



MATHESON

ask...The Gas Professionals™

Safety Data Sheet

Material Name NITROGEN, CRYOGENIC LIQUID

SDS ID: 00202589

Section 1 - IDENTIFICATION

Product Identifier: NITROGEN, CRYOGENIC LIQUID

Trade Names/Synonyms

MTG MSDS 164; NITROGEN, REFRIGERATED LIQUID; NITROGEN, REFRIGERATED LIQUID, CRYOGENIC LIQUID; NITROGEN; NITROGEN (LIQUID); LIQUID NITROGEN; UN 1977; N2

Chemical Family

non-metallic

Recommended Use

industrial

Restrictions on Use

None known.

Manufacturer Information

MATHESON TRI-GAS, INC.
150 Allen Road, Suite 302
Basking Ridge, NJ 07920

General Information: 1-800-416-2505
Emergency #: 1-800-424-9300 (CHEMTREC)
Outside the US: 703-527-3887 (Call collect)

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with 29 CFR 1910.1200

Gas under pressure, Refrigerated liquefied gas

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

WARNING

Hazard Statement(s)

Contains refrigerated gas; may cause cryogenic burns or injury

Precautionary Statement(s)

Prevention

Wear cold insulating gloves/face shield/eye protection.

Response

Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.

Storage

Store in a well-ventilated place.

Hazard(s) Not Otherwise Classified

Accumulation of vapors can cause asphyxiation without warning. May cause frostbite upon sudden release of liquefied gas.

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Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component	Percent
7727-37-9	NITROGEN, CRYOGENIC LIQUID	100

Section 4 - FIRST AID MEASURES

Description of Necessary Measures

Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Skin

If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

Eyes

For freezing, frostbite or cryogenic burns, open eyelids wide to allow liquid to evaporate. Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Ingestion

If swallowed, get medical attention.

Most Important Symptoms/Effects

Acute

frostbite, suffocation

Delayed

No information on significant adverse effects.

Indication of Immediate Medical Attention and Special Treatment

For inhalation, consider oxygen.

Section 5 - FIRE FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing agents appropriate for surrounding fire.

Unsuitable Extinguishing Media

Do not direct water at source of leak or safety devices; icing may occur.

Specific Hazards Arising from the Chemical

Negligible fire hazard. Containers may rupture or explode if exposed to heat.

Hazardous Combustion Products

Combustion: oxides of nitrogen

Fire Fighting Measures

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). Damaged cylinders should be handled only by specialists. Stay away from the ends of tanks.

Special Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

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Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8. Avoid release to the environment.

Methods and Materials for Containment and Cleaning Up

Do not touch spilled material. Stop leak if possible without personal risk. Use water spray to reduce vapors or divert vapor cloud drift. Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. If possible, turn leaking containers so that gas escapes rather than liquid. Prevent entry into waterways, sewers, basements, or confined areas. Damaged cylinders should be handled only by specialists.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Wear cold insulating gloves/face shield/eye protection.

Conditions for Safe Storage, including any Incompatibilities

Store and handle in accordance with all current regulations and standards. Protect from physical damage. Inside storage: Store in a well-ventilated area. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.

Incompatibilities metals, oxidizing materials

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

NITROGEN, CRYOGENIC LIQUID (7727-37-9)

ACGIH: Simple asphyxiant (See Appendix F: Minimal Oxygen Content)

Component Biological Limit Values

There are no biological limit values for any of this product's components.

Appropriate Engineering Controls

Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eyes/Face Protection

Wear splash resistant safety goggles with a faceshield. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection

For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.

Glove Recommendations

Wear insulated gloves.

Respiratory Protection

Under conditions of frequent use or heavy exposure, respiratory protection may be needed.

Respiratory protection is ranked in order from minimum to maximum.

Consider warning properties before use.

For Unknown Concentrations or Immediately Dangerous to Life or Health -

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Gas	Appearance:	colorless, gas
Color:	colorless	Physical Form:	liquefied gas
Odor:	odorless	Odor Threshold:	Not available
Taste:	tasteless	pH:	Not available
Melting/Freezing Point:	-210 °C	Boiling Point:	-196 °C
Flash Point:	Non-flammable	Decomposition:	Not available
Evaporation Rate:	Not available	LEL:	Not available
UEL:	Not available	Vapor Pressure:	760 mmHg @ -196 °C
Vapor Density (air = 1):	0.967	Specific Gravity (water=1):	0.8081 @ -196 °C
Water Solubility:	1.6 % @ 20 °C	Log KOW:	0.67
Auto Ignition:	Not available	Viscosity:	0.292 cP @ -209 °C
Volatility:	100 %	Molecular Weight:	28.0134
Molecular Formula:	N ₂		

Other Property Information

Solvent Solubility

Soluble: liquid ammonia
Slightly Soluble: alcohol

Section 10 - STABILITY AND REACTIVITY

Reactivity

Containers may rupture or explode if exposed to heat.

Chemical Stability

Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions

Will not polymerize.

Conditions to Avoid

Protect from physical damage and heat. Containers may rupture or explode if exposed to heat. Avoid contact with water or moisture.

Incompatible Materials

metals, oxidizing materials

Hazardous Decomposition

Combustion: oxides of nitrogen

Section 11 - TOXICOLOGICAL INFORMATION

Acute and Chronic Toxicity

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and no selected endpoints have been identified.

RTECS Acute Toxicity (selected)

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Information on Likely Routes of Exposure

Inhalation

nausea, dizziness, vomiting, tingling sensation, suffocation, convulsions, coma

Ingestion

frostbite

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Skin Contact

frostbite, blisters

Eye Contact

irritation, frostbite, blurred vision

Immediate Effects

frostbite, suffocation

Delayed Effects

No information on significant adverse effects.

Medical Conditions Aggravated by Exposure

No data available.

RTECS Irritation

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Respiratory Sensitization

No data available.

Dermal Sensitization

No data available.

Carcinogenicity

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, OSHA or DFG.

Mutagenic Data

No data available.

Reproductive Effects Data

No data available.

Tumorigenic Data

No data available.

Specific Target Organ Toxicity - Single Exposure

No data available.

Specific Target Organ Toxicity - Repeated Exposure

No data available.

Aspiration Hazard

Not applicable.

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity

No LOLI ecotoxicity data are available for this product's components.

Persistence and Degradability

No data available.

Bioaccumulative Potential

No data available.

Mobility

No data available.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods

Dispose in accordance with all applicable regulations.

Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components.

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Section 14 - TRANSPORT INFORMATION

US DOT Information

Shipping Name: Nitrogen, refrigerated liquid

UN/NA #: UN1977 **Hazard Class:** 2.2

Required Label(s): 2.2

IMDG Information

Shipping Name: Nitrogen, refrigerated liquid

UN #: UN1977 **Hazard Class:** 2.2

Required Label(s): 2.2

Section 15 - REGULATORY INFORMATION

Component Analysis

U.S. Federal Regulations

None of this products components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

SARA 311/312 Hazardous Categories

Acute Health: Yes **Chronic Health:** No **Fire:** No **Pressure:** Yes **Reactive:** No

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
NITROGEN, CRYOGENIC LIQUID	7727-37-9	No	Yes	Yes	Yes	Yes

Not regulated under California Proposition 65

Component Analysis - Inventory

Component	CAS	US	CA	EU	AU	PH	JP	KR	CN	NZ
NITROGEN, CRYOGENIC LIQUID	7727-37-9	Yes	DSL	EIN	Yes	Yes	No	Yes	Yes	Yes

Section 16 - OTHER INFORMATION

NFPA Ratings: Health: 3 **Fire:** 0 **Reactivity:** 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

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Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EIN (EINECS) - European Inventory of Existing Commercial Chemical Substances; ELN (ELINCS) - European List of Notified Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RTECS - Registry of Toxic Effects of Chemical Substances®; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

Other Information

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