Safety Data Sheet

Material Name: 20% to 23.5% Oxygen in Nitrogen

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
20% to 23.5% Oxygen in Nitrogen

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 - Compressed gas
Specific Target Organ Toxicity - Single Exposure - Category 3
Simple Asphyxiant

GHS Label Elements
Symbol(s)

Signal Word
Warning

Hazard Statement(s)
Contains gas under pressure; may explode if heated.
May cause respiratory irritation.
May displace oxygen and cause rapid suffocation.

Precautionary Statement(s)
Safety Data Sheet

Material Name: 20% to 23.5% Oxygen in Nitrogen

Prevention
Use only outdoors or in a well-ventilated area.
Avoid breathing dust/fume/gas/mist/vapours/spray.

Response
IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER or doctor if you feel unwell.

Storage
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Protect from sunlight.

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

Other Hazards
Rapid release of compressed gas may cause frostbite.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS</th>
<th>Component Name</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>7782-44-7</td>
<td>Oxygen</td>
<td>20 - 23.5</td>
</tr>
<tr>
<td>7727-37-9</td>
<td>Nitrogen</td>
<td>76.5 - 80</td>
</tr>
</tbody>
</table>

Section 4 - FIRST AID MEASURES

Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if irritation develops or persists.

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
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.
Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media
Suitable Extinguishing Media
regular dry chemical, carbon dioxide. Large fires: Use water spray, fog or regular foam.

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. Oxidizer. May ignite or explode on contact with combustible materials.

Hazardous Combustion Products
oxides of nitrogen.

Fire Fighting Measures
Move container from fire area if it can be done without risk. Damaged cylinders should be handled only by specialists. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Use extinguishing agents appropriate for surrounding fire. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Consider downwind evacuation if material is leaking.

Special Protective Equipment and Precautions for Firefighters
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Methods and Materials for Containment and Cleaning Up
Stop leak if possible without personal risk. Keep away from combustible material. Do not touch or walk through spilled material. If possible, turn leaking containers so that gas escapes rather than liquid. Do not direct water at spill or source of leak. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material. Prevent entry into waterways, sewers, basements, or confined areas. Keep unnecessary people away, isolate hazard area and deny entry. Allow substance to evaporate. Isolate area until gas has dispersed. Stay upwind and keep out of low areas. Ventilate closed spaces before entering.

Environmental Precautions
Avoid release to the environment.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling
Avoid breathing gas. Wash thoroughly after handling.

Conditions for Safe Storage, Including any Incompatibilities
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Protect from sunlight.
Store and handle in accordance with all current regulations and standards. See original container for storage recommendations. Protect from physical damage. Store in a cool, dry place. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.

Incompatible Materials
metals, oxidizing materials, combustible materials, halo carbons, bases, reducing agents, amines, metal salts.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

<table>
<thead>
<tr>
<th>Component</th>
<th>Exposure Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>7727-37-9</td>
</tr>
<tr>
<td>ACGIH:</td>
<td>(See Appendix F: Minimal Oxygen Content)</td>
</tr>
</tbody>
</table>

EU - Occupational Exposure (98/24/EC) - Binding Biological Limit Values and Health Surveillance Measures
There are no biological limit values for any of this product’s components.

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. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection
For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles with a face shield. 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. 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.

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

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**Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>colorless gas</td>
</tr>
<tr>
<td>Odor</td>
<td>Not available color</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not available pH</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not available Boiling Point</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not available Evaporation Rate</td>
</tr>
<tr>
<td>Boiling Point Range</td>
<td>Not available Flammability (solid, gas)</td>
</tr>
<tr>
<td>Autoignition</td>
<td>Not available Flash Point</td>
</tr>
<tr>
<td>Lower Explosive Limit</td>
<td>Not available Decomposition</td>
</tr>
<tr>
<td>Upper Explosive Limit</td>
<td>Not available Vapor Pressure</td>
</tr>
<tr>
<td>Vapor Density (air=1)</td>
<td>Not available Specific Gravity (water=1)</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Not available Partition coefficient: n-octanol/water</td>
</tr>
</tbody>
</table>
Section 10 - STABILITY AND REACTIVITY

Reactivity
No reactivity hazard is expected.

Chemical Stability
Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions
Will not polymerize.

Conditions to Avoid
Avoid contact with combustible materials. Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.

Incompatible Materials
metals, oxidizing materials, combustible materials, halo carbons, bases, reducing agents, amines, metal salts.

Hazardous decomposition products
oxides of nitrogen.

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation
irritation, changes in body temperature, nausea, difficulty breathing, irregular heartbeat, dizziness, drowsiness, hallucinations, mood swings, pain in extremities, tremors, lung congestion, convulsions, lung damage, chest pain, vomiting, loss of coordination

Skin Contact
frostbite

Eye Contact
frostbite, irritation, blurred vision

Ingestion
Ingestion of gas unlikely.

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
Immediate Effects
frostbite, suffocation, respiratory tract irritation.

Delayed Effects
No information on significant adverse effects.

Irritation/Corrosivity Data
respiratory tract irritation.

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
respiratory system.

Specific Target Organ Toxicity - Repeated Exposure
No target organs identified.

Aspiration hazard
No data available.

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 for the mixture.

Bioaccumulative Potential
No data available for the mixture.

Mobility
Section 13 - DISPOSAL CONSIDERATIONS

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

Section 14 - TRANSPORT INFORMATION

US DOT Information:
Shipping Name: COMPRESSED GAS, N.O.S., (Contains: Oxygen, Nitrogen)
Hazard Class: 2.2
UN/NA #: UN1956
Required Label(s): 2.2

IMDG Information:
Shipping Name: COMPRESSED GAS, N.O.S., (Contains: Oxygen, Nitrogen)
Hazard Class: 2.2
UN#: UN1956
Required Label(s): 2.2

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)
Acute Health: Yes Chronic Health: No Fire: No Pressure: Yes Reactivity: No

U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>CA</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen</td>
<td>7782-44-7</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nitrogen</td>
<td>7727-37-9</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Not listed under California Proposition 65

Canadian WHMIS Ingredient Disclosure List (IDL)
The components of this product are either not listed on the IDL or are present below the threshold limit listed on the IDL.
Safety Data Sheet

Material Name: 20% to 23.5% Oxygen in Nitrogen

Component Analysis - Inventory
Oxygen (7782-44-7)

|----|----|----|----|----|----------|----------|---------------|----------|----|----|----|----|
| Yes|DSL|EIN|Yes|Yes|No|No|Yes|No|Yes|Yes|Yes|Yes

Nitrogen (7727-37-9)

|----|----|----|----|----|----------|----------|---------------|----------|----|----|----|----|
| Yes|DSL|EIN|Yes|Yes|No|No|Yes|No|Yes|Yes|Yes|Yes

Section 16 - OTHER INFORMATION

NFPA Ratings
Health: 2 Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes
New SDS: 8/12/2015

Key/Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsiús; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; 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; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial 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; LLV - Level Limit Value; 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; REACH - Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of
Safety Data Sheet

Material Name: 20% to 23.5% Oxygen in Nitrogen

SDS ID: 00244636

Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

Other Information

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