



MATERIAL SAFETY DATA SHEET

PRODUCT IDENTIFICATION

PRODUCT NAME: Propylene Glycol (Inhibited Solution)

(NFPA RATINGS)

HEALTH: 0

FIRE: 1

REACTIVITY: 0

PRODUCT INFORMATION (800) 262-0012	MEDICAL EMERGENCY (856) 455-4555
TRANSPORTATION EMERGENCY CHEMTREC (800) 424-9300	DISTRIBUTOR / MANUFACTURER NATIONAL REFRIGERANTS, INC. 661 KENYON AVE. ROSENHAYN, NJ

COMPOSITION/INFORMATION ON INGREDIENTS

Propylene Glycol	(CAS#57-55-6)	35-96 %
Deminerlized Water	(CAS#7732-18-5)	< 65 %
Dipotassium Hydrogen Phosphate	(CAS#7758-11-4)	< 5 %

HAZARDS IDENTIFICATIONS

EMERGENCY OVERVIEW:

APPEARANCE: Light Blue

PHYSICAL STATE: Liquid

ODOR: Mild

HAZARDS OF PRODUCT: No significant immediate hazards for emergency response are known.

POTENTIAL HEALTH EFFECTS:

EFFECTS OF SINGLE ACUTE OVEREXPOSURE

INHALATION: At room temperature, exposure to vapor is minimal due to low volatility. Mist may cause irritation of upper respiratory tract (nose and throat).

EYE CONTACT: May cause slight temporary eye irritation. Corneal injury is unlikely.

SKIN CONTACT: Prolonged contact is essentially nonirritating to the skin. Repeated contact may cause flaking and softening of skin.

SKIN ABSORPTION: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

INGESTION: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

CHRONIC, PROLONGED OR REPEATED OVEREXPOSURE

EFFECTS OF REPEATED OVEREXPOSURE: In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

OTHER EFFECTS OF OVEREXPOSURE: No information currently available.



MATERIAL SAFETY DATA SHEET

FIRST AID MEASURES

INHALATION:	Move person to fresh air; if effects occur, consult a physician.
EYE CONTACT:	Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.
SKIN CONTACT:	Wash skin with plenty of water.
INGESTION:	No emergency medical treatment necessary.
ADVICE TO PHYSICIANS:	No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:
REFER TO PHYSICAL AND CHEMICAL PROPERTIES SECTION

EXTINGUISHING MEDIA: Water fog of fine spray. Dry chemical & carbon dioxide fire extinguishers. Foam. Do not use direct water stream, may spread fire. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Liquid mist of the product can burn. Flammable concentrations of vapor can accumulate at temperatures above flash point.

FIRE FIGHTING PROCEDURES: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of re-ignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream, may spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

HAZARDOUS COMBUSTION PRODUCTS: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide, Carbon dioxide.

ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE:

Small spills: Absorb with materials such as—cat litter, sawdust, vermiculite. Collect in suitable and properly labeled container.

Large spills: Dike area to contain spill. Recover spilled material if possible. See Disposal Considerations section for additional information.

PERSONAL PRECAUTIONS: Use appropriate safety equipment. For additional information, refer to Exposure Controls and Personal Protection section.

ENVIRONMENTAL PRECAUTIONS: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Ecological Information section.



MATERIAL SAFETY DATA SHEET

HANDLING AND STORAGE

HANDLING: (Always wear recommended personal protective equipment)

Ventilation: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

Other Precautions: Spills of these organic materials on hot fibrous insulations may lead to lowering of the auto-ignition temperatures possibly resulting in spontaneous combustion.

STORAGE: Store below: 121 deg. C (250 deg. F). Do not store in: galvanized steel.

EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE GUIDELINES

INGREDIENT NAME	ACGIH TLV	OSHA PEL	OTHER LIMIT	SKIN. FORM
Propylene glycol	NA	NA	10 mg/m ³ TWA 8 AIHA WEEL	

In the Exposure Limits Chart above, if there is no specific qualifier (i.e. Aerosol) listed in the Form Column for a particular limit, the listed limit includes all airborne forms of the substance that can be inhaled.

A "Yes" in the Skin Column indicates a potential significant contribution to overall exposure by the cutaneous (skin) route, including mucous membranes and the eyes, either by contact with vapors or by direct skin contact with the substances. A "Blank" in the Skin Column indicates that exposure by the cutaneous (skin) route is not a potential significant contributor to overall exposure.

PERSONAL PROTECTION

Respiratory Protection: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved air-purifying respirator. In dusty or misty atmospheres, use an approved particulate respirator.

Ventilation: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

Eye Protection: Use safety glasses.

Other Protective Equipment: No precautions other than clean body-covering clothing should be needed. Use gloves chemically resistant to this material.

PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Light Blue

PHYSICAL STATE: Liquid

VAPOR PRESSURE: 0.7 mmHg 20 deg. C

ODOR: Mild

FREEZING POINT: <= -51 deg. C <= -60 deg. F

SPECIFIC GRAVITY (H₂O=1): 1.05 20 deg. C / 20 deg. C

SOLUBILITY IN WATER (by weight): 100% 20 deg. C

pH: 9-11 (5 % solution in water)

FLAMMABLE LIMITS IN AIR:

Lower 2.6 % (V) 100 deg. C (Propylene Glycol)

Upper 12.5 % (V) 130 deg. C (Propylene Glycol)

VAPOR DENSITY (Air=1): 2.6

EVAPORATION RATE (Butyl Acetate = 1): 0.07

PERCENT VOLATILES: 98 Wt. %

BOILING POINT (760 mmHg): 162 deg. C 323 deg. F

MELTING POINT: Not Applicable for liquids

AUTOIGNITION TEMPERATURE: 416 deg. C 780 deg. F

FLASH POINT: 102 deg. C 216 deg. F Closed Cup
(Propylene glycol)

NOTE: Physical and Chemical Properties are based on a 96% solution of Propylene Glycol. Diluted concentrations of Propylene Glycol may have slightly different Properties.



MATERIAL SAFETY DATA SHEET

STABILITY AND REACTIVITY

STABILITY/INSTABILITY:	Thermally stable at recommended temperatures and pressures.
CONDITIONS TO AVOID:	Product can oxidize at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.
MATERIALS TO AVOID:	Avoid contact with: Strong acids, strong bases and strong oxidizers.
THERMAL DECOMPOSITION:	Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aldehydes, Alcohols, and Ethers.
HAZARDOUS POLYMERIZATION:	Will not occur.

TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:

PERORAL

Rat; female; LD50 = 20300 mg/kg

PERCUTANEOUS

Based on information for a similar material:

Rabbit; LD50=> 10000 mg/kg

DEVELOPMENTAL TOXICITY:

Contains component(s) which did not cause birth defects or any other fetal effects in lab animals. The component(s) is/are: Propylene glycol.

REPRODUCTIVE TOXICITY:

Contains component(s) which did not interfere with reproduction in animal studies. Contains component(s) which did not interfere with fertility in animal studies. The component(s) is/are: Propylene glycol.

CHRONIC TOXICITY AND CARCINOGENICITY:

Similar formulations did not cause cancer in laboratory animals.

GENETIC TOXICOLOGY:

In Vitro: In vitro genetic toxicity studies were negative.

In Vitro: Genetic toxicity studies in animals were negative for component(s) tested.

SIGNIFICANT DATA WITH POSSIBLE RELEVANCE TO HUMANS:

In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE:

Based largely or completely on information for: Propylene glycol. Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Degradation is expected in the atmospheric environment within minutes to hours.

ECOTOXICITY:

Based largely or completely on information for: Propylene glycol. Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50>100 mg/L in the most sensitive species tested).

FURTHER INFORMATION:

Based largely or completely on information for: Propylene glycol. Bio-concentration potential is low (BCF < 100 or Log Pow < 3). Potential for mobility in soil is very high (Koc between 0 and 50).



MATERIAL SAFETY DATA SHEET

DISPOSAL CONSIDERATIONS

DISPOSAL:

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OR WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. NATIONAL REFRIGERANTS HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN THIS MSDS'S COMPOSITION INFORMATION SECTION. FOR UNUSED & UNCONTAMINATED PRODUCT, THE PREFERRED OPTIONS INCLUDED SENDING TO A LICENSED, PERMITTED: RECYCLER, RECLAIMER. INCINERATOR OR OTHER THERMAL DESTRUCTION DEVICE.

TRANSPORTATION INFORMATION

PROPER SHIPPING NAME:

NON-BULK-----Not Regulated by DOT

BULK-----Not Regulated by DOT

REGULATORY INFORMATION

FEDERAL/NATIONAL:

OSHA Hazard communication standard

This product is not a "hazardous chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-To Know Act of 1986) Section 313

To the best of our knowledge this product does not contain chemicals at levels which require reporting under this statute.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-To Know Act of 1986) Section 302

To the best of our knowledge this product does not contain chemicals at levels which require reporting under this statute.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-To Know Act of 1986) Section 311 & 312

Delayed (Chronic) Health Hazard:	No
Fire Hazard:	No
Immediate (Acute) Health Hazard:	No
Reactive Hazard:	No
Sudden Release of Pressure Hazard:	No

Toxic Substances Control Act (TSCA)

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30.

CEPA – Domestic substances List (DSL)

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

European Inventory of Existing Commercial Chemical Substances (EINECS)

All components of this product are on the EINECS inventory or are exempt from EINECS inventory requirements.



MATERIAL SAFETY DATA SHEET

STATE/LOCAL:

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:

The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Component	CAS#
Propylene glycol	57-55-6

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:

To the best of our knowledge this product does not contain chemicals at levels which require reporting under this statute.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

California SCAQMD Rule 443.1 (South Coast Air Quality Management District Rule 443.1, Labeling of Materials Containing Organic Solvents)

VOC: Vapor pressure 0.66 mmHg @ 20 deg. C
1002 g/l VOC
1030 g/l less water and less exempted solvents

This section provides selected regulatory information on this product including its components. This is not intended to include all regulations. It is the responsibility of the user to know and comply with all applicable rules, regulations and laws relating to the product being used.

National Refrigerants, Inc. believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specific product designated and may not be valid where such product is used in combination with any other methods of use of the product and of the information referred to herein are beyond the control of National Refrigerants. National Refrigerants expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information.

DATE OF LATEST REVISION/REVIEW: 10/09
PERSON RESPONSIBLE FOR MSDS: Ray Madariaga