Health Administration
PEL - Permissible Exposure Limit
OEL - Occupational Exposure Limit
NIOSH - National Institute for Occupational Safety and Health
IDLH - Immediately Dangerous to Life or Health
SKIN: Skin Absorption

Engineering Controls
Use general ventilation to maintain airborne concentrations to levels that are below regulatory and recommended occupational exposure limits. Local ventilation may be required during certain operations. Use explosion-proof equipment.

Personal Protective Equipment
Eye/face Protection
Safety glasses with side-shields. If splashes are likely to occur: Tight sealing safety goggles. Ensure that eyewash stations and safety showers are close to the workstation location.

Skin Protection
Wear protective nitrile rubber or Viton™ gloves. Gloves made of nitrile rubber or polyvinyl chloride (PVC) may be used for splash protection and brief or intermittent contact with styrenated polyester resin. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. Impervious clothing. Rubber or plastic boots.

Respiratory Protection
None required if hazards have been assessed and airborne concentrations are maintained below the exposure limits listed in Section 8. Wear an approved air-purifying respirator with organic vapor cartridges and particulate filters where airborne concentrations may exceed exposure limits in Section 8 and/or there is exposure to dust or mists due to sanding, grinding, cutting, or spraying. Use an approved positive-pressure air-supplied respirator with emergency escape provisions if there is any potential for an uncontrolled release, airborne concentrations are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Brown</td>
</tr>
<tr>
<td>Odor</td>
<td>Pungent</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>0.2 ppm (Styrene)</td>
</tr>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flash Point</td>
<td>32 °C / 89 °F</td>
</tr>
<tr>
<td>Flash Point Method:</td>
<td>Seta closed cup</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>490°C / 914°F (Styrene)</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>146°C / 295°F (Styrene)</td>
</tr>
<tr>
<td>Melting point / melting range</td>
<td>-30°C / -23°F (Styrene)</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>1.1% (Styrene)</td>
</tr>
<tr>
<td>Upper</td>
<td>6.1% (Styrene)</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.05 - 1.14 @ 25°C</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble (Water)</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>0.49 (BuAc = 1) (Styrene)</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>5 mmHg @ 20°C (Styrene)</td>
</tr>
<tr>
<td></td>
<td>6.7 hPa (Styrene)</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>3.6 (Air = 1) (Styrene)</td>
</tr>
<tr>
<td>Percent Volatile, wt.%</td>
<td>41 - 44% by weight</td>
</tr>
<tr>
<td>VOC Content</td>
<td>395 g/l (calculated) product as supplied</td>
</tr>
<tr>
<td>Viscosity</td>
<td>3900 - 4500 cps @ 25°C</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Chemical stability
Stable under normal conditions. Stable under recommended storage conditions.

Conditions to Avoid

Incompatible Materials

Hazardous Decomposition Products
Hydrocarbons. Carbon monoxide. Carbon dioxide (CO2). Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Hazardous Polymerization
Polymerization can occur. Hazardous polymerization will occur if contaminated with peroxides, metal salts and polymerization catalysts. Hazardous polymerization may occur upon depletion of inhibitor - may cause heat and pressure build-up in closed containers. Product will undergo hazardous polymerization at temperatures above 150 F (65 C).

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Styrene
Oral LD50 5000 mg/kg - rat
Dermal LD50 > 2000 - (Rat) mg/kg
Inhalation LC50 11.8 mg/l (4 hours) rat

Silica, Amorphous, Fumed, Cryst.-Free
Oral LD50 > 5000 mg/kg - rat
Dermal LD50 > 5000 mg/kg - rabbit
Inhalation LC50 > 0.139 mg/l (4 hours) - rat

Eye Effects:
Studies indicate that exposures to concentrations of styrene above 200 ppm cause irritation of the eyes. Styrene causes transient moderate eye irritation without corneal involvement.

Chronic Toxicity

Styrene
Reasonably anticipated to be human carcinogen
IARC Group 2B - Possibly Carcinogenic to Humans
ACGIH Group A4 - Not classifiable as a human carcinogen.

Legend
IARC - International Agency for Research on Cancer
NTP - National Toxicology Program
ACGIH (American Conference of Governmental Industrial Hygienists)

Repeated dose toxicity
In humans, styrene may cause a transient decrease in color discrimination and effects on hearing. Repeated or prolonged exposure may cause skin irritation and dermatitis, due to defatting properties of the product. May cause damage to the liver, eyes, brain, respiratory system, central nervous system through prolonged or repeated exposure if inhaled. May cause damage to the kidneys, liver, eyes, brain, respiratory system, central nervous system through prolonged or repeated exposure if inhaled.

Sensitization
Not sensitizing.

Mutagenic effects
Styrene has given mixed positive and negative results in a number of mutagenicity tests. Styrene was not mutagenic without metabolic activation but gave negative and positive mutagenic results with metabolic activation.

Target organ(s)
Liver, Central nervous system (CNS), Respiratory system, Kidney.
12. ECOLOGICAL INFORMATION

Ecotoxicity

Styrene

Log Kow 2.95
Bioconcentration factor (BCF) 74

Algae

EC50 = 1.4 mg/L (Pseudokirchneriella subcapitata) (72h)
EC50 0.46 - 4.3 mg/L (Pseudokirchneriella subcapitata) (72h)

Aquatic Invertebrates

EC50 3.3 - 7.4 mg/L (Daphnia magna) (48h)

Fish

LC50 3.24 - 4.99 mg/L (Pimephales promelas) (96 h) flow-through
LC50 19.03 - 33.53 mg/L (Lepomis macrochirus) (96 h) static
LC50 6.75 - 14.5 mg/L (Pimephales promelas) (96 h) static
LC50 58.75 - 95.32 mg/L (Poecilia reticulata) (96 h) static

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

Disposal Considerations
Hazardous waste. Can be incinerated, when in compliance with local regulations.

Contaminated packaging
Empty containers should be taken for local recycling, recovery or waste disposal.

US EPA Waste Number
D001 (IGNITABLE): When discarded in its purchased form, this material would be regulated under 40 CFR 261.21 as EPA Hazardous Waste Number D001 based on the characteristic of ignitability.

14. TRANSPORT INFORMATION

DOT
UN-No UN1866
Proper Shipping Name RESIN SOLUTION
Hazard Class 3
Packing Group III
NAERG: 127

TDG
UN-No UN1866
Proper Shipping Name RESIN SOLUTION
Hazard Class CLASS 3
Packing Group PG III
NAERG: 127

IATA
UN-No UN1866
Proper Shipping Name RESIN SOLUTION
Hazard Class 3
Packing Group III
Packing Instructions 355, 366
NAERG: 127

IMDG/IMO
UN-No UN1866
Proper Shipping Name RESIN SOLUTION
Hazard Class CLASS 3
Packing Group PG III
EmS-No F-E, S-E
NAERG: 127

15. REGULATORY INFORMATION

International Inventories
TSCA Inventory Status: All components of this material are listed on the US Toxic Substances Control Act (TSCA) inventory.

Canadian Inventory Status: All components of this material are listed on the Canadian Domestic Substances List (DSL).

Australian Inventory Status: This product contains one or more chemicals currently not on the Australian Inventory of Chemical Substances.

Korean Inventory Status: This product contains one or more chemicals currently not on the Korean Chemical Substances List.

Philippine Inventory: All components of this material are listed on or are exempt from the Philippine Inventory of Chemicals and Chemical Substances.

Japan ENCS: This product contains one or more chemicals currently not on the Japanese Inventory of Existing and New Chemical Substances.

Chinese IECS: This product contains one or more chemicals currently not on the Chinese Inventory of Existing Chemical Substances.

New Zealand Inventory: All components of this material are listed on or are exempt from the New Zealand Inventory of Chemicals.

Taiwan Existing Chemical Substances Inventory: Not Determined.

US Federal Regulations
SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and and Title 40 of the Code of Federal Regulations, Part 372:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>Weight-%</th>
<th>SARA 313 Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>36.1</td>
<td>Listed</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazardous Categorization

- Acute Health Hazard: Yes
- Chronic Health Hazard: Yes
- Fire Hazard: Yes
- Sudden Release of Pressure Hazard: No
- Reactive Hazard: Yes

TSCA 12(b) - Export Notification:
This material does not contain any components that are subject to the US Toxic Substances Control Act (TSCA) Section 12(b) Export Notification requirements.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product contains the following HAPs:

<table>
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<tr>
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<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
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<td>36.1</td>
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</tbody>
</table>

CERCLA
This product contains the following reportable quantities:

<table>
<thead>
<tr>
<th>Component</th>
<th>40 CFR 302.4 RQ</th>
<th>40 CFR 355 EHS TPQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>1000 lb</td>
<td>454 kg</td>
</tr>
</tbody>
</table>

Chemical Weapons Convention (CWC)
This product does not contain any listed substances.

State Regulations
California Proposition 65
WARNING: This material contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. The California Safe Drinking Water and Toxic Enforcement Act of 1986 requires that clear and reasonable warning be given prior to exposing any person to this chemical.

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
- B2 - Flammable liquid
- D2A - Very toxic materials
- D2B - Toxic materials
- F - Dangerously reactive material

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>WHMIS Ingredient Disclosure List</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>0.1 %</td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

Prepared By: Reichhold Product Regulatory Department
Phone Number: 919-990-7500

Revision Date: 16/Mar/2015
Revision Number: 1
Revision Summary: None
Former date: New

This information is provided in good faith and is correct to the best of Reichhold’s knowledge as of the date hereof and is designed to assist our customers; however, Reichhold makes no representation as to its completeness or accuracy. Our products are intended for sale to industrial and commercial customers. We require customers to inspect and test our products before use and to satisfy themselves as to suitability for their specific applications. Any use which Reichhold customers or third parties make of this information, or any reliance on, or decisions made based upon it, are the responsibility of such customer or third party. Reichhold disclaims responsibility for damages, or liability, of any kind resulting from the use of this information. THERE ARE NO WARRANTIES OR REPRESENTATIONS, EXPRESS OR IMPLIED, INCLUDING THOSE OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THIS INFORMATION OR TO THE PRODUCT IT DESCRIBES. IN NO EVENT SHALL REICHHOLD BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.

End of Material Safety Data Sheet