



## Safety Data Sheet

Material Name: NITROGEN, CRYOGENIC LIQUID

SDS ID: 00202589

### Section 1 - PRODUCT AND COMPANY IDENTIFICATION

**Material Name**

NITROGEN, CRYOGENIC LIQUID

**Synonyms**

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

**Chemical Family**

non-metallic

**Product Description**

Classification determined in accordance with Compressed Gas Association standards.

**Product Use**

Industrial and Specialty Gas Applications

**Restrictions on Use**

None known.

**Details of the supplier of the safety data sheet**

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 paragraph (d) of 29 CFR 1910.1200.**

Gases Under Pressure - Refrigerated liquefied gas

Simple Asphyxiant

**GHS Label Elements**

**Symbol(s)**



**Signal Word**

Warning

**Hazard Statement(s)**

Contains refrigerated gas; may cause cryogenic burns or injury.

May displace oxygen and cause rapid suffocation.

**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.



## Safety Data Sheet

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Dispose of contents/container in accordance with local/regional/national/international regulations.

**Other Hazards**

May cause frostbite upon sudden release of liquefied gas.

**Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS**

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

**Section 4 - FIRST AID 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.

**Note to Physicians**

For inhalation, consider oxygen.

**Section 5 - FIRE FIGHTING MEASURES****Extinguishing Media****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.

**Special Hazards Arising from the Chemical**

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

**Hazardous Combustion Products**

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.

**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.

**Environmental Precautions**

Avoid release to the environment.

### 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 in a well-ventilated place.

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.

**Incompatible Materials**

metals, oxidizing materials

### Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

**Component Exposure Limits**

NITROGEN, CRYOGENIC LIQUID	7727-37-9
ACGIH:	(See Appendix F: Minimal Oxygen Content )

**ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)**

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

**Engineering Controls**

Provide local exhaust ventilation system.

**Individual Protection Measures, such as Personal Protective Equipment**

**Eye/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.

**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. 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.

**Glove Recommendations**

Wear insulated gloves.

**Safety Data Sheet****Material Name: NITROGEN, CRYOGENIC LIQUID****SDS ID: 00202589****Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance</b>	colorless gas	<b>Physical State</b>	gas
<b>Odor</b>	odorless	<b>Color</b>	colorless
<b>Odor Threshold</b>	Not available	<b>pH</b>	Not available
<b>Melting Point</b>	-210 °C (-346 °F )	<b>Boiling Point</b>	-196 °C (-321 °F )
<b>Boiling Point Range</b>	Not available	<b>Freezing point</b>	Not available
<b>Evaporation Rate</b>	Not available	<b>Flammability (solid, gas)</b>	Not available
<b>Autoignition Temperature</b>	Not available	<b>Flash Point</b>	(Non-flammable )
<b>Lower Explosive Limit</b>	Not available	<b>Decomposition temperature</b>	Not available
<b>Upper Explosive Limit</b>	Not available	<b>Vapor Pressure</b>	760 mmHg @ -196 °C
<b>Vapor Density (air=1)</b>	0.967	<b>Specific Gravity (water=1)</b>	0.8081 at -196 °C
<b>Water Solubility</b>	1.6 % (@ 20 °C )	<b>Partition coefficient: n-octanol/water</b>	Not available
<b>Viscosity</b>	0.292 cp	<b>Kinematic viscosity</b>	Not available
<b>Solubility (Other)</b>	Not available	<b>Density</b>	Not available
<b>Log KOW</b>	0.67	<b>Physical Form</b>	liquefied gas
<b>Taste</b>	tasteless	<b>Volatility</b>	100 %
<b>Molecular Formula</b>	N2	<b>Molecular Weight</b>	28.0134

**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.



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**Material Name: NITROGEN, CRYOGENIC LIQUID****SDS ID: 00202589****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 products**

oxides of nitrogen

**Section 11 - TOXICOLOGICAL INFORMATION****Information on Likely Routes of Exposure****Inhalation**

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

**Skin Contact**

frostbite, blisters

**Eye Contact**

irritation, frostbite, blurred vision

**Ingestion**

frostbite

**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.

**Product Toxicity Data****Acute Toxicity Estimate**

No data available.

**Immediate Effects**

frostbite, suffocation

**Delayed Effects**

no information on significant adverse effects.

**Irritation/Corrosivity Data**

No data available.

**Respiratory Sensitization**

No data available.

**Dermal Sensitization**

No data available.

**Component Carcinogenicity**

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

**Germ Cell Mutagenicity**

No data available.

**Tumorigenic Data**

No data available

**Reproductive Toxicity**

No data available.

**Specific Target Organ Toxicity - Single Exposure**

No target organs identified.

**Specific Target Organ Toxicity - Repeated Exposure**

No target organs identified.

**Aspiration hazard**

Not applicable.



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**Medical Conditions Aggravated by Exposure**

No data available.

**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.

**Section 14 - TRANSPORT INFORMATION**

**US DOT Information:**

**Shipping Name:** NITROGEN, REFRIGERATED LIQUID

**Hazard Class:** 2.2

**UN/NA #:** UN1977

**Required Label(s):** 2.2

**IMDG Information:**

**Shipping Name:** NITROGEN, REFRIGERATED LIQUID

**Hazard Class:** 2.2

**UN#:** UN1977

**Required Label(s):** 2.2

**International Bulk Chemical Code**

This material does not contain any chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

**Section 15 - REGULATORY INFORMATION**

**U.S. Federal Regulations**

None of this product's 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 Section 311/312 (40 CFR 370 Subparts B and C) reporting categories**

Gas Under Pressure; Simple Asphyxiant

**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
<b>NITROGEN, CRYOGENIC LIQUID</b>	<b>7727-37-9</b>	No	Yes	Yes	Yes	Yes

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

Not listed under California Proposition 65.

**Component Analysis - Inventory**



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US	CA	AU	CN	EU	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2
Yes	DSL	Yes	Yes	EIN	No	No	Yes	No

KR - REACH CCA	MX	NZ	PH	TH-TECI	TW	VN (Draft)
No	Yes	Yes	Yes	Yes	Yes	Yes

**Section 16 - OTHER INFORMATION****NFPA Ratings**

Health: 3 Fire: 0 Instability: 0 Other: SA

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

**Summary of Changes**

Updated: 08/16/2017

**Key / Legend**

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania\*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC - European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; F - Background (for Venezuela Biological Exposure Indices); 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; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX - Mexico; Ne - Non-specific; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; Nq - Non-quantitative; NSL - Non-Domestic Substance List (Canada); NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL - Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH - Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; Sc - Semi-quantitative; STEL - Short-term Exposure Limit; TCCA - Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW - Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN (Draft) - Vietnam (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada).

**Other Information****Disclaimer:**



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