

SAFETY DATA SHEET

Revision Date: 19/Feb/2015

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**Product Identifier****Product Description:****HYDREX® 100 33350-00****Other means of identification****SAP ID(s):**

20984 ; 20985

Material Code:

33350-00

Chemical Family

Vinyl Ester Resin

Recommended use of the chemical and restrictions on use**Intended Use:**

Corrosion Resistant Resin

Uses advised against

No information available

Details of the supplier of the safety data sheet**Manufacturer:****Reichhold LLC 2**

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Emergency Telephone (Chemtrec) 1-800-424-9300**Supplier:****Aurora Glass Fibre (NZ) Ltd**

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New Zealand

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Emergency Telephone +64 9 273-3540**2. HAZARDS IDENTIFICATION****Classification****OSHA Regulatory Status**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Inhalation (Vapors)

Category 4

Skin corrosion/irritation

Category 2

Serious eye damage/eye irritation

Category 2A

Skin sensitization

Category 1

Carcinogenicity

Sub-category 1B

Reproductive toxicity

Category 2

Specific target organ toxicity (single exposure)

Category 3

Specific target organ toxicity (repeated exposure)

Category 1

Chronic aquatic toxicity

Category 3

Flammable liquids

Category 3

Label elements**Emergency Overview Statements****Danger****Hazard Statements**

Harmful if inhaled

Causes skin irritation

Causes serious eye irritation

May cause an allergic skin reaction

May cause cancer

Suspected of damaging fertility or the unborn child

May cause respiratory irritation

Causes damage to hearing through prolonged or repeated exposure if inhaled

Harmful to aquatic life with long lasting effects

Flammable liquid and vapor

**Appearance** Amber - Clear**Physical State** Liquid**Odor** Pungent**Precautionary Statements - Prevention**

Obtain special instructions before use
 Do not handle until all safety precautions have been read and understood
 Use personal protective equipment as required
 Use only outdoors or in a well-ventilated area
 Wash face, hands and any exposed skin thoroughly after handling
 Contaminated work clothing should not be allowed out of the workplace
 Do not breathe mist, vapors, spray
 Do not eat, drink or smoke when using this product
 Keep away from heat/sparks/open flames/hot surfaces. - No smoking
 Keep container tightly closed
 Ground/bond container and receiving equipment
 Use explosion-proof electrical/ventilating/lighting equipment
 Use only non-sparking tools
 Take precautionary measures against static discharge
 Keep cool
 Wear protective gloves/protective clothing/eye protection/face protection
 Avoid release to the environment

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 If eye irritation persists: Get medical advice/attention
 If skin irritation or rash occurs: Get medical advice/attention
 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
 Wash contaminated clothing before reuse
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
 Do not induce vomiting
 In case of fire: Use CO₂, dry chemical, or foam to extinguish

Precautionary Statements - Storage

Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal

Dispose of contents/container to industrial incineration plant
 Dispose of in accordance with federal, state and local regulations

Hazards not otherwise classified (HNOC)**Other Information**

May be harmful in contact with skin

Unknown acute toxicity	55.1% of the mixture consists of ingredient(s) of unknown toxicity.
Unknown aquatic toxicity	55.4% of the mixture consists of components(s) of unknown hazards to the aquatic environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight-%	Trade Secret
Vinyl Ester Resin	Proprietary	53.5	
Styrene	100-42-5	45.0	
Silica, Amorphous, Fumed, Cryst.-Free	112945-52-5	<2.0	
Cobalt compounds	Proprietary	<0.3	*

* The exact percentage (concentration) of composition has been withheld as a trade secret. If CAS number is "proprietary", the specific chemical identity has been withheld as a trade secret.

4. FIRST AID MEASURES

First Aid Measures

Eye Contact	Immediately flush eyes for at least 15 minutes. Get medical attention.
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.
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 if swallowed - can enter lungs and cause damage. This material may enter the lungs during vomiting. Never give anything by mouth to an unconscious person. GET IMMEDIATE MEDICAL ATTENTION.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects	Inhalation of high vapor concentrations can cause CNS-depression and narcosis.
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Indication of any immediate medical attention and special treatment needed

Notes to Physician	Treat symptomatically.
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5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Carbon dioxide (CO₂), Foam, Dry chemical, Water spray

Unsuitable Extinguishing Media

Do not use a solid water stream as it may scatter and spread fire.

Specific hazards arising from the chemical

Hazardous combustion products	Combustion may produce carbon monoxide, carbon dioxide and irritating or toxic vapors and gases
Combustion/Explosion Hazards	Flammable. Vapors may form explosive mixture with air. Flash back possible over considerable distance. 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. Closed containers may rupture when exposed to extreme heat.

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.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures****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**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 and material for containment and cleaning up**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.

7. HANDLING AND STORAGE**Precautions for Safe Handling****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.

Conditions for safe storage, including any incompatibilities**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	A4 Not Classifiable as a Human Carcinogen 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
Canada - Ontario OELs	85 mg/m ³ TWA 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)
Silica, Amorphous, Fumed, Cryst.-Free (CAS #: 112945-52-5)	
OSHA PEL	20 mppcf, 80 mg/m ³ /%SiO ₂ TWA
NIOSH IDLH	3000 mg/m ³ - Immediately dangerous to life or health (IDLH)

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

Individual protection measures, such as 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
General Hygiene Considerations	Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Amber - Clear
Odor	Pungent
Odor Threshold	0.2 ppm (Styrene)
Physical State	Liquid
pH	No information available
Flash Point	32 °C / 89 °F
Flash Point Method:	Seta closed cup
Autoignition Temperature	490°C / 914°F (Styrene)
Boiling point / boiling range	146°C / 295°F (Styrene)
Melting point / Freezing point	No information available
Flammability Limit in Air	
Lower	1.1% (Styrene)
Upper	6.1% (Styrene)
Specific Gravity	1.04 - 1.12 @ 25°C
Solubility	Insoluble in H ₂ O
Evaporation Rate	< 1 (BuAc = 1)
Vapor Pressure	5 mmHg @ 20°C (Styrene) 6.7 hPa (Styrene)
Vapor Density	3.6 (Air = 1) (Styrene) (Air = 1.0)
Explosive Properties	No information available
Oxidizing Properties	No information available
Percent Volatile, wt.%	45.0 %
VOC Content:	486 g/l (calculated) product as supplied
Viscosity	450 - 650 cps @ 25°C
Partition Coefficient (n-octanol/water)	No information available
Decomposition temperature	No information available

10. STABILITY AND REACTIVITY

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical Stability

Stable under normal conditions. Stable under recommended storage conditions.

Possibility of Hazardous Reactions

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).

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.

Hazardous Decomposition Products

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

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

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

Acute toxicity**Styrene**

Oral LD50 = 5000 mg/kg (Rat)
 Dermal LD50 > 2000 mg/kg (Rat)
 Inhalation LC50 = 11.8 mg/l (4 H) (Rat)

Silica, Amorphous, Fumed, Cryst.-Free

Oral LD50 = 3160 mg/kg (Rat)

Information on toxicological effects

Symptoms Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

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.

Sensitization No information available.

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.

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.

Carcinogenicity**Styrene****ACGIH****IARC****NTP****Cobalt compounds****IARC**

Group A4 - Not classifiable as a human carcinogen.

Group 2B - Possibly Carcinogenic to Humans

Reasonably anticipated to be human carcinogen

Group 2B - Possibly Carcinogenic to Humans

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

Reproductive Toxicity No information available.

Neurological Effects	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Target organ(s)	Liver, Kidney, Central nervous system (CNS), Respiratory system.
Aspiration Hazard	No information available.

Numerical measures of toxicity - Product Information

Unknown acute toxicity 55.1% of the mixture consists of ingredient(s) of unknown toxicity.

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral)	5094 mg/kg
ATEmix (dermal)	2038 mg/kg
ATEmix (inhalation-vapor)	12 mg/L

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)
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
Water Flea	EC50 3.3 - 7.4 mg/L 48 h

Cobalt compounds

Algae	EC50 = 0.639 mg/L
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Unknown aquatic toxicity

55.4% of the mixture consists of components(s) of unknown hazards to the aquatic environment.

Persistence/Degradability

No information available.

Bioaccumulation

No information available.

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

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

MEX

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

IATA

UN-No	UN1866
Proper Shipping Name	RESIN SOLUTION
Hazard Class	3
Packing Group	III
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

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:	This product contains only chemicals that are currently listed on the Philippine 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**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.

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:

Component	CAS No	Weight-%	SARA 313 Status
Styrene	100-42-5	45.0	Listed
Cobalt compounds		<0.3	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

Clean Water Act

This product contains the following listed substances:

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Styrene 100-42-5	1000 lb			Listed

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	45.0	
Cobalt compounds		<0.3	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	

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 Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

16. OTHER INFORMATION

NFPA Rating **Health 2** **Flammability 3** **Instability 1**

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

Revision Date: 19/Feb/2015

Revision Summary: This data sheet contains changes from the previous version in section(s):
2, 3, 4, 5, 11, 14, 15

Former date: 14 January 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 Safety Data Sheet