NOVA Chemicals®

Material Safety Data Sheet

Material Name: **Propylene - Chemical Grade**

MSDS ID: NOVA-0016

Section 1 - Product and Company Identification

Synonyms: C3 Product, 1-propylene, 1-propene, methylethylene, Propylene (95%) - Propane Mixture
Chemical Name: Propylene
Chemical Family: Petrochemical
Material Use: Raw material for chemicals and polymers, fuel gas products
Chemical Formula: C_3H_6

NOVA Chemicals
P.O. Box 2518, Station M
Calgary, Alberta, Canada T2P 5C6

Product Information: 1-412-490-4063
MSDS Information Email:
msdsemail@novachem.com

EMERGENCY Telephone Numbers:
North America (Canada and US):
1-800-561-6682, 1-403-314-8767 (NOVA Chemicals) (24 hours)
1-800-424-9300 (CHEMTREC-USA) (24 hours)
1-613-996-6666 (Canutec-Canada) (24 hours)
Mexico and South America: +44 208 762 8322 (NCEC) (24 hours)

General Comments

This product has been assigned a CAS # of 115-07-1.

Section 2 - Hazards Identification

HMIS Ratings: Health: 2 **Fire:** 4 **Physical Hazard:** 1 **Personal Protection:** chemical goggles, gloves, respirator
*Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard*

NFPA Ratings: Health: 2 **Fire:** 4 **Reactivity:** 1
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Emergency Overview

DANGER! EXTREMELY FLAMMABLE LIQUEFIED GAS. This product is a colourless liquefied gas with a sweet hydrocarbon odour. Propylene is highly volatile, when released it will disperse as a highly flammable vapour cloud. Consider need for immediate emergency isolation and evacuation. Vapours are heavier than air and may travel along ground to some distant source and flash back. DO NOT ATTEMPT TO EXTINGUISH A GAS FIRE UNLESS LEAK SOURCE CAN BE ISOLATED AND SHUT OFF. Contact with liquefied gas may cause frostbite. Excessive inhalation of this material causes headache, dizziness, nausea and loss of coordination and in extreme conditions coma and possibly death.

Potential Health Effects: Eye

Contact of the eye with the liquefied gas may cause severe injury or frostbite. Gas may be mildly irritating.

Potential Health Effects: Skin

Contact of the skin with the liquefied gas may result in frostbite and blistering. Gas may be mildly irritating. Product does not penetrate through the skin.

Potential Health Effects: Ingestion

Ingestion of this product is extremely unlikely. However, contact of the mouth or throat with the liquefied gas may result in serious injury or frostbite.

Potential Health Effects: Inhalation

This product is a mildly narcotic asphyxiant gas that can cause unconsciousness/death if OXYGEN levels are sufficiently reduced. Excessive inhalation of this material causes headache, dizziness, nausea and loss of coordination, and in extreme conditions coma and possibly death. High concentrations may trigger heartbeat irregularities, and possible cardiac sensitization.

Section 3 - Composition/Information on Ingredients

CAS #	Component	Percent by Wt.
115-07-1	Propylene	92-98
74-98-6	Propane	2-5
74-98-6	Propane	5-8

Additional Information

The actual components and weight % concentrations vary based on operating conditions.

This product is hazardous under 29 CFR 1910.1200 (Hazard Communication).
This material is a controlled product under Canadian WHMIS regulations.
This product is regulated as a hazardous material / dangerous goods for transportation.

See Section 8 for applicable exposure limits. See Section 11 for applicable toxicity data.

Section 4 - First Aid Measures

First Aid: Eyes

Remove contact lenses, if it can be done safely. Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Seek medical if symptoms develop or persist.

First Aid: Skin

For skin contact, wash immediately with soap and water. Seek medical attention if symptoms develop or persist. Thaw frostbite slowly with lukewarm water. DO NOT RUB affected area. Do not pull off adherent clothing or objects. Seek medical attention at once.

First Aid: Inhalation

Move affected individual to non-contaminated air. Loosen tight clothing such as a collar, tie, belt or waistband to facilitate breathing. Seek immediate medical attention if the individual is not breathing, is unconscious or if any other symptoms persist. WARNING: Contact through mouth-to-mouth resuscitation may pose a secondary risk to the rescuer. Avoid mouth-to-mouth contact by using a mouth shield or guard to perform artificial respiration.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Loosen tight clothing such as a collar, tie, belt or waistband. Seek immediate medical attention. Examine the lips and mouth to ascertain whether the tissues are damaged. Thaw frostbite in mouth slowly with luke warm water, ensuring that the conscious affected individual does not gag or choke. If the individual is not breathing, qualified personnel should perform mouth-to-mouth resuscitation. WARNING: Contact through mouth-to-mouth resuscitation may pose a secondary risk to the rescuer. Avoid mouth-to-mouth contact by using a mouth shield or guard to perform artificial respiration.

First Aid: Notes to Physician

For more detailed medical emergency support information call 1-800-561-6682 or 1-403-314-8767 (24 hours, NOVA Chemicals Emergency Response). Treat unconsciousness, frostbite, nausea, hypotension, seizures and cardiac arrhythmia in the conventional manner. Sympathomimetics or catecholamines should be avoided or used with caution (lowest effective dose) because of possible cardiac sensitization. Administer oxygen by mask if there is respiratory distress.

Section 5 - Fire Fighting Measures

See Section 9: Physical Properties for flammability limits, flash point and auto-ignition information.

General Fire Hazards

Fire and container explosion hazards are extremely high when this material is exposed to heat or flame. Use massive quantities of water to cool fire-exposed containers. Immediately withdraw in case of fire and container venting or heat discolouration of a container. Vapours may travel to some distant source of ignition and flash back. Consider need for immediate emergency isolation and evacuation. DO NOT ATTEMPT TO EXTINGUISH A GAS FIRE UNLESS LEAK SOURCE CAN BE ISOLATED AND SHUT OFF. Be aware of possibility of re-ignition. If a pipeline, storage vessel, rail car or tank truck is possibly ruptured or involved in a fire, ISOLATE for 1600 metres (1 mile) in all directions; also, consider initial evacuation for 1600 metres (1 mile) in all directions.

Explosion Hazards

Vapours may form an explosive mixture with air. Keep containers away from source of heat or fire. Highly explosive in the presence of sparks, fire, heat and oxidizing agents.

Hazardous Combustion Products

Upon combustion, this product emits carbon monoxide, carbon dioxide, and/or low molecular weight hydrocarbons.

Extinguishing Media

Dry chemical, foam, carbon dioxide, and water fog. Use massive quantities of water to cool fire-exposed containers and to protect personnel. DO NOT ATTEMPT TO EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK SOURCE CAN BE ISOLATED AND SHUT OFF. Monitor water run-off for flammability, and prevent from entering drains, ditches and sewers, or other confined or underground spaces.

Fire Fighting Equipment/Instructions

Reference 2008 Emergency Response Guidebook, Guide #115 for additional details and instructions. Position upwind. Keep unnecessary personnel away. Move containers from fire area if you can do so without risk. Fight fire from maximum distance or use unmanned holders or monitor nozzles. Immediately withdraw in case of fire and container venting or heat discolouration of a container. Fire fighters should wear full-face, self-contained breathing apparatus and thermal protective clothing. Avoid inhaling any smoke and combustion materials. Remove and clean or destroy any contaminated clothing. Cool containers with flooding quantities of water until well after the fire is out. Control runoff waters to prevent entry into sewers, drains, ditches, underground or confined spaces and waterways.

Section 6 - Accidental Release Measures

Evacuation Procedures

Isolate area. Keep unnecessary personnel away. Alert stand-by emergency and fire fighting personnel. Monitor surrounding area for build-up of flammable concentrations in air.

Small Spills

Isolate spill or leak area for 50-100 metres (164-328 feet). Eliminate all potential ignition sources. Stop leak remotely or when safe to do so. Ground all approved equipment used in area. Keep area isolated until any detectable flammable gas has been dispersed.

Large Spills

Consider initial downwind evacuation for at least 800 metres (1/2 mile). Eliminate all potential ignition sources. Stop leak remotely or when safe to do so. Alert stand-by emergency and fire fighting personnel. Monitor surrounding area for build-up of flammable concentrations in air. Ground all approved equipment used in area. Evacuate personnel to upwind of the spill area, and position at a safe distance. Consider use of water spray to reduce vapours or divert vapour cloud drift. Prevent flammable vapours or liquids from entering drains, ditches and sewers, or other confined or underground structures. Accumulations of gas may persist in low areas. Keep area isolated until any detectable flammable gas has been dispersed.

Special Procedures

Contact local police/emergency services and appropriate emergency telephone numbers provided in Section 1. Ensure that statutory and regulatory reporting requirements in the applicable jurisdiction are met. Wear appropriate protective equipment and clothing during cleanup. Individuals without appropriate protective equipment should be excluded from area of spill until cleanup has been completed.

See Section 8 for recommended Personal Protective Equipment and see Section 13 for waste disposal considerations.

Section 7 - Handling and Storage

Handling Procedures

Keep locked up or secured. Handle in fully enclosed, grounded, properly designed and approved flammable gas systems. Use with adequate ventilation. Avoid inhalation. Keep away from uncontrolled heat and incompatible materials. Ground all material handling and transfer equipment to dissipate build-up of static electricity. Wear suitable protective equipment including thermally protective gloves. No smoking or open flames permitted in storage, use or handling areas. Check for accumulation of liquids when breaking into pipelines.

Storage Procedures

Storage area should be clearly identified, well illuminated, clear of obstruction and accessible only to trained and authorized personnel. Store in grounded, properly designed and approved pressure containers and away from incompatible materials. Store and use away from heat, sparks, open flame, or any other ignition source. Store according to applicable codes or regulations for liquefied pressurized gases as applicable to cylinders, vessels, piping, buildings, rooms, cabinets, allowable quantities and minimum storage distances. Have appropriate extinguishing capability in storage area (e.g. sprinkler system, portable fire extinguishers) and flammable gas detectors. Keep cylinders secure while in storage or in transportation.

See Section 8: Exposure Controls/Personal Protection for appropriate Personal Protective Equipment. See Section 10 for information on Incompatibilities.

Section 8 - Exposure Controls / Personal Protection

Exposure Guidelines

A: General Product Information

Refer to published exposure limits - use effective control measures and PPE to maintain worker exposure to concentrations that are below these limits. Ensure that eyewash stations and safety showers are in close proximity to work locations.

B: Component Exposure Limits

ACGIH, OSHA, NIOSH, EPA, Alberta, and Ontario exposure limit lists have been checked for major components listed with CAS registry numbers. Other exposure limits may apply, check with authorities.

*NOTE: The Vacated OSHA Permissible Exposure Limits (PELs) are those provided in the 1989 update to OSHA's Air Contaminants Standard 29 CFR 1910.1000. These limits were vacated by the U.S. Court of Appeals, Eleventh Circuit buy may be enforceable in some states.

Propylene (115-07-1)

ACGIH:	500 ppm TWA; 860 mg/m3 TWA
Alberta:	500 ppm TWA; 860 mg/m3 TWA
Ontario:	500 ppm TWAEV

Propane (74-98-6)

ACGIH:	1000 ppm TWA (listed under Aliphatic hydrocarbon gases Alkane [C1-C4])
OSHA (Vacated)*:	1000 ppm TWA; 1800 mg/m3 TWA
OSHA Final:	1000 ppm TWA; 1800 mg/m3 TWA
NIOSH:	1000 ppm TWA; 1800 mg/m3 TWA
	2100 ppm IDLH (10% LEL)
Alberta:	1000 ppm TWA
Ontario:	1000 ppm TWAEV

ENGINEERING CONTROLS

Engineering methods to reduce hazardous exposure are preferred controls. Methods include mechanical ventilation (dilution and local exhaust) process or personal enclosure, remote and automated operation, control of process conditions, leak detection and repair systems, and other process modifications. Ensure all exhaust ventilation systems are discharged to outdoors, away from air intakes and ignition sources. Supply sufficient replacement air to make up for air removed by exhaust systems. Administrative (procedure) controls and use of personal protective equipment may also be required.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Use safety glasses. Use of a full face shield or respirator is recommended if contact with liquefied gas is possible.

Personal Protective Equipment: Skin/Hands/Feet

Use impervious gloves when handling product. Wear chemical-resistant safety footwear with good traction to prevent slipping. Work clothing that sufficiently prevents skin contact should be worn, such as coveralls and/or long sleeves and pants. Fire resistant (i.e., Nomex) or natural fibre clothing (i.e., cotton or wool) is recommended. Synthetic clothing can generate static electricity and is not recommended where a flammable vapour release may occur. Static Dissipative (SD) rated footwear is recommended.

Personal Protective Equipment: Respiratory

If engineering controls and ventilation are not sufficient to prevent buildup of aerosols or vapours, appropriate NIOSH approved air-purifying respirators or self-contained breathing apparatus (SCBA) appropriate for exposure potential should be used. Air supplied breathing apparatus must be used when oxygen concentrations are low or if airborne concentrations exceed the limits of the air-purifying respirators.

Personal Protective Equipment: General

Personal protective equipment (PPE) should not be considered a long-term solution to exposure control. Employer programs to properly select, fit, maintain, and train employees to use equipment must accompany PPE. Consult a competent industrial hygiene resource, the PPE manufacturer's recommendation, and/or applicable regulations to determine hazard potential and ensure adequate protection.

Section 9 - Physical & Chemical Properties

Physical State and Appearance:	Gas at room temperature, liquid under pressure	**Colour:**	Colourless
Odour:	Faint hydrocarbon	**Odour Threshold:**	20 ppm, but not reliable as a warning property
pH:	Not applicable	**Vapour Pressure:**	10.3 atm at 21°C (69.8°F)
Vapour Density @ 0ºC (Air=1):	1.5	**Boiling Point:**	-48ºC (-54.4ºF)
Freezing Point:	-185°C (-301°F)	**Solubility (H2O):**	Slight (0.1% at 21°C (69.8°F))
Evaporation Rate (n-Butyl Acetate=1):	Not applicable	**Specific Gravity (Water=1):**	0.5139 at 20°C (68°F)
Percent Volatile:	100%	**Octanol/H2O Coeff.:**	1.77
Auto Ignition:	455°C (851°F)	**Flash Point:**	-108°C (-162°F) minimum
Flash Point Method:	Closed cup	**Upper Flammable Limit (UFL):**	11% (propylene)
Lower Flammable Limit (LFL):	2% (propylene)	**Flammability Classification:**	Extremely Flammable

Section 10 - Stability & Reactivity Information

Chemical Stability

This product is stable under normal use conditions for shock, vibration, pressure or temperature.

Chemical Stability: Conditions to Avoid

Keep away from heat, sparks, or open flame.

Incompatibility

Nitrates, perchlorates, nitrogen oxides including nitrogen dioxide, nitrous oxide and nitrogen tetroxide. Many materials become brittle after contact with liquefied gases and may fail without warning. Carefully select and test equipment, gaskets and hoses periodically to ensure integrity and compatibility.

Possibility of Hazardous Reactions or Hazardous Polymerization

Hazardous polymerization not likely to occur. Under favorable and designed conditions, like high temperature and pressure, and when product is in liquid state, product may polymerize with metal coordination complexes or mixtures of lithium nitrate and sulfur dioxide.

Corrosivity

Not corrosive to the common metals.

Hazardous Decomposition

Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

Special Remarks

Vapours may form an explosive mixture with air. May react vigorously with oxidizing agents. Liquefied gas may explode on contact with hot water (45°C to 75°C) (113°F to 167°F).

Section 11 - Toxicological Information

A: Acute Toxicity - General Product Information

Similar hydrocarbon mixtures were tested under the EPA's High Production Volume (HPV) Chemical Challenge Program. Propylene has been tested under the HPV test plan for the Olefins Panel of the ACC Propylene Streams Category. Based on testing, propylene has a low order of acute toxicity. Inhalation of propylene can produce narcosis and anesthesia; however, these effects are only seen at very high concentrations (reports indicate >46,000 ppm to induce narcosis in humans). Excessive exposures may cause headache, dizziness, nausea, loss of coordination, and in extreme conditions, coma and possibly death. High concentrations may trigger heartbeat irregularities and possible cardiac sensitization. In the gaseous state propylene is not expected to be irritating to the skin or eyes. However, should skin or eye contact occur with this product in its liquid state, tissue freezing, severe cold burns, and/or frostbite may result.

B: Acute Toxicity - LD50/LC50

Propylene (115-07-1)

Inhalation LC50 Rat: >65,000 ppm/4H

Propane (74-98-6)

Dermal LD50 Rat: >800,000 ppm/4H

C: Chronic Toxicity - General Product Information

Similar hydrocarbon mixtures were tested under the EPA's High Production Volume (HPV) Chemical Challenge Program. Propylene has been tested under the HPV test plan for the Olefins Panel of the ACC Propylene Streams Category. Repeated exposure to propylene produces no clinical effects in animals exposed to concentrations up to 10,000 ppm, one half of the lower flammability limit, for 103 weeks. In the nasal cavity, propylene induced nasal lesions of relatively mild nature and relatively few animals were affected. Results indicated no carcinogenic effects found. A weak mutagenic response was observed with *Salmonella typhimurium* strains TA1535 exposed to propylene in the presence of S9 mix but not in the absence of S9. It was not mutagenic in the other Salmonella strains (TA100, TA98 and TA1537) or in *E.coli* WP2uvrA (pKM101). Propane was negative for mutagenicity when tested in the *in vitro* Ames assay in five strains of *Salmonella typhimurium*.

D. Chronic Toxicity - Carcinogenic Effects

ACGIH, EPA, IARC, OSHA, and NTP carcinogen lists have been checked for selected similar materials or those components with CAS registry numbers.

Propylene (115-07-1)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 60 [1994]; Supplement 7 [1987] (Group 3 (not classifiable))

E. Special Remarks on Other Toxic Effects on Humans

Propylene that is inhaled is largely exhaled unchanged. A small fraction may be metabolized and transported in blood as propylene oxide. There is no known health effect found to be associated with this metabolism in 2-year cancer studies or in studies of potential adverse genetic effects.

Section 12 - Ecological Information

Ecotoxicity

General Product Information

Similar hydrocarbon mixtures were tested under the EPA's High Production Volume (HPV) Chemical Challenge Program. Propylene has been tested under the HPV test plan for the Olefins Panel of the ACC Propylene Streams Category. Aquatic toxicity was assessed with a model that is based on an equation developed for neutral organic chemicals, a reliable estimation method for the class of chemicals in streams from this category. Calculated toxicity values for two to four day exposures suggest that category members have the potential to produce moderate toxicity, based on an effect range of 10.5 to 100.8 mg/L for selected stream constituents.

Environmental Fate/Mobility

Results of distribution modeling show that chemical constituents of streams in the Propylene Streams Category will partition primarily to the air compartment, with a negligible amount partitioning to water. In the air, these constituents have the potential to rapidly degrade through indirect photolytic processes mediated primarily by hydroxyl radicals. This is expected to be the dominant route of loss and degradation process for constituents of these streams. Aqueous photolysis and hydrolysis will not contribute to the transformation of category constituents in aquatic environments because they are either poorly or not susceptible to these reactions.

Persistence/Degradability

Although the biodegradability of streams in this category has not been evaluated with standard testing procedures because of their high volatility, studies have demonstrated that the predominant category constituents can be degraded by bacteria isolated from soil and surface water samples. The results from these studies show that selected stream constituents are subject to microbial degradation. However, biodegradation is unlikely to contribute to the overall degradation of constituents from these streams because they tend to partition to the air compartment.

Bioaccumulation/Accumulation

Product is not expected to bioaccumulate.

Section 13 - Disposal Considerations

U.S./Canadian Waste Information & Descriptions

This product as sold, is ignitable and, if disposed of, would be considered a hazardous waste according to US and Canadian regulations. The use, mixing or processing of this product may alter this product. Contact federal, provincial/state and local authorities in order to generate or ship a waste material associated with this product to ensure materials are handled appropriately and meet all criteria for disposal of hazardous waste. Vent to a burning flame at an approved facility. DO NOT ATTEMPT TO DISPOSE OF BY UNCONTROLLED IGNITION. Since emptied containers retain product residue, follow safe handling/label warnings even after container is emptied.

See Section 7: Handling and Storage and Section 8: Exposure Controls/Personal Protection for additional handling information that may be applicable for safe handling and the protection of employees.

Waste generator is advised to carefully consider hazardous properties and control measures needed for other materials that may be found in the waste.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Section 14 - Transportation Information

US DOT Information

Shipping Name: Liquefied petroleum gas ***or*** Petroleum gases, liquefied
UN/NA #: UN1075 **Hazard Class:** 2.1
Required Label(s): FLAMMABLE GAS
Additional Info.: This hazardous material may also be handled, offered for transport or transported under the UN number, UN1077 with the corresponding shipping name.
2008 Emergency Response Guidebook, Guide # 115.

Canadian TDG Information

Shipping Name: Liquefied petroleum gases ***or*** Petroleum gases, liquefied
UN #: UN1075 **Hazard Class:** 2.1
Required Label(s): FLAMMABLE GAS
Additional Info.: This dangerous goods may also be handled, offered for transport or transported under the UN number, UN1077, with the corresponding shipping name.
2008 Emergency Response Guidebook, Guide # 115.

International Air Transport Association (IATA) and International Civil Aviation Organization (ICAO) Information

Shipping Name: Petroleum gases, liquefied ***or*** Liquefied petroleum gases
UN #: UN1075 **Hazard Class:** 2.1
Required Label(s): FLAMMABLE GAS
Additional Info.: This hazardous material may also be handled, offered for transport or transported under the UN number, UN1077, with the corresponding shipping name.

International Maritime Dangerous Goods (IMDG) Code

Shipping Name: Petroleum gases, liquefied
UN #: UN1075 **Hazard Class:** 2.1
Required Label(s): FLAMMABLE GAS
Additional Info.: This hazardous material may also be handled, offered for transport or transported under the UN number, UN1077, with the corresponding shipping name.
EmS Code: F-D, S-U
Marine Pollutant: No

Section 15 - Regulatory Information

A: International Regulations

Component Analysis - Inventory

Component	CAS #	US -TSCA	CANADA - DSL	EU - EINECS
Propylene	115-07-1	Yes	Yes	Yes
Propane	74-98-6	Yes	Yes	Yes

B: USA Federal & State Regulations

Ongoing occupational hygiene, medical surveillance programs, or site emission or spill reporting may be required by Federal or State regulations. Check for applicable regulations.

USA OSHA Hazard Communication Class

This product is hazardous under 29 CFR 1910.1200 (Hazard Communication).
HCS Classes: Flammable Gas, Compressed Gas

USA Right-to-Know - Federal

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Propylene (115-07-1)

SARA 313: 1.0 % de minimis concentration

USA Right-to-Know - State

The following components appear on one or more of the following state hazardous substances lists. Some components (including those present only in trace quantities, and therefore not listed in this document) may be included on the Right-To-Know lists of other U.S. states. The reader is therefore cautioned to contact his or her NOVA Chemicals' representative or NOVA Chemicals' Product Integrity group for further U.S. State Right-To-Know information.

Component	CAS #	NJ	PA
Propylene	115-07-1	Yes	Yes
Propane	74-98-6	Yes	Yes

C: Canadian Regulations - Federal and Provincial

Canadian Environmental Protection Act (CEPA): All components of this product are on the Domestic Substances List (DSL), and are acceptable for use under the provisions of CEPA.

WHMIS Ingredient Disclosure List (IDL)

No components are listed in the WHMIS Ingredient Disclosure List (IDL).

WHMIS Classification

Workplace Hazardous Materials Information System (WHMIS): This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and the MSDS contains all the information required by the CPR.
WHMIS CLASS A: Compressed gas
WHMIS CLASS B1: Flammable gas

Other Regulations

Ongoing occupational hygiene, medical surveillance programs, or site emission or spill reporting may be required by Federal or Provincial regulations. Check for applicable regulations.

Section 16 - Other Information

Label Information

DANGER! EXTREMELY FLAMMABLE LIQUEFIED GAS. This product is a colourless liquefied gas with a sweet hydrocarbon odour. Propylene is highly volatile, when released it will disperse as a highly flammable vapour cloud. Consider need for immediate emergency isolation and evacuation. Vapours are heavier than air and may travel along ground to some distant source and flash back. DO NOT ATTEMPT TO EXTINGUISH A GAS FIRE UNLESS LEAK SOURCE CAN BE ISOLATED AND SHUT OFF. Contact with liquefied gas may cause frostbite. Excessive inhalation of this material causes headache, dizziness, nausea and loss of coordination and, in extreme conditions, coma and possibly death.
FIRST AID:
SKIN: For skin contact, wash immediately with soap and water. Seek medical attention if symptoms develop or persist. Thaw frostbite slowly with lukewarm water. DO NOT RUB affected area. Do not pull off adherent clothing or objects. Seek medical attention at once.
EYES: Remove contact lenses, if it can be done safely. Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Seek medical attention if symptoms develop or persist.
INHALATION: Move affected individual to non-contaminated air. Loosen tight clothing such as a collar, tie, belt or waistband to facilitate breathing. Seek immediate medical attention if the individual is not breathing, is unconscious or if any other symptoms persist. WARNING: Contact through mouth-to-mouth resuscitation may pose a secondary risk to the rescuer. Avoid mouth-to-mouth contact by using a mouth shield or guard to perform artificial respiration.

INGESTION: DO NOT INDUCE VOMITING. Loosen tight clothing such as a collar, tie, belt or waistband. Seek immediate medical attention. Examine the lips and mouth to ascertain whether the tissues are damaged. Thaw frostbite in mouth slowly with luke warm water, ensuring that the conscious affected individual does not gag or choke. If the individual is not breathing, qualified personnel should perform mouth-to-mouth resuscitation. WARNING: Contact through mouth-to-mouth resuscitation may pose a secondary risk to the rescuer. Avoid mouth-to-mouth contact by using a mouth shield or guard to perform artificial respiration.
IN CASE OF A LARGE SPILL: Consider initial downwind evacuation for at least 800 metres (1/2 mile). Eliminate all potential ignition sources. Stop leak remotely or when safe to do so. Alert stand-by emergency and fire fighting personnel. Monitor surrounding area for build-up of flammable air concentrations. Ground all approved equipment used in area. Evacuate personnel to upwind of the spill area, and positioned at a safe distance. Consider use of water spray to reduce vapours or divert vapour cloud drift. Prevent flammable vapours or liquids from entering drains, ditches and sewers, or other confined or underground structures. Accumulations of gas may persist in low areas. Keep area isolated until any detectable flammable gas has been dispersed.

References

Available on request.

Special Considerations

For additional information on properties, health information, regulatory overview, handling, transport, storage, emergency response and general considerations to aid in fire prevention, please refer to the, "Propylene Product Stewardship Guidance Manual", published January 2007, by the American Chemistry Council (www.americanchemistry.com).

For additional information on equipment bonding and grounding, refer to the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity".

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; BLEVE = Boiling Liquid Expanding Vapour Explosion; BOD = Biochemical Oxygen Demand; CAS = Chemical Abstracts Service; CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act; CPR = Controlled Products Regulations; DOT = Department of Transportation; DSL = Domestic Substances List; EINECS = European Inventory of Existing Commercial Substances; EPA = Environmental Protection Agency; EU = European Union; FDA = Food and Drug Administration; IARC = International Agency for Research on Cancer; IDL = Ingredient Disclosure List; Kow = Octanol/water partition coefficient; LEL = Lower Explosive Limit; NIOSH = National Institute for Occupational Safety and Health; NJTSR = New Jersey Trade Secret Registry; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; RCRA = Resource Conservation and Recovery Act; SARA = Superfund Amendments and Reauthorization Act; TDG = Transportation of Dangerous Goods; TSCA = Toxic Substances Control Act.

MSDS Prepared by: NOVA Chemicals

MSDS Information Phone Number: 412-490-4063

Other Information

Notice to Reader:
ALTHOUGH THE INFORMATION CONTAINED IN THIS DOCUMENT IS PRESENTED IN GOOD FAITH, BASED ON AVAILABLE INFORMATION BELIEVED TO BE RELIABLE AT THE TIME OF PREPARATION OF THIS DOCUMENT, **NOVA CHEMICALS MAKES NO WARRANTIES OR REPRESENTATIONS WITH RESPECT TO THE INFORMATION OR THE PRODUCT/MATERIALS DESCRIBED HEREIN, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES AND CONDITIONS (INCLUDING ALL WARRANTIES AND CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE). NO FREEDOM FROM INFRINGEMENT OF ANY PATENT OWNED BY NOVA CHEMICALS OR OTHERS IS TO BE INFERRED. THIS INFORMATION IS SUBJECT TO CHANGE WITHOUT NOTICE. PLEASE CONTACT NOVA CHEMICALS FOR THE MOST CURRENT VERSION OF THIS MSDS. NOVA CHEMICALS DOES NOT ASSUME RESPONSIBILITY FOR MSDS OBTAINED FROM THIRD PARTY SOURCES.**

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This is the end of MSDS # NOVA-0016.