

Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Description: **ATPRIME® 2A**
SAP ID(s): ATPRIME-2A-----KG
Material Code: ATPRIME-2A-----KG
Chemical Family: Aromatic Isocyanate
Intended Use: Two-Component Urethane-Based Primer System

Manufacturer:
NCS Resins (Pty) Ltd
 9 Pineside Road, New Germany 3610
 South Africa
 Tel +27(0) 31 713 0600
 Fax +27(0) 31 705 9858

Emergency Telephone
+27(0) 41 627 3283

Poison Information Centre
 131126 (South Africa only)

Supplier:
Aurora Glass Fibre (NZ) Ltd
 3/16 Zelanian Drive, East Tamaki
 Auckland 2013, New Zealand
 Tel +64 9 273-3540
 Fax +64 9 273-3565

Emergency Telephone
+64 9 273-3540

2. HAZARDS IDENTIFICATION

Emergency Overview

Harmful by inhalation
 May cause sensitization by inhalation and skin contact
 Irritating to eyes and respiratory system
 Preparation reacts slowly with water resulting in evolution of CO₂
 Evolution of CO₂ in closed containers causes overpressure and produces a risk of bursting

Appearance Dark Brown

Physical State Liquid

Odor Musty

Primary Routes of Entry Skin Contact, Inhalation, Eye Contact.

Acute Effects

Eyes Moderately irritating to the eyes.
Skin May cause sensitization by skin contact. Moderately irritating to the skin.
Inhalation Harmful by inhalation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause sensitization by inhalation.
Ingestion Ingestion (swallowing) may irritate the mouth, throat and stomach. May cause damage to Gastrointestinal tract.

Chronic Effects

May cause sensitization by inhalation and skin contact. This material does not contain 0.1% or more of any chemical listed by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or regulated by the Occupational Safety and Health Administration (OSHA) as carcinogen.

Target Organ(s) Lungs, Respiratory System, Skin, Eyes.

HMIS: Health: 2* Flammability: 1 Reactivity: 1 Personal Protection:

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS No	Weight-%	Status
Isocyanic acid, polymethylenepolyphenylene ester	9016-87-9	55	Not Hazardous
4,4'-Methylenediphenyl Diisocyanate	101-68-8	45	Hazardous

4. FIRST AID MEASURES

Skin Contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before reuse. Get medical attention if irritation develops or persists.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get immediate medical attention.
Inhalation	Move victim to fresh air. If breathing is difficult, give oxygen by trained personnel. If not breathing, give artificial respiration. Get medical attention immediately.
Ingestion	Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Seek immediate medical attention/advice.

5. FIRE-FIGHTING MEASURES

Flammability	Fire or intense heat may cause violent rupture of packages.
Suitable Extinguishing Media	Use extinguishing agent suitable for type of surrounding fire.
Hazardous Combustion Products	Carbon dioxide (CO ₂), Carbon monoxide, Nitrogen oxides (NO _x), Hydrogen cyanide (hydrocyanic acid).
Protective Equipment and Precautions for Firefighters:	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Reaction between water or foam and hot Isocyanate can be vigorous. Use water spray to cool unopened containers.
NFPA Rating	Health 2 Flammability 1 Instability 1

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Evacuate personnel to safe areas. Use personal protective equipment as required. Keep people away from and upwind of spill/leak.
Environmental Precautions	Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system.
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. Shovel into suitable container for disposal. Neutralize small spills with decontaminant. Remove from surface water (e.g. by skimming or siphoning). Retain all contaminated water or flushing liquid for disposal or for treatment prior to release.

7. HANDLING AND STORAGE

Handling	Do not breathe vapor or mist. Ensure adequate ventilation. Avoid contact with eyes, skin and clothing. Wear personal protective equipment. Take off contaminated clothing and wash before reuse.
-----------------	--

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Do not reseal contaminated containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits

Isocyanic acid, polymethylenepolyphenylene ester (CAS #: 9016-87-9)

Canada – Alberta OELs	0.005ppm TWA
	0.07 mg/m ³ TWA

4,4'-Methylenediphenyl Diisocyanate (CAS #: 101-68-8)

ACGIH – TLV	0.005 ppm TWA
OSHA PEL	0.02 ppm Ceiling
	0.2 mg/m ³ Ceiling
Canada – Alberta OELs	0.005 ppm TWA
	0.05 mg/m ³ TWA
Canada – Ontario OELs	0.005 ppm TWA
	0.02 ppm Ceiling
Canada – British Columbia OELs	0.005 TWA
	0.01 ppm Ceiling
	(skin)
NIOSH IDLH	75 mg/m ³ Immediately dangerous to life or health IDLH
Mexico OEL	0.02 ppm TWA
	0.2 mg/m ³ TWA
	0.005 ppm TWA
	0.051 mg/m ³ TWA

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.

Personal Protective Equipment

Eye / Face Protection Tight sealing safety goggles. If splashes are likely to occur: Face-shield. Ensure that eyewash stations and safety showers are close to the workstation location.

Skin Protection Wear chemical resistant gloves. 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, abrasions.

Respiratory Protection None required if hazards have been assessed and airborne concentrations are maintained below the exposure limits listed in Section 8. Where airborne concentrations may exceed exposure limits in Section 8, wear an approved air-purifying respirator with organic vapor cartridges and a HEPA (P100) particulate filter along with a cartridge change-out schedule developed in accordance with applicable respiratory protection standards. 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.

General Hygiene Considerations Wash hands and face before breaks and immediately after handling the product. Take off contaminated clothing and wash before reuse. Contaminated work clothing should not be allowed out of the workplace.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Dark brown
Odor	Musty
Odor Threshold	No information available
Physical State	Liquid
pH	No information available
Flash Point	230 °C / 446 °F
Flash Point Method	Closed cup
Autoignition Temperature	> 600 °C / > 1112 °F
Boiling point / boiling range	341 °C / 646 °F

Freezing Point	No information available
Flammability Limit in Air	
Lower	No information available
Upper	No information available
Specific Gravity	1.23 @ 25 °C
Solubility	Insoluble (Water)
Evaporation Rate	No information available
Vapor Pressure	No information available
Vapor Density	8.5 (Air = 1.0)
Percent Volatile, wt.%	No information available
VOC Content	No information available
Viscosity	180 – 240 cps @ 25 °C

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions. Preparation reacts slowly with water resulting in evolution of CO ₂ .
Conditions to Avoid	Contamination by those materials referred to under Incompatible materials. Avoid high temperatures.
Incompatible Materials	Water. Amines. Alcohols. Bases. Acids.
Hazardous Decomposition Products	Carbon monoxide. Carbon dioxide (CO ₂). Nitrogen oxides (NO _x). Hydrocarbons. Hydrogen cyanide (hydrocyanic acid).
Hazardous Polymerization	Polymerization may occur at elevated temperatures in the presence of alkalies, amines and metal compounds.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Isocyanic acid, polymethylenepolyphenylene ester

Oral LD50	>10000 mg/kg - rat
Dermal LD50	>9400 mg/kg - rabbit
Inhalation LC50	310 mg/m ³ – rat - 4h

4,4'-Methylenediphenyl Diisocyanate

Oral LD50	>10000 mg/kg – rat
Dermal LD50	>9400 mg/kg – rabbit
Inhalation LC50	0.49 mg/L – rat – 4h

Chronic Toxicity

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Isocyanic acid, polymethylenepolyphenylene ester

IARC Group 3 – The agent is not classifiable as to its carcinogenicity to humans.

4,4'-Methylenediphenyl Diisocyanate

IARC Group 3 – The agent is not classifiable as to its carcinogenicity to humans.

Legend

NTP – National Toxicology Program
 OSHA – Occupational Safety and Health Administration
 IARC – International Agency for Research on Cancer

Repeated Dose Toxicity

Persons allergic to isocyanates, and particularly those suffering from asthma or other respiratory conditions, should not work with isocyanates.

Sensitization	May cause sensitization by inhalation and skin contact.
Target Organ(s)	Lungs, Respiratory System, Skin, Eyes.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects	No information available.
Persistence / Degradability	Immiscible in water. Reacts with water to form inert and non-biodegradable solids.
Bioaccumulation	No information available.

4,4'-Methylenediphenyl Diisocyanate

Aquatic Invertebrates	EC50 (Daphnia) > 1000 mg/L (48h)
Fish	LC50 (Fish) > 1000 mg/L (96h)

13. DISPOSAL CONSIDERATIONS

Disposal Considerations	NOT A RCRA HAZARDOUS WASTE: When discarded in its purchased form, this material would not be regulated as a RCRA Hazardous waste under 40 CFR 261. The product should not be allowed to enter drains, water courses or the soil.
Contaminated Packaging	Empty containers should be taken for local recycling, recovery or waste disposal.
US EPA Waste Number	Not applicable.

14. TRANSPORT INFORMATION

<u>DOT</u>	
Proper Shipping Name	NOT REGULATED
<u>TDG</u>	
Proper Shipping Name	NOT REGULATED
<u>IATA</u>	
Proper Shipping Name	NOT REGULATED
<u>IMDG/IMO</u>	
Proper Shipping Name	NOT REGULATED

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 only chemicals which are currently listed on the Australian Inventory of Chemical Substances.
Korean Inventory Status:	This product contains only chemicals which are currently listed on the Korean Chemical Substances List.
Philippine Inventory Status:	This product contains only chemicals that are currently listed on the Philippines Inventory of Chemicals and Chemical Substances.
Japan ENCS:	This product contains only chemicals that are currently listed on the Japanese Inventory of Existing and New Chemical Substances.

Chinese IECS: This product contains only chemicals that are currently listed on the Chinese Inventory of Existing Chemical Substances.

New Zealand Inventory: This product contains only chemicals which are currently listed on the New Zealand Inventory of Chemicals.

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 Title 40 of the Code of Federal Regulations, Part 372:

Component	CAS No	Weight-%	SARA 313 Status
4,4'-Methylenediphenyl Diisocyanate	101-68-8	45	Listed

SARA 311/312 Hazardous Categorization

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

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:

Component	CAS No	Weight-%	HAPs Data
4,4'-Methylenediphenyl Diisocyanate	101-68-8	45	

CERCLA

This product contains the following reportable quantities:

Component	40 CFR 302.4 RQ	40 CFR 355 EHS TPQs
4,4'-Methylenediphenyl Diisocyanate	5000 lb 2270 kg	

State Regulations

California Proposition 65

This product is not known to contain any chemicals listed by the State of California (Safe Drinking Water and Toxic Enforcement Act of 1986) to cause cancer or reproductive toxicity.

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

- D1A – Very toxic materials
- D2A – Very toxic materials
- D2B – Toxic materials

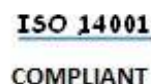
Component	CAS No	WHMIS Ingredient Disclosure List
4,4'-Methylenediphenyl Diisocyanate	101-68-8	0.1%

16. OTHER INFORMATION

Prepared By	Kreson Moodley – Based on information supplied by Reichhold Product Regulatory Department Phone Number: +27 (0)31 713 0600
Revision Date	09 Sep 2014
Revision Number	2
Revision Summary	This data sheet contains changes from the previous version in section(s): 2, 4 – 11 and 15
Former Date	27 May 2011

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**



Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Description: **ATPRIME® 2B**
SAP ID(s): ATPRIME-2B-----KG
Material Code: ATPRIME-2B-----KG
Chemical Family: Unsaturated Polyester Resin
Intended Use: Two-Component Urethane-Based Primer System

Manufacturer:
NCS Resins (Pty) Ltd
 9 Pineside Road, New Germany 3610
 South Africa
 Tel +27(0) 31 713 0600
 Fax +27(0) 31 705 9858

Emergency Telephone
+27(0) 41 627 3283

Poison Information Centre
 131126 (South Africa only)

Supplier:
Aurora Glass Fibre (NZ) Ltd
 3/16 Zelanian Drive, East Tamaki
 Auckland 2013, New Zealand
 Tel +64 9 273-3540
 Fax +64 9 273-3565

Emergency Telephone
+64 9 273-3540

2. HAZARDS IDENTIFICATION

Emergency Overview

Flammable Liquid
 Vapors may form explosive mixtures with air
 Vapor can travel to a source of ignition (spark or flame) and flash back
 Material can accumulate static charges which may cause an incendiary electrical discharge
 Harmful by inhalation, in contact with skin and if swallowed
 Hazardous polymerization may occur
 May cause sensitization by skin contact
 Irritating to eyes and skin

Appearance Pink - Clear

Physical State Liquid

Odor Pungent

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. May cause sensitization by skin contact.
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, Kidney, Central Nervous System (CNS), Respiratory System.

HMIS: **Health: 2*** **Flammability: 3** **Reactivity: 2** **Personal Protection:**

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS No	Weight-%	Status
Styrene	100-42-5	49.0	Hazardous
Polyester Resin	Proprietary	45.0	Not Hazardous
Methyl Methacrylate	80-62-6	6.0	Hazardous

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. ASPIRATION HAZARD. 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 (CO ₂), 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) with its container if exposed to heat (as in 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, spark, 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 2

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Remove all sources of ignition. Evacuate personnel to safe areas. 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.

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 materials as waste according to item 13.

7. HANDLING AND STORAGE

Handling	Do not breathe vapor or mist. Avoid contact with eyes, skin and clothing. Wash hands before breaks and immediately after handling the product. 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.
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

Components with workplace control parameters.

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/m ³ STEL 20 ppm TWA 85 mg/m ³ 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/m ³ STEL 50 ppm TWA 215 mg/m ³ TWA (skin)

Methyl Methacrylate (CAS #: 80-62-6)

ACGIH – TLV	50 ppm TWA 100 ppm STEL
OSHA PEL	100 ppm TWA 410 mg/m ³ TWA
Canada – Alberta OELs	100 ppm STEL 410 mg/m ³ STEL 50 ppm TWA 205 mg/m ³ TWA
Canada – Ontario OELs	50 ppm TWA 100 ppm STEL

Canada – British Columbia OELs	50 ppm TWA 100 ppm STEL
NIOSH IDLH	1000 ppm Immediately dangerous to life or health IDLH
Mexico OEL	125 ppm STEL 510 mg/m ³ STEL 100 ppm TWA 410 mg/m ³ TWA

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

Appearance	Pink - Clear
Odor	Pungent
Odor Threshold	0.2 ppm (Styrene) 0.05 – 0.21 ppm (Methyl Methacrylate)
Physical State	Liquid
pH	No information available
Flash Point	26 °C / 79 °F
Flash Point Method	Seta closed cup
Autoignition Temperature	806 °F – 914 °F / 430 °C – 490 °C
Boiling point / boiling range	212 °F – 295 °F / 100 °C – 146 °C
Freezing Point	< 0 °F / < -18 °C
Flammability Limit in Air	
Lower	1.1 %
Upper	12.5 %
Specific Gravity	0.98 – 1.03 @ 25 °C
Solubility	Insoluble (Water)
Evaporation Rate	0.49 – 3.1 (BuAc = 1)
Vapor Pressure	6.12 – 20 mmHg @ 68 °F / 20 °C
Vapor Density	3.45 – 3.6 (Air = 1)

Percent Volatile, wt.%	53 – 57 % by weight
VOC Content	553 g/l (calculated) product as supplied
Viscosity	200 – 300 cps @ 25 °C

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions. Stable under recommended storage conditions.
Conditions to Avoid	Heat, flames and sparks. Contamination by those materials referred to under Incompatible Materials.
Incompatible Materials	Strong acids. Strong oxidizing agents. Metal salts. Polymerization catalysts. Amines. Halogenated compounds.
Hazardous Decomposition Products	Hydrocarbons. Carbon monoxide. Carbon dioxide (CO ₂). 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. 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 mg/kg - rat
Inhalation LC50	11.8 mg/l – rat (4 hours)

Methyl Methacrylate

Oral LD50	8400 mg/kg – rat
Dermal LD50	>9400 mg/kg – rabbit
Inhalation LC50	7093 mg/l (4 hours)

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.

Sensitization

May cause sensitization by skin contact.

Chronic Toxicity

Components influencing toxicology.

Styrene

NTP	Reasonably anticipated to be human carcinogen
IARC	Group 2B – Possibly Carcinogenic to Humans

Legend

NTP – National Toxicology Program
IARC – International Agency for Research on Cancer

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 kidneys, liver, eyes, brain, respiratory system, central nervous system through prolonged or repeated exposure if inhaled.

Sensitization

Contains methacrylates, which are known to be weak sensitizers.

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.

Development Toxicity

Results from studies in experimental animals indicate little or no potential for styrene to produce developmental toxicity.

Target Organ(s) Liver, Kidney, Central Nervous System (CNS), Respiratory System.

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

Methyl Methacrylate

Log Kow	0.7
Aquatic Invertebrates	EC50 = 69 mg/L (Daphnia magna) (48h)
Fish	LC50 243 – 275 mg/L (Pimephales promelas) (96h) flow-through LC50 125.5 – 190.7 mg/L (Pimephales promelas) (96h) static LC50 170 – 206 mg/L (Lepomis macrochirus) (96h) flow-through LC50 153.9 – 341.8 mg/L (Lepomis macrochirus) (96h) static LC50 > 79 mg/L (Oncorhynchus mykiss) (96h) flow-through LC50 > 79 mg/L (Oncorhynchus mykiss) (96h) static LC50 326.4 – 426.9 mg/L (Poecilia reticulata) (96h) static

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	3
Packing Group	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	3
Packing Group	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 only chemicals which are currently listed on the Korean Chemical Substances List.
Philippine Inventory Status:	This product contains one or more chemicals currently not on the Philippines Inventory of Chemicals and Chemical Substances.
Japan ENCS:	This product contains only chemicals that are currently listed on the Japanese Inventory of Existing and New Chemical Substances.
Chinese IECS:	This product contains only chemicals that are currently listed on the Chinese Inventory of Existing Chemical Substances.
New Zealand Inventory:	This product contains only chemicals which are currently listed on the New Zealand Inventory of Chemicals.

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 Title 40 of the Code of Federal Regulations, Part 372:

Component	CAS No	Weight-%	SARA 313 Status
Styrene	100-42-5	49.0	Listed
Methyl Methacrylate	80-62-6	6.0	Listed

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:

Component	CAS No	Weight-%	HAPs Data
Styrene	100.42-5	49.0	
Methyl Methacrylate	80-62-6	6.0	Listed

CERCLA

This product contains the following reportable quantities:

Component	40 CFR 302.4 RQ	40 CFR 355 EHS TPQs
Styrene	1000 lb 454 kg	
Methyl Methacrylate	1000 lb 454 kg	

Chemical Weapons Convention (CWC)

This product does not contain any listed substances.

State Regulations**California Proposition 65**

W A R N I N G: This material contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

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

Component	CAS No	WHMIS Ingredient Disclosure List
Styrene	100-42-5	0.1 %
Methyl Methacrylate	80-62-6	1 %

16. OTHER INFORMATION

Prepared By	Kreson Moodley – Based on information supplied by Reichhold Product Regulatory Department Phone Number: +27 (0)31 713 0600
Revision Date	23 Sep 2014
Revision Number	2
Revision Summary	This data sheet contains changes from the previous version in section(s): 2, 8, 9, 11, 14, 15
Former Date	26 May 2011

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**