

MATERIAL SAFETY DATA SHEET

Trade Name: HYDREX® 33375

Revision Date: 2019-04-19

Compilation Date: 2019-03-05

1. PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME

HYDREX® 33375

MANUFACTURER

Polynt Composites Korea Co. Ltd
51 Wanjusandan 4-ro Bongdong-eub
Wanju-gun Jeollabuk-do 565-904
Korea

Tel: +82 63 260 2181

Fax: +82 63 261 6431

Emergency Telephone:

+82 2 3271 3312 (South Korea)

SUPPLIER

Aurora Glass Fibre (NZ) Ltd
3/16 Zelanian Drive, East Tamaki,
Auckland 2013, New Zealand

Tel: +64 09 273-3540

Fax: +64 09 273-3565

Emergency Telephone No. +64 09 273-3540

Poisons Information Centre

0800 764 766 (from anywhere in New Zealand)

2. HAZARD IDENTIFICATION

Classified as Hazardous according to the New Zealand Hazardous Substances Regulations. Classified as Dangerous Goods for transport according to New Zealand Standard.

DG Classification: Class 3

UN Number: 1866, Resin Solution, Flammable

EPA New Zealand Approval Code: HSR001221



HSNO Classification:

- 3.1C Flammable Liquid
- 6.1E Acute Toxicity, Oral/Dermal
- 6.1D Acute Toxicity, Inhalation
- 6.3A Substance that is corrosive or irritating to the skin
- 6.4A Substance that is corrosive or irritating to the eye
- 6.6B Suspected human mutagen
- 6.7B Suspected human carcinogen
- 6.9B May cause damage to target organs through prolonged/repeated exposure
- 9.1C Aquatic ecotoxicity, Fish

Hazard Statement:

- H226 Flammable liquid and vapour
- H304 May be fatal if swallowed and enters airways
- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H332 Harmful if inhaled
- H335 May cause respiratory irritation

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| | |
|------|---|
| H341 | Suspected of causing genetic defects |
| H351 | Suspected of causing cancer |
| H360 | May damage fertility or the unborn child |
| H370 | Causes damage to organs |
| H372 | Causes damage to organs (blood system, liver, central nervous system, respiratory tract) through prolonged or repeated exposure |
| H411 | Toxic to aquatic life with long lasting effects |

Prevention:

| | |
|------|--|
| P201 | Obtain special instruction before use |
| P202 | Do not handle until all safety precautions have been read and understood |
| P210 | Keep away from heat, sparks, open flames and hot surfaces. – No smoking |
| P233 | Keep container tightly closed |
| P240 | Ground/bond container and receiving equipment |
| P241 | Use explosion-proof electrical ventilating, lighting and other equipment |
| P242 | Use only non-sparking tools |
| P243 | Take precautionary measures against static discharge |
| P260 | Do not breath fumes, mists, vapours or spray |
| P261 | Avoid breathing dust/fume/gas/mist/vapours/spray |
| P264 | Wash thoroughly after handling |
| P270 | Do not eat, drink or smoke when using this product |
| P271 | Use only outdoors or in a well ventilated area |
| P280 | Wear protective gloves, protective clothing and eye or face protection |
| P281 | Use personal protective equipment as required |

Response:

| | |
|----------------|--|
| P301+P310 | IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician |
| P302+P352 | IF ON SKIN: Wash with plenty of soap and water |
| P303+P361+P353 | IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water |
| P304+P340 | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing |
| P308+P313 | If exposed or concerned: Get medical advice |
| P312 | Call a POISON CENTRE or doctor/physician if you feel unwell |
| P314 | Get medical advice or attention if you feel unwell |
| P331 | Do NOT induce vomiting |
| P332+P313 | If skin irritation occurs: Get medical advice/attention |
| P362 | Take off contaminated clothing and wash before reuse |
| P332+P313 | If skin irritation occurs: Get medical advice/attention |
| P337+P313 | If eye irritation persists: Get medical advice/attention |
| P370+P378 | In case of fire, use carbon dioxide, dry chemical, water fog. Alcohol resistant foam is the preferred firefighting medium, but if it is not available, normal foam can be used |

Storage:

| | |
|-----------|---|
| P403+P233 | Store in well ventilated place, keep container tightly closed |
| P403+P235 | Store in a well ventilated place. Keep cool |
| P405 | Store locked up |
| P422 | Store contents below 25°C |

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Disposal:

P501 Dispose of contents to an approved waste disposal plant

Other hazard risks which are not included in the classification criteria

NFPA-grade (0~4) level:

Health 2, Flammability 3, Reactivity 2

Strongly exothermic polymerization may be caused by:

Heat
Free radical formers
Peroxides

3. COMPOSITION / INFORMATION ON INGREDIENTS

| Chemical Name | Other Name | KE-No | CAS-No | Weight Percent |
|---|-------------------------|----------|----------|----------------|
| Styrene | Phenyl ethylene | KE-35342 | 100-42-5 | 25-35 |
| Modified BISPHENOL A-EPICHLOROHYDRIN-METHACRYLIC ACID POLYMER | Modified epoxy acrylate | No data | No data | 62-72 |
| Alpha-methyl styrene | 2-PHENYL PROPENE | KE-23939 | 98-83-9 | <5 |

4. FIRST AID MEASURES

Description of first aid measures

- Eye Contact** Rinse thoroughly with plenty of water, also under the eyelids.
Keep eyes wide open while rinsing.
If symptoms persist, call a physician.
- Skin Contact** Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.
If skin irritation persists, call a physician.
- Inhalation** Move to fresh air.
If not breathing, give artificial respiration.
If symptoms persist, call a physician.
- Ingestion** Do NOT induce vomiting.
Rinse mouth.
If symptoms persist, call a physician.
- Protection of first aiders** Use personal protective equipment.

Indication of immediate attention and notes to physician

Eye irritation and skin irritation – Harmful by inhalation. Harmful: danger of serious damage to health by prolonged exposure through inhalation. Irritating to respiratory system. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

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Special notes to physician

General advice: If the symptoms persist, call a physician.
Show this safety data sheet to the doctor in attendance.
Do not breathe dust/fume/gas/mist/vapours/spray.

5. FIRE FIGHTING MEASURES

Suitable and unsuitable extinguishing media

Suitable Extinguishing Media

Cool containers/tanks with water spray. Dry chemical, Foam, Carbon dioxide (CO₂).

Extinguishing media which must not be used for safety reasons

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

Special hazards arising from the chemical

Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases:

Vapours may form explosive mixtures with air. Most vapours are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).

Specific method for fire-fighting

Special protective equipment for firefighters

Wear self-contained breathing apparatus (SCBA) and protective suit

Other information

Cool container / tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, protective equipment and emergency measures

Remove all sources of ignition, heat, flames and sparks. Take precautionary measures against static charges. Ensure adequate ventilation. Use personal protective equipment.

Environmental Precautions and protective procedures

Product should not be allowed to enter drains, water courses or the soil. Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Use clean non-sparking tools to collect absorbed material.

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7. HANDLING AND STORAGE

Precautions for Safe Handling

Engineering method

Work according to Industrial Safety and Health Act, Safety Control of Dangerous Substances Act and the other related regulations. Control the workplace environment below the exposure limit. Use only in area provided with appropriate exhaust ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Wear personal protective equipment.

Prevention of fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Do not use compressed air for filling, discharging or handling. Empty containers may contain flammable or explosive vapours.

Hygiene measures

When using product, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing.

Precaution

Avoid static electricity built up with connection to earth. Strongly exothermic polymerization may be caused by: Heat, Free radical formers, Peroxides.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage Conditions

Keep in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition.

Materials to avoid

Strong oxidizing agents, Organic Peroxide

Package material

Metallic GRP Tanks (Reinforced Glass Polyester)

Unsuitable materials for containers

Aluminium, Copper or copper alloys container

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limit values, biological limit values

Occupational Exposure Limits

| Chemical Name | Korea | ACGIH |
|----------------------|--|----------------------------------|
| Styrene | TWA-20ppm, 85mg/m ³ STEL-40ppm, 170mg/m ³ | TLV-TWA-20ppm TLV-STEL-40ppm |
| Alpha-methyl styrene | TWA-50ppm, 240mg/m ³ STEL-100ppm, 485mg/m ³ | TLV-TWA-50ppm TLV-STEL-100ppm |

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Appropriate engineering control

Occupational exposure controls – Engineering measures

Apply technical measures to comply with the occupational exposure limits. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

Personal protective equipment

General Information

Use personal protective equipment.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. Breathing apparatus with filter Type A. Respirator must be worn if exposed to dust. Effective dust mask Type A/P2.

Eye protection

Use safety glasses with side-shields, do not wear contact lenses.

Skin and body protection

Antistatic boots, wear fire/flame resistant/retardant clothing.

Hand protection

Impervious gloves, Glove material: Neoprene Nitriles Viton® Polyvinyl. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Environmental exposure controls

Do not allow material to contaminate ground water system.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| | |
|---------------------------|--------------------------|
| Physical State | Liquid |
| Appearance | Amber |
| Odour | Pungent |
| Odour Threshold | 0.2 ppm (Styrene) |
| pH | Not applicable |
| Boiling Point/Range | 146°C (Styrene) |
| Melting/Freezing Point | -30°C (Styrene) |
| Flash Point | 32°C |
| Flash Point Method | Seta closed cup |
| Autoignition Temperature | 490°C (Styrene) |
| Flammability Limit in Air | |
| Lower | 1.1% (Styrene) |
| Upper | 6.1% (Styrene) |
| Explosive Properties | No information available |
| Oxidising Properties | No information available |
| Vapour Pressure | 6.7 hPa (Styrene) @ 20°C |
| Vapour Density | 3.6 (Air = 1) (Styrene) |

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Solubility Insoluble (Water)
Evaporation Rate 0.49 (BuAc = 1) (Styrene)
Viscosity 150 - 260 cps @ 25°C
Decomposition Temperature No information available

10. STABILITY AND REACTIVITY

Chemical stability and possibility of hazardous reaction

Reactivity No information available

Chemical Stability

Stability Stable under recommended storage conditions.

Possibility of Hazardous Reactions

Hazardous polymerization Polymerization can occur.

Conditions to Avoid

Heat, flames and sparks. Exposure to light. Take precautionary measures against static charges.

Incompatible Materials

Strong oxidising agents, Organic Peroxide.

Hazardous Decomposition Products

Incomplete combustion and thermolysis produces potentially toxic gases such as carbon monoxide and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation Harmful by inhalation, Harmful: danger of serious damage to health by prolonged exposure through inhalation. Irritating to respiratory system.
 Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
 Skin Contact Irritating to skin.
 Eye Contact Irritating to eyes.

Health Hazard Information

Acute toxicity – Component Information

| Chemical Name | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|----------------------|------------------|-----------------------|---------------------|
| Styrene | 2650 mg/kg (Rat) | > 5010 mg/kg (Rabbit) | 11.7 mg/L (Rat) 4 h |
| Alpha-methyl styrene | 4900 mg/kg (Rat) | 14500 mg/kg (Rabbit) | No data |

Sensitization

Inhalation No data available.
 Skin Contact No data available.

Serious Eye Damage

Irritating to eyes

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Long Term Effects

Mutagenic effect suspected of causing genetic effects.

Carcinogenicity

Styrene

KOSHA-OSHA-NTP: No data available.

IARC (Group): 2B

ACGHI: A4

EC: Not classified according to annex I-Animal testing did not show any carcinogenic effects (15).

Reproductive toxicity may damage fertility or the unborn child.

Specific Target Organ Effects (single exposure)

Causes damage to: Central nervous system (CNS), respiratory system, eyes, liver and skin.

Specific Target Organ Effects (repeated exposure)

Causes damage to: Blood system, central nervous system, respiratory tract/organ.

Aspiration Hazard

May be fatal if swallowed and enters airways.

12. ECOLOGICAL INFORMATION

Aquatic and terrestrial eco-toxicity

Do not flush into surface water or sanitary sewer system.

| Chemical Name | Toxicity to fish | Toxicity to crustacean | Toxicity to algae |
|----------------------|--------------------|------------------------|-------------------|
| Styrene | LC50 96h 4.02 mg/L | LC50 96h 4.7 mg/L | EC50 96h 78mg/L |
| Alpha-methyl styrene | No data | EC50 48h 2.6mg/L | No data |

Persistence and degradability

| Chemical Name | Biomagnification | Biodegradability (%) |
|----------------------|------------------|----------------------|
| Styrene | No data | 100 |
| Alpha-methyl styrene | BCF 150 | No data |

Bio-accumulative potential

Partition coefficient:

Styrene: Log Kow 2.95

Mobility in soil

No data available

Other adverse effects

Unknown

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13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residue/unused products

This material and its container must be disposed of as hazardous waste. Dispose of contents/containers in accordance with local regulations. Can be incinerated, when in compliance with local regulations.

Contaminated Packaging

Empty containers should be taken for local recycling, recovery or waste disposal. Dispose of in accordance with the Local Regulations on waste and hazardous waste.

14. TRANSPORT INFORMATION

ADR/RID

| | |
|----------------------|-----------------------------------|
| UN No. | UN1866 |
| Proper Shipping Name | RESIN SOLUTION |
| Hazard Class | 3 |
| Packing Group | III |
| Label | 3 |
| Description | UN1866, RESIN SOLUTION, 3, PG III |

IMDG/IMO

| | |
|----------------------|--|
| UN No. | UN1866 |
| Proper Shipping Name | RESIN SOLUTION |
| Hazard Class | 3 |
| Packing Group | III |
| Marine Pollutant | P/PP |
| EmS-No | 3-05 |
| Description | UN1866, RESIN SOLUTION, 3, PG III, (31°C c.c.) |

ICAO/IATA

| | |
|----------------------|-----------------------------------|
| UN No. | UN1866 |
| Proper Shipping Name | RESIN SOLUTION |
| Hazard Class | 3 |
| Packing Group | III |
| Label | 3 |
| Description | UN1866, RESIN SOLUTION, 3, PG III |

15. REGULATORY INFORMATION

National regulatory information

The mixture is classified as dangerous in accordance with Industrial Safety and Health Law of Korea.

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Restrictions under the Industrial Safety and Health Act:

Harmful substances requiring Workplace Environment Monitoring
Applicable Styrene and mixtures containing more than 1%
Chemical specified exposure limits
Applicable to Styrene and Alpha-methyl styrene
Avoid exceeding of the given occupational exposure limits (see section 8)
Controlled Hazardous Substances
Applicable Styrene and mixtures containing more than 1%
Harmful substance requiring Special Medical Examination
Applicable Styrene and mixtures containing more than 1%

Restrictions under the Chemical Control Act:

Poisonous substance
Not applicable
Observational chemicals
Not applicable
Toxic Release Inventory
Applicable Styrene and mixtures containing more than 0.1%
Accident precaution chemicals
Not applicable
Restricted substance
Not applicable

Restrictions under the Safety Control of Dangerous Substances Act:

One or more substance is regulated under Class 4.2 Petroleum substance, flammable substance Class 4.2 Petroleum Dangerous Substances Threshold Quantity (Pres. Decree of Dang. Subs. Safety Mgt. Act No. 18406, Sch. 1)
Threshold quantity 1000 l; Styrene CASRN 100-42-5

Restrictions under the Waste Management Act:

One of more substance are regulated as designated waste (waste organic solvent) according to Pres. Decree of Waste Mgt. law sch. 1 – Styrene CASRN 100-42-5

Restrictions under other foreign or domestic laws:

POP's Management Law
Not applicable
Rotterdam Convention listed Ingredients
Not applicable
Stockholm Convention listed Ingredients
Not applicable
Montreal Protocol
Not applicable

EU

Hazardous Information

Xn Harmful
Xi Irritating

Full text of Risk-phrases

R10 Flammable

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R20 Harmful by inhalation
R36/37/38 Irritating to eyes, respiratory system and skin
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Full text of Safety-phrases

S2 Keep out of reach of children
S7/9 Keep container tightly closed and in a well-ventilated place
S16 Keep away from sources of ignition – No smoking
S33 Take precautionary measures against static discharges
S61 Avoid release to the environment. Refer to special instructions/safety data sheets

US

| | |
|-------------------------------------|-------------------|
| OSHA regulation (29 CFR1910.119) | No |
| CERCLA 103 regulation (40 CFR302.4) | 453.599kg, 1000lb |
| EPCRA 302 regulation (40 CFR355.30) | No |
| EPCRA 304 regulation (40 CFR355.40) | No |
| EPCRA 313 regulation (40 CFR372.65) | Yes |

16. OTHER INFORMATION

| | | | |
|--------------------------|---------------------------------|---------------------------------|------------------|
| Reference: | Polynt Composites Korea Co. Ltd | MSDS on Hydrex® 33375 | 05 March 2019 |
| | Polynt Composites | MSDS on Hydrex® 100 HF 33375-00 | 01 November 2017 |
| Compiled by: | Aurora Glass Fibre (NZ) Ltd | | |
| Preparation Date: | 19 April 2019 | | |

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