

# MATERIAL SAFETY DATA SHEET

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## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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**MATHESON TRI-GAS, INC.**  
**150 Allen Road Suite 302**  
**Basking Ridge, New Jersey 07920**  
**Information: 1-800-416-2505**

**Emergency Contact:**  
**CHEMTREC 1-800-424-9300**  
**Calls Originating Outside the US:**  
**703-527-3887 (Collect Calls Accepted)**

**SUBSTANCE: NITROGEN, CRYOGENIC LIQUID**

**TRADE NAMES/SYNONYMS:**

MTG MSDS 164; NITROGEN, REFRIGERATED LIQUID; NITROGEN, REFRIGERATED LIQUID, CRYOGENIC LIQUID; NITROGEN; NITROGEN (LIQUID); LIQUID NITROGEN; UN 1977; STCC 4904566; N2; 00202589; RTECS QW9700000

**CHEMICAL FAMILY:** non-metallic

**CREATION DATE:** Jan 08 1999

**REVISION DATE:** Sep 13 2007

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## 2. COMPOSITION, INFORMATION ON INGREDIENTS

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**COMPONENT:** NITROGEN, CRYOGENIC LIQUID  
**CAS NUMBER:** 7727-37-9  
**PERCENTAGE:** 100.0

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## 3. HAZARDS IDENTIFICATION

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**NFPA RATINGS (SCALE 0-4):** HEALTH=3 FIRE=0 REACTIVITY=0



**EMERGENCY OVERVIEW:**

**COLOR:** colorless

**PHYSICAL FORM:** liquefied gas

**ODOR:** odorless

**MAJOR HEALTH HAZARDS:** difficulty breathing

**PHYSICAL HAZARDS:** Containers may rupture or explode if exposed to heat.

**POTENTIAL HEALTH EFFECTS:**

**INHALATION:**

**SHORT TERM EXPOSURE:** nausea, vomiting, dizziness, tingling sensation, suffocation, convulsions,

coma

**LONG TERM EXPOSURE:** no information on significant adverse effects

**SKIN CONTACT:**

**SHORT TERM EXPOSURE:** blisters, frostbite

**LONG TERM EXPOSURE:** no information on significant adverse effects

**EYE CONTACT:**

**SHORT TERM EXPOSURE:** frostbite, blurred vision

**LONG TERM EXPOSURE:** no information on significant adverse effects

**INGESTION:**

**SHORT TERM EXPOSURE:** frostbite

**LONG TERM EXPOSURE:** no information is available

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## 4. FIRST AID MEASURES

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**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 CONTACT:** 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.

**EYE CONTACT:** Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

**INGESTION:** If a large amount is swallowed, get medical attention.

**NOTE TO PHYSICIAN:** For inhalation, consider oxygen.

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## 5. FIRE FIGHTING MEASURES

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**FIRE AND EXPLOSION HAZARDS:** Negligible fire hazard. Containers may rupture or explode if exposed to heat.

**EXTINGUISHING MEDIA:** Use extinguishing agents appropriate for surrounding fire.

**FIRE FIGHTING:** 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).

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## 6. ACCIDENTAL RELEASE MEASURES

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**OCCUPATIONAL RELEASE:**

Do not touch spilled material. Stop leak if possible without personal risk. Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.

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## 7. HANDLING AND STORAGE

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**STORAGE:** 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.

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## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

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**EXPOSURE LIMITS:**

**NITROGEN, CRYOGENIC LIQUID:**

**NITROGEN:**

ACGIH (simple asphyxiant)

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

**EYE PROTECTION:** For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

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

**GLOVES:** Wear insulated gloves.

**RESPIRATOR:** 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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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**PHYSICAL STATE:** gas

**COLOR:** colorless

**PHYSICAL FORM:** liquefied gas  
**ODOR:** odorless  
**TASTE:** tasteless  
**MOLECULAR WEIGHT:** 28.0134  
**MOLECULAR FORMULA:** N<sub>2</sub>  
**BOILING POINT:** -321 F (-196 C)  
**FREEZING POINT:** -346 F (-210 C)  
**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  
**PH:** Not applicable  
**VOLATILITY:** 100%  
**ODOR THRESHOLD:** Not available  
**EVAPORATION RATE:** Not applicable  
**VISCOSITY:** 0.292 cP @ -209 C  
**COEFFICIENT OF WATER/OIL DISTRIBUTION:** Not applicable  
**SOLVENT SOLUBILITY:**  
**Soluble:** liquid ammonia  
**Slightly Soluble:** alcohol

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## 10. STABILITY AND REACTIVITY

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**REACTIVITY:** Stable at normal temperatures and pressure.

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

**INCOMPATIBILITIES:** metals, oxidizing materials

**HAZARDOUS DECOMPOSITION:**  
Thermal decomposition products: oxides of nitrogen

**POLYMERIZATION:** Will not polymerize.

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## 11. TOXICOLOGICAL INFORMATION

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Not available

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## 12. ECOLOGICAL INFORMATION

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Not available

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### 13. DISPOSAL CONSIDERATIONS

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Dispose in accordance with all applicable regulations.

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### 14. TRANSPORT INFORMATION

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**U.S. DOT 49 CFR 172.101:**

**PROPER SHIPPING NAME:** Nitrogen, refrigerated liquid

**ID NUMBER:** UN1977

**HAZARD CLASS OR DIVISION:** 2.2

**LABELING REQUIREMENTS:** 2.2



**CANADIAN TRANSPORTATION OF DANGEROUS GOODS:**

**SHIPPING NAME:** Nitrogen, refrigerated liquid

**UN NUMBER:** UN1977

**CLASS:** 2.2

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### 15. REGULATORY INFORMATION

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**U.S. REGULATIONS:**

**CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):** Not regulated.

**SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):** Not regulated.

**SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40):** Not regulated.

**SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):**

ACUTE: Yes

CHRONIC: No

FIRE: No

REACTIVE: No

SUDDEN RELEASE: Yes

**SARA TITLE III SECTION 313 (40 CFR 372.65):** Not regulated.

**OSHA PROCESS SAFETY (29CFR1910.119):** Not regulated.

**STATE REGULATIONS:**

**California Proposition 65:** Not regulated.

**CANADIAN REGULATIONS:**

**WHMIS CLASSIFICATION:** Not determined.

**NATIONAL INVENTORY STATUS:**

**U.S. INVENTORY (TSCA):** Listed on inventory.

**TSCA 12(b) EXPORT NOTIFICATION:** Not listed.

**CANADA INVENTORY (DSL/NDSL):** Not determined.

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**16. OTHER INFORMATION**

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**MSDS SUMMARY OF CHANGES**

**8. EXPOSURE CONTROLS, PERSONAL PROTECTION**

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