

SAFETY DATA SHEET

Revision Date: 07/Jan/2015

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE GOMPANY/UNDERTAKING

Product Identifier

Product Description:

HYDREX® 100 33350-15 (TAP Marine Vinyl Ester Resin)

Other means of identification

SAP ID(s):

25902; 25903; 151227 33350-15

Material Code: **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/Supplier:

Emergency Telephone

(Chemtrec) 1-800-424-9300

Reichhold, Inc.

Corporate Headquarters

P.O. Box 13582

Research Triangle Park, NC 27709

USA

Tel +1-919-990-7500 Fax +1-919-767-8602

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 Category 2 Skin corrosion/irritation Category 2A Serious eye damage/eye irritation Skin sensitization Category 1 Carcinogenicity Sub-category 1B Category 2 Reproductive toxicity Category 3 Specific target organ toxicity (single exposure) Category 1 Specific target organ toxicity (repeated exposure) Chronic aquatic toxicity Category 3 Category 3

Label elements

Flammable liquids

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

Revision Date: 07/Jan/2015



Appearance Amber - Opaque

25902; HYDREX® 100 33350-15

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

Wear protective gloves/protective clothing/eye protection/face protection

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

Contaminated work clothing should not be allowed out of the workplace

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

IF ON SKIN: Wash with plenty of soap and water

Wash contaminated clothing before reuse

If skin irritation occurs: Get medical advice/attention

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

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

Unknown acute toxicity

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

Unknown aquatic toxicity 55.5% 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	44.0	
Silica, Amorphous, Fumed, CrystFree	112945-52-5	<1.5	*
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. Potential for aspiration if swallowed. This material may enter the lungs during vomiting. Immediately give the victim one or two glasses of water or milk to drink. 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

No information available.

Indication of any immediate medical attention and special treatment needed

Notes to Physician

Treat symptomatically.

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. 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.

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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

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 Residence

Exposure limits

Components with workplace control parameters

Styrene (CAS #: 100-42-5)

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ACGIH TLV 20 ppm TWA

40 ppm STEL

A4 Not Classifiable as a Human Carcinogen
OSHA PEL 100 ppm TWA

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.

40 ppm STEL

170 mg/m³ STEL 20 ppm TWA 85 mg/m³ TWA 35 ppm TWA

Canada - Ontario OELs

35 ppm TWA
100 ppm STEL

Canada - British Columbia OELs 50 ppm TWA 75 ppm STEL

NIOSH IDLH

Mexico OEL

700 ppm Immediately dangerous to life or health IDLH
100 ppm STEL

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

(skin)

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)

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)

TLV® (Threshold Limit Value)
TWA (time-weighted average)

Canada - Alberta OELs

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

mppcf - millions of particles per cubic foot

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

Odor **Odor Threshold**

Appearance

Physical State

рΗ

Flash Point

Flash Point Method: **Autoignition Temperature** Boiling point / boiling range Melting point / Freezing point Flammability Limit in Air

Lower Upper **Specific Gravity** Solubility

Evaporation Rate Vapor Pressure

Vapor Density Explosive Properties Oxidizing Properties Percent Volatile, wt.%

VOC Content: Viscosity

Partition Coefficient (n-octanol/water)

Decomposition temperature

Amber - Opaque

Pungent

0.2 ppm (Styrene)

Liquid

No information available

32 °C / 89 °F Seta closed cup

490°C / 914°F (Styrene) 146°C / 295°F (Styrene) No information available

1.1% (Styrene) 6.1% (Styrene) 1.04 - 1.12 @ 25°C Insoluble (Water)

0.49 (BuAc = 1) (Styrene) 5 mmHg @ 20°C (Styrene)

6.7 hPa (Styrene) 3.6 (Air = 1) (Styrene)No information available No information available 42 - 46 % by weight

475 g/l (calculated) product as supplied

450 - 600 cps @ 25°C No information available 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 may be headache, dizziness, tiredness, nausea and vomiting.

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 Group A4 - Not classifiable as a human carcinogen.

Group 2B - Possibly Carcinogenic to Humans Reasonably anticipated to be human carcinogen

Cobalt compounds

IARC

Group 2B - Possibly Carcinogenic to Humans

Legend

IARC - International Agency for Research on Cancer

NTP - National Toxicology Program

Reproductive Toxicity

No information available.

Neurological Effects

No information available.

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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)

2039 mg/kg 12 mg/L

ATEmix (inhalation-vapor)

12. ECOLOGICAL INFORMATION

Ecotoxicity

Styrene

Log Kow

2.95

Bioconcentration factor (BCF)

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

Algae Fish

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

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

Unknown aquatic toxicity

55.5% 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

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25902: HYDREX® 100 33350-15

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 CLASS 3

Packing Group PG III NAERG: 127

MEX

UN-No UN1866

Proper Shipping Name RESIN SOLUTION

Hazard Class CLASS 3
Packing Group PG III
NAERG: 127

<u>IATA</u>

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 or are exempt from the US Toxic Substances

Control Act (TSCA) inventory

Canadian Inventory Status: This material contains a component(s) that is listed on the Canadian Non-Domestic

Substances List (NDSL)

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 one or more chemicals currently not 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 one or more chemicals currently not 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	44.0	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	44.0	
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 Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

16. OTHER INFORMATION

NFPA Rating

Health 2

Flammability 3

Instability 1

Prepared By

Reichhold Product Regulatory Department

Phone Number: 919-990-7500

Revision Date:

07/Jan/2015

Revision Summary:

This data sheet contains changes from the previous version in section(s):

1, 2, 3, 4, 5, 8, 9, 11, 14, 15

Former date:

13 August 2012

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