

SAFETY DATA SHEET

SEAL & GO 410a

Revision Date: February 19, 2015

Version: 1.0

Section 1 – Identification of the Substance/Mixture and of the Company/Undertaking

Product Names: SEAL-N-GO
Part Numbers: 9410SSR
Product Class: HVAC Refrigerant with Additive
Manufacturer: Cliplight Manufacturing
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Section 2 – Hazards Identification

GHS and CFR 1910.1200 Classifications

Liquefied Gas
Skin Sensitization (Category 1)

Label elements:



Warning

Hazard statements:

H280 Contains gas under pressure
H317 May cause an allergic skin reaction

Precautionary statements:

P280 Wear protective gloves and eye protection.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a doctor if you feel unwell.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a doctor or seek medical attention.
P302 + P352 + P321 IF ON SKIN: Wash with plenty of water. If frostbite has occurred seek medical attention.
P410 + P403 Protect from sunlight. Store in a well-ventilated place.

Other hazards

Contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.
High vapour concentrations can cause headaches, dizziness, drowsiness, and nausea, and may lead to unconsciousness. May cause cardiac arrhythmia (heartbeat irregularity).

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Section 3 – Composition/ Information on Ingredients

Ingredient Name	CAS No.	EC No.	Composition, wt%
Difluoromethane	75-10-5	200-839-4	48
Pentafluoroethane	354-33-6	206-557-8	48
N-(3-(trimethoxysilyl)propyl) ethylenediamine	1760-24-3	217-164-6	0.1 – 0.2

Remaining components are not classified as hazardous under the GHS or CFR 1910.1200.

Section 4 – First Aid Measures

Inhalation

Remove to fresh air. Give artificial respiration if not breathing. If breathing is difficult, oxygen may be given by qualified personnel. Obtain medical attention.

Eye Contact

Remove contact lenses and immediately flush eyes with water and continue washing for at least 15 minutes. Obtain medical attention.

Skin Contact

Remove contaminated clothing. Flush skin with warm, not hot, water. If frostbite has occurred seek medical attention.

Ingestion

This is not considered a likely route of exposure. Refer to the inhalation section. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Acute and Delayed Symptoms

Symptoms of inhalation include dizziness, confusion, drowsiness, nausea, or unconsciousness. At higher levels, heartbeat irregularity may be a result with additional symptoms such as heart-thumping.

Skin contact can lead to symptoms such as frostbite, irritation, redness or swelling.

Eye contact can lead to symptoms such as frostbite, irritation and redness.

Special Treatment Needed

Because inhalation may lead to cardiac irregularities, treatment of patients with catecholamine drugs should be avoided.

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Section 5 – Firefighting Measures

Extinguishing media

In case of fire, use water spray, foam, dry chemical or CO2 extinguisher.

Special hazards arising from the substance or mixture

Hazardous decomposition products during a fire include carbon oxides, hydrogen fluoride and other fluorinated compounds. In a fire or in intense heat, a pressure increase will occur and the container may burst. Use water spray to keep fire-exposed containers cool. This product is not flammable at ambient temperatures and atmospheric pressure. However, this material can ignite when mixed with air under pressure and exposed to strong ignition sources.

Advice for firefighters

Wear self-contained breathing apparatus and protective clothing. Use water spray to keep fire-exposed containers cool.

Section 6 – Accidental Release Measures

Personal precautions

Immediately contact emergency personnel. Keep unnecessary personnel away. Wear safety glasses with side shields or splash goggles (Section 8). Provide adequate ventilation. In case of insufficient ventilation with large spills, wear suitable respiratory equipment.

Environmental precautions

Shut off leak if possible to do without risk. Almost all the product will evaporate into the environment with only a small liquid residue.

Methods and materials for containment and cleaning up

Nearly all the product will evaporate. Cover any visible residue with sand, soda ash or other clean-up material. Collect and dispose of in a suitable container. See section 13 for disposal procedure.

Section 7 – Handling and Storage

Precautions for safe handling

Avoid breathing vapour or mist. Avoid contact with eyes, skin or clothing. See section 8 for protective clothing. Use away from heat, sparks, open flame or any other ignition source. Provide adequate ventilation. Do not pierce or burn container after use. See section 13. Wash hands thoroughly after handling.

Conditions for safe storage

Store in original container, protected from direct sunlight. Store at temperatures below 50°C (122°F). Keep container tightly closed in a cool, well-ventilated place.

Section 8 – Exposure Controls/Personal Protection

Control Parameters:

COMPONENT	CAS No.	EC No.	VALUE	CONTROL PARAMETER
Difluoromethane	75-10-5	206-557-8	AIHA WEEL	1000 ppm TWA (8 hr)
Pentafluoroethane	354-33-6	200-839-4	AIHA WEEL	1000 ppm TWA (8 hr)

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Engineering Controls

Provide adequate ventilation. Do not enter storage areas and confined spaces unless adequately ventilated.

Protective Equipment

Use safety glasses with side shields or splash goggles. Wear insulated gloves suitable for low temperatures.

Hygiene

Handle in accordance with good industrial hygiene and safety practices.

Section 9 – Physical and Chemical Properties

Appearance	Colourless liquefied gas
Odour	Slight ethereal
Odour threshold	No data available
pH	Neutral
Freezing point	No data available
Boiling point	-51°C (-60°F) @ 1013 hPa (14.7 psi)
Flash point	Will not flash
Evaporation rate	No data available
Flammability or explosive limits	No data available
Vapour pressure	16500 hPa (239 psi) @ 25°C (77°F)
Vapour density	0.0066 g/cm ³ @ 25°C (77°F)
Specific Gravity	1.06 @ 25°C (77°F), liquid
Water Solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available

Section 10 – Stability and Reactivity

Reactivity

Decomposes on heating

Chemical stability

Stable under normal conditions

Possibility of hazardous reactions

The product is stable under recommended storage conditions.

Conditions to avoid

This is a pressurized container; protect from sunlight and do not expose to temperature exceeding 50°C (122°F). Do not pierce or burn, even after use. In a fire, or if heated, a pressure increase will occur and the container may burst. This product is not flammable at ambient temperatures and atmospheric pressure. However, this material can ignite when mixed with air under pressure and exposed to strong ignition sources. Avoid open flames and high temperatures.

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Incompatible materials

Incompatible with alkali metals, alkaline earth metals, powdered metals and powdered metal salts in general; includes incompatibility with magnesium, zinc, sodium, potassium and aluminum. Incompatibility is more severe if the metal is present as a dust or powder or has freshly exposed surfaces.

Hazardous decomposition products

Hazardous decomposition products during a fire include carbon oxides (CO, CO₂), hydrogen fluoride, carbonyl fluoride and other fluorinated compounds.

Section 11 – Toxicological Information

The toxicological properties of this product have not been investigated.
Information for some components is provided below.

Acute toxicity

Oral LD50 rat: N-(3-(trimethoxysilyl)propyl)ethylenediamine: 2995 mg/kg

Inhalation:

Pentafluoroethane:
LC50 rat/4h: >800000 ppm
Low Observed Adverse Effect Concentration (LOAEC) / dog: 100000 ppm
Cardiac Sensitization

Difluoromethane
LC50 rat/4 h: > 520000 ppm
Low Observed Adverse Effect Concentration (LOAEC) / dog: > 300000 ppm
Cardiac Sensitization

Skin LD50 rabbit: N-(3-(trimethoxysilyl)propyl)ethylenediamine: >2000 mg/kg

Skin corrosion/irritation

Components are not classified as skin irritants

Serious eye damage/irritation

Rabbit: N-(3-(trimethoxysilyl)propyl)ethylenediamine: strongly irritating

Respiratory or skin sensitization

Guinea pig: N-(3-(trimethoxysilyl)propyl)ethylenediamine - may cause sensitization by skin contact

Repeated Dose Toxicity

Oral rat: N-(3-(trimethoxysilyl)propyl)ethylenediamine:
NOAEL: >500 mg/kg

Inhalation rat

Difluoromethane
NOEL/90 d.: 50000 ppm

Pentafluoroethane
NOEL/4 wk: 50000 ppm

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Germ cell mutagenicity

N-(3-(trimethoxysilyl)propyl)ethylenediamine: negative (Ames test)
Difluoromethane: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Pentafluoroethane: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity

None of the components of this product is identified as a carcinogen by IARC, ACGIH, NTP or OSHA.

Reproductive toxicity

N-(3-(trimethoxysilyl)propyl)ethylenediamine – No Observed Adverse Effect Level (NOAEL):
500 mg/kg/day (developmental and maternal toxicity)
Pentafluoroethane: No toxicity to reproduction

Specific target organ toxicity – single exposure

No data available

Aspiration hazard

No data available

Potential Health Effects:

Inhalation: May produce irregular heartbeat at high levels of inhalation.

Swallowing: Not a likely route of exposure.

Skin Contact: Slightly irritating to the skin. Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Eye Contact: Slightly irritating to the eyes. Contact of the eyes with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Section 12 – Ecological Information

No data are available for the ecological effects of this product; information on some components is provided below.

Toxicity to fish	<u>N-(3-(trimethoxysilyl)propyl)ethylenediamine</u> LC50 Species: Lepomis macrochirus Result: >100 mg/l
	<u>Difluoromethane</u> LC50 – 96 h Species: Fish Result: 1507 mg/l
	<u>Pentafluoroethane</u> LC50 – 96 h Species: Danio rerio Result: >200 mg/l Based on data obtained from similar substances

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Toxicity to fish Pentafluoroethane
LC50 – 96 h
Species: Oncorhynchus mykiss
Result: 450 mg/l
Based on data obtained from similar substances

Toxicity to other N-(3-(trimethoxysilyl)propyl)ethylenediamine
organisms EC50 48 h
Species: Daphnia magna
Result: 87.4 mg/l

Difluoromethane
EC50 - 48 h
Species: Daphnia magna
Result: 652 mg/l

Pentafluoroethane
EC50 - 48 h
Species: Daphnia magna
Result: > 200 mg/l

Toxicity to algae N-(3-(trimethoxysilyl)propyl)ethylenediamine
EC50
Species: Pseudokirchneriella subcapitata
Result: 8.8 mg/l
Exposure time: 96 h

NOEC
Species: Pseudokirchneriella subcapitata
Result: 3.1 mg/l

Difluoromethane
EC50 – 96 h
Species: Algae
Result: 142 mg/l

Pentafluoroethane
EC50 – 96 h
Species: Algae
Result: 142 mg/l

Persistence and degradability

No data available

Bioaccumulative potential

No data available

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Mobility in soil

No data available

Other adverse effects

Ozone depletion potential (ODP): 0

Global warming potential (GWP): 2088

Section 13 – Disposal Considerations

Product

Dispose of in compliance with local, state/provincial or federal regulations. Do not vent to the atmosphere. The provisions of the U.S. Clean Air Act require any residual gases to be recovered.

Contaminated packaging

Empty pressure vessels should be returned to the supplier, otherwise dispose of as for product.

Section 14 – Transport Information

DOT/IATA/IMDG/TDG

Shipping Name: Liquefied gas, n.o.s. (Pentafluoroethane, Difluoromethane)

UN #: 3163

Class: 2.2

Packing Group: -

Section 15 – Regulatory Information

All components of this product are on the Canadian Domestic Substances List (DSL).

All components of this product are listed in the U.S. Toxic Substances Control Act (TSCA) Inventory.

All components of this product are on or in compliance with the Australian Inventory of Chemical Substances (AICS).

Section 16 – Other Information

HMIS CLASSIFICATION

Health Hazard:	1
Flammability:	1
Physical Hazards:	0

Prepared February 19, 2015

All information appearing herein is based upon data obtained from manufacturers and/or recognized technical sources. While the information is believed to be accurate, we make no representations as to its accuracy or sufficiency. Conditions of use are beyond our control, therefore users are responsible for verifying the data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product. Users also assume all risks in regards to the publications of use of, or reliance upon, information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or process.