

## Enviro-Safe 1234YF Proseal

### 1 PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** Enviro-Safe 1234YF Proseal  
**SDS Number:** 2074  
**Revision Date:** 10/9/2024  
**Version:** 2.5  
**Product Description:** 1234yf AC Sealant  
  
**Supplier Details:** Enviro-Safe Refrigerants, Inc.  
 400 Hanna Dr.  
 Pekin, IL 61554  
  
**Phone:** 319-346-1110  
**Fax:** 390-346-1237  
**Email:** info@es-refrigerants.com  
**Internet:** www.es-refrigerants.com  
**Emergency:** CHEMTREC 1-800-424-9300

### 2 HAZARDS IDENTIFICATION

#### Classification of Substance

**GHS Classification in Accordance with 29 CFR 1910 (OSHA HCS):**

- Physical, Flammable Gases, 1
- Physical, Flammable Liquids, 2
- Physical, Flammable Liquids, 3
- Physical, Gases Under Pressure, Compressed Gas
- Health, Aspiration hazard, 1
- Health, Skin corrosion/irritation, 2
- Health, Skin corrosion/irritation, 3
- Health, Serious Eye Damage/Eye Irritation, 2 A
- Health, Acute toxicity, 5 Inhalation
- Health, Specific target organ toxicity - Single exposure, 3
- Health, Reproductive toxicity, 2
- Health, Specific target organ toxicity - Repeated exposure, 2
- Environmental, Hazards to the aquatic environment - Acute, 2

#### GHS Label Elements, Including Precautionary Statements

**GHS Signal Word:** **DANGER**

**GHS Hazard Pictograms:**



**GHS Hazard Statements:**

- H220 - Extremely flammable gas
- H225 - Highly flammable liquid and vapour
- H226 - Flammable liquid and vapour
- H280 - Contains gas under pressure; may explode if heated
- H304 - May be fatal if swallowed and enters airways
- H315 - Causes skin irritation
- H316 - Causes mild skin irritation
- H319 - Causes serious eye irritation
- H333 - May be harmful if inhaled
- H336 - May cause drowsiness or dizziness
- H361 - Suspected of damaging fertility or the unborn child (state specific effect if known)(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
- H373 - May cause damage to organs ( state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
- H401 - Toxic to aquatic life

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OSHA-H01 - May displace oxygen and cause rapid suffocation

**GHS Precautionary Statements:**

- P201 - Obtain special instructions before use.
- P202 - Do not handle until all safety precautions have been read and understood.
- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P211 - Keep away from heat/sparks/open flames/hot surfaces.
- P233 - Keep container tightly closed.
- P240 - Ground/bond container and receiving equipment.
- P241 - Use explosion-proof electrical/ ventilating/ lighting/ equipment.
- P242 - Use only non-sparking tools.
- P243 - Take precautionary measures against static discharge.
- P260 - Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
- P261 - Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
- P264 - Wash skin thoroughly after handling.
- P271 - Use only outdoors or in a well-ventilated area.
- P273 - Avoid release to the environment.
- P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
- P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- 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/ attention.
- P321 - Specific treatment (see supplemental first aid instructions on this label).
- P331 - Do NOT induce vomiting.
- P332 + P313 - If skin irritation occurs: Get medical advice/ attention.
- P362 - Take off contaminated clothing and wash before reuse.
- P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
- P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
- P381 - In case of leakage, eliminate all ignition sources.
- P403 - Store in a well-ventilated place.
- P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
- P403 + P235 - Store in a well-ventilated place. Keep cool.
- P405 - Store locked up.
- P410 + P403 - Protect from sunlight. Store in a well-ventilated place.
- P501 - Dispose of contents/ container to an approved waste disposal plant.

**Hazards not Otherwise Classified (HNOC) or not Covered by GHS**

**3 COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Ingredients

| CAS#       | % | Chemical Name              |
|------------|---|----------------------------|
| 64-17-5    |   | Ethyl alcohol              |
| 108-88-3   |   | Toluene                    |
| 68476-85-7 |   | Petroleum gases, liquefied |
| 78-08-0    |   | Silane, ethenyltriethoxy-  |

**4 FIRST AID MEASURES**

- Inhalation:** When symptoms occur: go into open air and ventilate suspected area. Immediately call a POISON CENTER or doctor/physician.
- Skin Contact:** If frostbite or freezing occurs, immediately flush with plenty of lukewarm water to GENTLY warm the affected area. Do not use hot water. Do not rub affected area. Get immediate medical attention.
- Eye Contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
- Ingestion:** Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

**4.1. Description of First Aid Measures**

**First-aid Measures General:** Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice.

**4.2. Most Important Symptoms and Effects, Both Acute and Delayed**

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**Symptoms/Injuries:** Gas can be toxic as simple asphyxiant by displacing oxygen from the air. Refrigerated liquefied gas. Contact with product may cause cold burns or frostbite.

**Symptoms/Injuries After Inhalation:** Asphyxiant gas.

**Symptoms/Injuries After Skin Contact:** May cause frostbite. May cause skin irritation.

**Symptoms/Injuries After Eye Contact:** Contact with the liquefied gas causes frostbite.

**Symptoms/Injuries After Ingestion:** Ingestion is an unlikely route of exposure for a gas.

### 4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention.

## 5 FIRE FIGHTING MEASURES

**Autoignition Temperature:** 644.44° C (1246° F)

**Lower Explosive Limit:** 2.6%

**Upper Explosive Limit:** 9%

### 5.1. Extinguishing Media

**Suitable Extinguishing Media:** Dry chemical powder, alcohol-resistant foam, carbon dioxide (CO<sub>2</sub>).

**Unsuitable Extinguishing Media:** Do not use heavy stream. Use of heavy stream of water may spread fire.

### 5.2. Special Hazards Arising From the Substance or Mixture

**Fire Hazard:** Flammable gas.

**Explosion Hazard:** Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.

**Reactivity:** Contains gas under pressure; may explode if heated. Reacts with strong oxidants causing fire and explosion hazard.

### 5.3. Advice for Firefighters

**Precautionary Measures Fire:** Exercise caution when fighting any chemical fire.

**Firefighting Instructions:** In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers.

**Protection During Firefighting:** Do not enter fire area without proper protective equipment, including respiratory protection.

## 6 ACCIDENTAL RELEASE MEASURES

### 6.1. Personal Precautions, Protective Equipment and Emergency Procedures

**General Measures:** Use special care to avoid static electric charges. Keep away from heat, sparks, open flames, hot surfaces. No smoking. Do not get in eyes, on skin, or on clothing. Do not breathe gas.

#### 6.1.1. For Non-emergency Personnel

**Protective Equipment:** Use appropriate personal protection equipment (PPE).

**Emergency Procedures:** Evacuate unnecessary personnel. Eliminate ignition sources.

#### 6.1.2. For Emergency Responders

**Protective Equipment:** Equip clean up crew with proper protection.

**Emergency Procedures:** Evacuate unnecessary personnel. Eliminate ignition sources.

### 6.2. Environmental Precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

### 6.3. Methods and Material for Containment and Cleaning Up

**For Containment:** Stop leak without risks if possible. Do not take up incombustible material such as: saw dust or cellulosic material.

**Methods for Cleaning Up:** Contact competent authorities after a spill.

### 6.4. Reference to Other Sections

See Heading 8. Exposure controls and personal protection. For further information refer to section 13

## 7 HANDLING AND STORAGE

### Handling Precautions:

#### 7.1. Precautions for Safe Handling

**Precautions for Safe Handling:** Personnel should be trained to regularly inspect equipment such as pumps, hoses, and valves. Do not breathe gas. Ensure there is adequate ventilation. Close valve after each use and when empty. Open valve slowly to avoid pressure shock.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

### Storage Requirements:

#### 7.2. Conditions for Safe Storage, Including Any Incompatibilities

**Technical Measures:** Comply with applicable regulations. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling. Keep at temperatures below 52 °C/125 °F.

**Storage Conditions:** Store in a dry, cool and well-ventilated place. Keep in fireproof place. Store locked up.

**Incompatible Products:** Heat sources. Oxidizers.

**Special Rules on Packaging:** Store in containers fitted with suitable release valve.

#### 7.3. Specific End Use(s)

A/C Sealant.

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**8**
**EXPOSURE CONTROLS/PERSONAL PROTECTION**
**Engineering Controls:**

Alarm detectors should be used when toxic gases may be released. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure all national/local regulations are observed.

**Personal Protective Equipment:**

Ethyl alcohol cas#:(64-17-5)

Personal protective equipment

Eye/face protection: Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching gloves outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact: Material: butyl-rubber Minimum layer thickness: 0.3 mm Break through time: 480 min Material tested:Butoject (KCL 897 / Aldrich Z677647, Size M)

Splash contact: Material: Nitrile rubber Minimum layer thickness: 0.2 mm Break through time: 38 min Material tested:Dermatril P (KCL 743 / Aldrich Z677388, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection: impervious clothing, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure: Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Toluene cas#:(108-88-3)

Personal protective equipment

Eye/face protection: Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching gloves outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact: Material: Fluorinated rubber Minimum layer thickness: 0.7 mm Break through time: 480 min Material tested:Vitoject (KCL 890 / Aldrich Z677698, Size M)

Splash contact: Material: Fluorinated rubber Minimum layer thickness: 0.7 mm Break through time: 480 min Material tested:Vitoject (KCL 890 / Aldrich Z677698, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection: Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The

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type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Petroleum gases, liquefied cas#:(68476-85-7)

Gas mask. Protective goggles. Gloves. Protective clothing.

Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear working gloves when handling gas containers.

Eye Protection: Safety glasses.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: use a NIOSH-approved self-contained breathing apparatus in oxygen deficient atmospheres.

Thermal hazard Protection: Wear cold insulating gloves.

Silane, ethenyltriethoxy- cas#:(78-08-0)

Personal protective equipment

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching gloves outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Full contact Material: Nitrile rubber Minimum layer thickness: 0.4 mm Break through time: 480 min Material tested:Camatril (KCL 730 / Aldrich Z677442, Size M) Splash contact data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Eye protection: Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection: impervious clothing, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Propane cas#:(74-98-6)

Components with workplace control parameters

TWA 1,000 ppm USA. ACGIH Threshold Limit Values (TLV)

Central Nervous System Impairment Cardiac sensitization

TWA 1,000 ppm USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants  
1,800 mg/m3

The value in mg/m3 is approximate.

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|     |                          |   |
|-----|--------------------------|---|
| TWA | 1,000 ppm<br>1,800 mg/m3 | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 |
| TWA | 1,000 ppm<br>1,800 mg/m3 | USA. NIOSH Recommended Exposure Limits                        |

Butane cas#:(106-97-8)

Components with workplace control parameters

|     |                        |   |
|-----|------------------------|---|
| TWA | 800 ppm<br>1,900 mg/m3 | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 |
| TWA | 1,000 ppm              | USA. ACGIH Threshold Limit Values (TLV)                       |
| TWA | 1,000 ppm              | USA. ACGIH Threshold Limit Values (TLV)                       |

Central Nervous System impairment Cardiac sensitization

|     |                        |  |
|-----|------------------------|--|
| TWA | 800 ppm<br>1,900 mg/m3 | USA. NIOSH Recommended Exposure Limits |
|-----|------------------------|--|

Also see specific listing for Isobutane.

Ethyl alcohol cas#:(64-17-5)

Components with workplace control parameters

|     |           |   |
|-----|-----------|---|
| TWA | 1,000 ppm | USA. ACGIH Threshold Limit Values (TLV) |
|-----|-----------|---|

Upper Respiratory Tract Irritation Confirmed animal carcinogen with unknown relevance to humans

|     |                          |  |
|-----|--------------------------|--|
| TWA | 1,000 ppm<br>1,900 mg/m3 | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
|-----|--------------------------|--|

The value in mg/m3 is approximate.

|     |                          |  |
|-----|--------------------------|--|
| TWA | 1,000 ppm<br>1,900 mg/m3 | USA. NIOSH Recommended Exposure Limits |
|-----|--------------------------|--|

Toluene cas#(108-88-3)

|           |                                    |
|-----------|------------------------------------|
| USA ACGIH | ACGIH TWA (ppm): 20ppm             |
| USA NIOSH | NIOSH REL (TWA) (mg/m3): 375mg/m3  |
| USA NIOSH | NIOSH REL (TWA) (ppm): 100ppm      |
| USA NIOSH | NIOSH REL (STEL) (mg/m3): 560mg/m3 |
| USA NIOSH | NIOSH REL (STEL) (ppm): 150ppm     |
| USA IDLH  | US IDLH (ppm): 500ppm              |
| USA OSHA  | OSHA PEL (TWA) (ppm): 200ppm       |
| USA OSHA  | OSHA PEL (Ceiling) (ppm): 300ppm   |

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### PHYSICAL AND CHEMICAL PROPERTIES

|                                     |                   |                                   |                        |
|-------------------------------------|-------------------|-----------------------------------|------------------------|
| <b>Appearance:</b>                  | Colorless         | <b>Odor:</b>                      | Amine                  |
| <b>Physical State:</b>              | Gas               | <b>Solubility:</b>                | No data available      |
| <b>Odor Threshold:</b>              | No data available | <b>Freezing or Melting Point:</b> | -176.67°C (-286°F)     |
| <b>Specific Gravity or Density:</b> | 9.1 (water=1)     | <b>Flash Point:</b>               | -18° C (0° F)          |
| <b>Viscosity:</b>                   | No data available | <b>Vapor Density:</b>             | > 1 (Heavier than air) |
| <b>Boiling Point:</b>               | 61.7 °C (143 °F)  | <b>Autoignition Temperature:</b>  | 644.44° C (1246° F)    |
| <b>Partition Coefficient:</b>       | No data available | <b>UFL / LFL:</b>                 | 9% / 2.6%              |
| <b>Vapor Pressure:</b>              | 117.74 hPa        |                                   |                        |
| <b>Potentia Hydrogenii:</b>         | No data available |                                   |                        |
| <b>Evaporation Rate:</b>            | < 1               |                                   |                        |
| <b>Decompression Temperature:</b>   | No data available |                                   |                        |

## Enviro-Safe 1234YF Proseal

### 10 STABILITY AND REACTIVITY

|  |   |
|--|---|
| <b>Reactivity:</b>                         | Contains gas under pressure; may explode if heated. Reacts with oxidants causing fire and explosion hazard. |
| <b>Chemical Stability:</b>                 | Stable under recommended handling and storage conditions (see section 7).                                   |
| <b>Conditions to Avoid Identification:</b> | Direct sunlight. Extremely high or low temperatures. Open flame. Heat. Sparks.                              |
| <b>Materials to Avoid Identification:</b>  | Heat. Strong oxidizers.   |
| <b>Hazardous Decomposition:</b>            | Carbon Oxides (CO, CO2).  |
| <b>Hazardous Polymerization:</b>           | Hazardous polymerization will not occur.  |

### 11 TOXICOLOGICAL INFORMATION

Ethyl alcohol cas#:(64-17-5) []

Information on toxicological effects

Acute toxicity:

LD50 Oral - rat - 7,060 mg/kg Remarks: Lungs, Thorax, or Respiration:Other changes.

LC50 Inhalation - rat - 10 h - 20000 ppm

Dermal: no data available

Skin corrosion/irritation: Skin - rabbit Result: No skin irritation - 24 h (OECD Test Guideline 404)

Serious eye damage/eye irritation: Eyes - rabbit Result: Mild eye irritation - 24 h (OECD Test Guideline 405)

Respiratory or skin sensitisation: no data available

Germ cell mutagenicity: no data available

Carcinogenicity:

Carcinogenicity - mouse - Oral:

Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Liver:Tumors. Blood:Lymphomas including Hodgkins disease.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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 present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: no data available

Reproductive toxicity - Human - female - Oral:

Effects on Newborn: Apgar score (human only). Effects on Newborn: Other neonatal measures or effects. Effects on Newborn: Drug dependence.

Specific target organ toxicity - single exposure: no data available

Specific target organ toxicity - repeated exposure: no data available

Aspiration hazard: no data available

Additional Information:

RTECS: KQ6300000

Central nervous system depression, narcosis, Damage to the heart., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Toluene cas#:(108-88-3) []

Information on toxicological effects

Acute toxicity:

LD50 Oral - rat - > 5,580 mg/kg

LC50 Inhalation - rat - 4 h - 12,500 - 28,800 mg/m3

LD50 Dermal - rabbit - 12,196 mg/kg

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no data available

Skin corrosion/irritation: Skin - rabbit Result: Skin irritation - 24 h

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitisation: no data available

Germ cell mutagenicity: rat Liver DNA damage

Carcinogenicity:

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Toluene)

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 present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Damage to fetus possible Suspected human reproductive toxicant

Reproductive toxicity - rat - Inhalation:

Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count).

Experiments have shown reproductive toxicity effects in male and female laboratory animals.

Developmental Toxicity - rat - Oral:

Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Specific target organ toxicity - single exposure: no data available

Specific target organ toxicity - repeated exposure: no data available

Aspiration hazard: no data available

Additional Information:

RTECS: XS5250000

Lung irritation, chest pain, pulmonary edema, Inhalation studies on toluene have demonstrated the development of inflammatory and ulcerous lesions of the penis, prepuce, and scrotum in animals.

Stomach - Irregularities - Based on Human Evidence

Petroleum gases, liquefied cas#:(68476-85-7) []

Petroleum gases, liquefied cas#(68476-85-7)

Information on Toxicology

Acute Toxicity: Not classified

LC50 Inhalation Rat: 658mg/l/4h

Petroleum Oil: > 2000 mg/kg

LD 50 Oral Rat: > 2000 mg/kg

LD50 Dermal Rat: > 2000 mg/kg

LC50 Inhalation Rat: > 2000 mg/kg

Skin Corrosion/Irritation: Not classified

Serious Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitiation: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Aspiration Hazard: Not classified

Silane, ethenyltriethoxy- cas#:(78-08-0) []



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Information on toxicological effects

Acute toxicity:

Oral LD50 Inhalation LC50 Dermal LD50 Dermal - rabbit - 9,100 mg/kg  
 Other information on acute toxicity no data available

Skin corrosion/irritation: Serious eye damage/eye irritation:

no data available

Respiratory or skin sensitisation: no data available

Germ cell mutagenicity: no data available

Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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

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 present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: no data available

Teratogenicity: no data available

Specific target organ toxicity - single exposure (Globally Harmonized System):

Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure (Globally Harmonized System):

no data available

Aspiration hazard: no data available

Potential health effects: Inhalation May be harmful if inhaled. Causes respiratory tract irritation. Ingestion May be harmful if swallowed. Skin May be harmful if absorbed through skin. Causes skin irritation. Eyes Causes eye irritation.

Signs and Symptoms of Exposure: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects: no data available

Additional Information:

RTECS: VV6700000

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### ECOLOGICAL INFORMATION

Ethyl alcohol cas#:(64-17-5) []

Information on ecological effects

Toxicity: no data available

Persistence and degradability: no data available

Bioaccumulative potential: no data available

Mobility in soil: no data available

Results of PBT and vPvB assessment PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects: no data available

## Enviro-Safe 1234YF Proseal

Toluene cas#:(108-88-3) []

Information on ecological effects

Toxicity:

Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - 7.63 mg/l - 96 h.

NOEC - Pimephales promelas (fathead minnow) - 5.44 mg/l - 7 d

Toxicity to daphnia and EC50 - Daphnia magna (Water flea) - 8.00 mg/l - 24 h.

other aquatic invertebrates

Immobilization EC50 - Daphnia magna (Water flea) - 6 mg/l - 48 h

Toxicity to algae EC50 - Chlorella vulgaris (Fresh water algae) - 245.00 mg/l - 24 h.

EC50 - Pseudokirchneriella subcapitata (green algae) - 10.00 mg/l - 24 h

Persistence and degradability: Biodegradability Result: - Readily biodegradable.

Bioaccumulative potential: no data available

Mobility in soil: no data available

Results of PBT and vPvB assessment PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life.

Petroleum gases, liquefied cas#:(68476-85-7) []

Information on Ecology

Toxicity: No additional information

Persistence and Degradability: No additional information available

Bioaccumulative Potential ---

Log Pow: < 1

Petroleum gases, liquefied (68476-85-7)

Log Pow: 2.3

Mobility in Soil: No additional information available

Other Adverse Effects: No additional information available

Silane, ethenyltriethoxy- cas#:(78-08-0) []

Information on ecological effects

Toxicity: no data available

Persistence and degradability: no data available

Bioaccumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: no data available

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### DISPOSAL CONSIDERATIONS

Ethyl alcohol cas#:(64-17-5) []

Waste treatment methods

Product: Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging: Dispose of as unused product.

## Enviro-Safe 1234YF Proseal

Toluene cas#:(108-88-3) []

Waste treatment methods

Product: Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging: Dispose of as unused product.

Petroleum gases, liquefied cas#:(68476-85-7) []

Information on Disposal

Waste Treatment Methods

Waste Disposal Recommendation: Dispose of waste in accordance with all local, regional, national, provincial, territorial and international regulations. Additional Information: Empty product containers may contain hazardous residue. Do not reuse empty containers without commercial cleaning or reconditioning.

Silane, ethenyltriethoxy- cas#:(78-08-0) []

Waste treatment methods

Product: Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging: Dispose of as unused product.

|           |                              |
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| <b>14</b> | <b>TRANSPORT INFORMATION</b> |
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**14.1. In Accordance with DOT**

**Proper Shipping Name:** Consumer commodity, ORM-D  
**DOT Symbols:** D - Proper shipping name for domestic use only

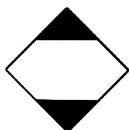
**14.2. In Accordance with IMDG**

**Proper Shipping Name:** Petroleum gases, liquefied  
**Hazard Class:** 2.1  
**Identification Number:** UN1075

**Label Codes:** 2.1  
**EmS-No. (Fire):** F-D  
**EmS-No. (Spillage):** S-U  
**Marine Pollutant:** No

**14.3. In Accordance with IATA**

**Proper Shipping Name:** Petroleum gases, liquefied  
**Identification Number:** UN1075  
**Hazard Class:** 2  
**Label Codes:** 2.1  
**ERG Code (IATA):** 10L  
**Marine Pollutant:** No



|           |                               |
|-----------|-------------------------------|
| <b>15</b> | <b>REGULATORY INFORMATION</b> |
|-----------|-------------------------------|

[%] RQ (CAS#) Substance - Reg Codes

[--%] Ethyl alcohol (64-17-5) MASS, OSHAWAC, PA, TSCA, TSCAACTV, TXAIR

## Enviro-Safe 1234YF Proseal

[--%] RQ(1000LBS), Toluene (108-88-3) CERCLA, CSWHS, EPCRAWPC, HAP, MASS, NJHS, OSHAWAC, PA, PRIPOL, PROP65, SARA313, TOXICPOL, TOXICRCRA, TSCA, TSCAACTV, TXAIR, TXHWL

[--%] Petroleum gases, liquefied (68476-85-7) MASS, OSHAWAC, PA, TSCA, TSCAACTV, TXAIR

[--%] Silane, ethenyltriethoxy- (78-08-0) TSCA, TSCAACTV



**WARNING**

This product can expose you to chemicals including Toluene, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

Regulatory Code Legend

- 
- CERCLA = Superfund Cleanup Substances
  - CSWHS = Clean Water Act Hazardous Substances
  - EPCRAWPC = EPCRA Water Priority Chemicals
  - HAP = Hazardous Air Pollutants
  - MASS = MA Massachusetts Hazardous Substances List
  - NJHS = NJ Right-to-Know Hazardous Substances
  - OSHAWAC = OSHA Workplace Air Contaminants
  - PA = PA Right-To-Know List of Hazardous Substances
  - PRIPOL = Clean Water Act Priority Pollutants
  - PROP65 = CA Prop 65
  - RQ = Reportable Quantity
  - SARA313 = SARA 313 Title III Toxic Chemicals
  - TOXICPOL = Clean Water Act Toxic Pollutants
  - TOXICRCRA = RCRA Toxic Hazardous Wastes (U-List)
  - TSCA = Toxic Substances Control Act
  - TSCAACTV = TSCA Active Chemicals
  - TXAIR = TX Air Contaminants with Health Effects Screening Level
  - TXHWL = TX Hazardous Waste List

Disclaimer: Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

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