



Material Safety Data Sheets



April 21, 2004

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SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MG INDUSTRIES

3 GREAT VALLEY PARKWAY

MALVERN, PENNSYLVANIA 19355

PHONE: 610-695-7400

FAX: 610-695-7596

SUBSTANCE: NITROGEN, CRYOGENIC LIQUID

TRADE NAMES/SYNONYMS:

NITROGEN, REFRIGERATED LIQUID; NITROGEN, REFRIGERATED LIQUID, CRYOGENIC LIQUID; NITROGEN; NITROGEN (LIQUID); STCC 4904566; UN 1977; N2; MGI16626; RTECS QW9700000

CHEMICAL FAMILY: non-metallic

CREATION DATE: May 07 1990

REVISION DATE: Dec 15 2003

EMERGENCY CONTACT:

CHEMTREC:

1-800-424-9300

SECTION 2 COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: NITROGEN, CRYOGENIC LIQUID

CAS NUMBER: 7727-37-9

EC NUMBER (EINECS): 231-783-9

PERCENTAGE: 100.0

SECTION 3 HAZARDS IDENTIFICATION

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

EMERGENCY OVERVIEW:

PHYSICAL DESCRIPTION: Odorless, tasteless, colorless liquified gas.

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, symptoms of drunkenness, tingling sensation, suffocation, convulsions, coma

LONG TERM EXPOSURE: no information on significant adverse effects

SKIN CONTACT:

SHORT TERM EXPOSURE: no information on significant adverse effects

LONG TERM EXPOSURE: no information on significant adverse effects

EYE CONTACT:

SHORT TERM EXPOSURE: irritation

LONG TERM EXPOSURE: no information on significant adverse effects

INGESTION:

SHORT TERM EXPOSURE: no information on significant adverse effects

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LONG TERM EXPOSURE: no information is available

CARCINOGEN STATUS:

OSHA: No

NTP: No

IARC: No

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 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.

SECTION 5 FIRE FIGHTING MEASURES

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).

SECTION 6 ACCIDENTAL RELEASE MEASURES

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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SECTION 7 HANDLING AND STORAGE

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

SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

NITROGEN, CRYOGENIC LIQUID:

No occupational exposure limits established.

VENTILATION: Based on available information, additional ventilation is not required. 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 full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.

Any self-contained breathing apparatus with a full facepiece.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DESCRIPTION: Odorless, tasteless, colorless liquified gas.

MOLECULAR WEIGHT: 28.0134

MOLECULAR FORMULA: N₂

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

SECTION 10 STABILITY AND REACTIVITY

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

NITROGEN:

LITHIUM: May ignite in the gas.

MAGNESIUM: Violent reaction with the liquid on ignition.

NEODYMIUM: Vigorous reaction.

OZONE: Mixtures of the gases may be explosive.

TITANIUM: Will burn in nitrogen atmosphere.

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: oxides of nitrogen

POLYMERIZATION: Will not polymerize.

SECTION 11 TOXICOLOGICAL INFORMATION

HEALTH EFFECTS:

INHALATION:

NITROGEN: Nitrogen inhaled under increased atmospheric pressure, (>1.5 atmospheres), may dissolve in the fat-containing brain cells, and act as an anesthetic, causing narcosis. Persons who have been exposed to increased pressure for a time and who are suddenly released from the pressure may develop decompression sickness. Repeated exposure, without complete decompression, may result in decompression sickness. See information on simple asphyxiants.

ACUTE EXPOSURE:

SIMPLE ASPHYXIANTS: The symptoms of asphyxia depend on the rapidity with which the oxygen deficiency develops and how long it continues. In sudden acute asphyxia, unconsciousness may be immediate. With slow development there may be rapid respiration and pulse, air hunger, dizziness, reduced awareness, tightness in the head, tingling sensations, incoordination, faulty judgement, emotional instability, and rapid fatigue. As the asphyxia progresses, nausea, vomiting, collapse, unconsciousness, convulsions, deep coma and death are possible.

CHRONIC EXPOSURE:

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SIMPLE ASPHYXIANTS: No data available.

SKIN CONTACT:

ACUTE EXPOSURE:

NITROGEN: No adverse effect have been reported from the gas.

CHRONIC EXPOSURE:

NITROGEN: No adverse effects have been reported.

EYE CONTACT:

ACUTE EXPOSURE:

NITROGEN: May cause irritation if sprayed directly into the eyes.

CHRONIC EXPOSURE:

NITROGEN: No adverse effects have been reported.

INGESTION:

ACUTE EXPOSURE:

NITROGEN: Ingestion of a gas is unlikely.

CHRONIC EXPOSURE:

NITROGEN: No data available.

SECTION 12 ECOLOGICAL INFORMATION

Not available

SECTION 13 DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations.

SECTION 14 TRANSPORT INFORMATION

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

LAND TRANSPORT ADR:

PROPER SHIPPING NAME: Nitrogen, refrigerated liquid

UN NUMBER: UN1977

CLASS: 2

CLASSIFICATION CODE: 3A

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LABELS: 2.2

LAND TRANSPORT RID:

PROPER SHIPPING NAME: Nitrogen, refrigerated liquid

UN NUMBER: UN1977

CLASS: 2

CLASSIFICATION CODE: 3A

LABELS: 2.2; (+13)

AIR TRANSPORT IATA:

PROPER SHIPPING NAME: Nitrogen, refrigerated liquid

UN/ID NUMBER: UN1977

CLASS OR DIVISION: 2.2

HAZARD LABELS: 2.2

AIR TRANSPORT ICAO:

PROPER SHIPPING NAME: Nitrogen, refrigerated liquid

UN NUMBER: UN1977

CLASS OR DIVISION: 2.2

LABELS: 2.2

MARITIME TRANSPORT IMDG:

PROPER SHIPPING NAME: Nitrogen, refrigerated liquid

UN NUMBER: UN1977

CLASS OR DIVISION: 2.2

SECTION 15 REGULATORY INFORMATION

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.

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EUROPEAN REGULATIONS:

EC CLASSIFICATION (CALCULATED): Not determined.

GERMAN REGULATIONS:

WATER HAZARD CLASS (WGK):

STATE OF CLASSIFICATION: VwVwS

CLASSIFICATION UNDER HAZARD TO WATER: 0

NATIONAL INVENTORY STATUS:

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

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

SECTION 16 OTHER INFORMATION

MSDS SUMMARY OF CHANGES

SECTION 14 TRANSPORT INFORMATION

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