Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
≤6.7% Hydrogen Sulfide in Nitrogen

Product Description
Gas mixture inhalation acute toxicity determined according to Compressed Gas Association Standard P-20. Gas mixture flammability determined according to Compressed Gas Association Standard P-23.

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 1 (cardiovascular system, central nervous system, respiratory system)
Specific Target Organ Toxicity - Repeated Exposure - Category 1 (Nervous System, upper respiratory system)
Simple Asphyxiant

GHS Label Elements
Symbol(s)

Signal Word
Danger

Hazard Statement(s)
Contains gas under pressure; may explode if heated.
Causes damage to organs.
Causes damage to organs through prolonged or repeated exposure.
May displace oxygen and cause rapid suffocation.

Precautionary Statement(s)

Prevention
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.

Response
Safety Data Sheet

Material Name: ≤6.7% Hydrogen Sulfide in Nitrogen

If exposed: Call a POISON CENTER or doctor/physician. Get medical advice/attention if you feel unwell. Specific treatment (see label).

Storage
Store locked up. Protect from sunlight. Store in a well-ventilated place.

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

Other Hazards
Rapid release of compressed gas may cause frostbite

<table>
<thead>
<tr>
<th>CAS</th>
<th>Component Name</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>7783-06-4</td>
<td>Hydrogen sulfide</td>
<td>≤6.7</td>
</tr>
<tr>
<td>7727-37-9</td>
<td>Nitrogen</td>
<td>≥93.3</td>
</tr>
</tbody>
</table>

Section 4 - FIRST AID MEASURES

Inhalation
Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention if you feel unwell.

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
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, cardiovascular system damage, central nervous system damage, respiratory system damage

Delayed
nervous system damage, respiratory system damage

Indication of any immediate medical attention and special treatment needed
For inhalation, consider oxygen.

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 use high-pressure water streams.

Special Hazards Arising from the Chemical
Pressurized containers may rupture or explode if exposed to sufficient heat.

Hazardous Combustion Products
oxides of sulfur, oxides of nitrogen

Fire Fighting Measures
Safety Data Sheet

Material Name: ≤6.7% Hydrogen Sulfide in Nitrogen  
SDS ID: 00244711

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Do not direct water at source of leak or safety devices; icing may occur. Stay upwind and keep out of low areas. Avoid inhalation of material or combustion by-products. 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).

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

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
Keep unnecessary people away, isolate hazard area and deny entry. Stop leak if possible without personal risk. Do not touch or walk through spilled material. Use water spray to reduce vapors or divert vapor cloud drift. Do not direct water at spill or source of leak. Ventilate closed spaces before entering.

Environmental Precautions
Avoid release to the environment. Collect spillage. Prevent entry into waterways, sewers, basements, or confined areas.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling
Use only outdoors or in a well-ventilated area. Avoid breathing gas. Wash thoroughly after handling.

Conditions for Safe Storage, Including any Incompatibilities
Store locked up.
Protect from sunlight. Store in a well-ventilated place.
Store in accordance with all current regulations and standards. Avoid heat, flames, sparks and other sources of ignition. Keep away from incompatible materials. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101

Incompatible Materials
Combustible materials, metals, oxidizing materials, halogens, metal oxides, metal salts, bases

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

<table>
<thead>
<tr>
<th>Component Exposure Limits</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide</td>
<td>7783-06-4</td>
</tr>
<tr>
<td>ACGIH:</td>
<td>1 ppm TWA</td>
</tr>
<tr>
<td></td>
<td>5 ppm STEL</td>
</tr>
<tr>
<td>NIOSH:</td>
<td>10 ppm Ceiling 10 min ; 15 mg/m3 Ceiling 10 min</td>
</tr>
<tr>
<td></td>
<td>100 ppm IDLH</td>
</tr>
<tr>
<td>Europe:</td>
<td>5 ppm TWA ; 7 mg/m3 TWA</td>
</tr>
<tr>
<td></td>
<td>10 ppm STEL ; 14 mg/m3 STEL</td>
</tr>
<tr>
<td>OSHA (US):</td>
<td>20 ppm Ceiling</td>
</tr>
<tr>
<td>Mexico:</td>
<td>10 ppm TWA VLE-PPT ; 14 mg/m3 TWA VLE-PPT</td>
</tr>
</tbody>
</table>
Safety Data Sheet

Material Name: ≤6.7% Hydrogen Sulfide in Nitrogen

<table>
<thead>
<tr>
<th>Nitrogen</th>
<th>ACGIH:</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 ppm STEL [PPT-CT ]; 21 mg/m³ STEL [PPT-CT ]</td>
<td>(See Appendix F: Minimal Oxygen Content )</td>
</tr>
</tbody>
</table>

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 or process enclosure 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. 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
The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA. Any powered, air-purifying respirator with cartridge(s) providing protection against this substance.

Glove Recommendations
Wear insulated gloves.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Appearance</th>
<th>colorless gas</th>
<th>Physical State</th>
<th>gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor</td>
<td>Not available</td>
<td>Color</td>
<td>Not available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not available</td>
<td>pH</td>
<td>Not available</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not available</td>
<td>Boiling Point</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling Point Range</td>
<td>Not available</td>
<td>Freezing point</td>
<td>Not available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not available</td>
<td>Flammability (solid, gas)</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>Not available</td>
<td>Flash Point</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Lower Explosive Limit</td>
<td>Not available</td>
<td>Decomposition temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Upper Explosive Limit</td>
<td>Not available</td>
<td>Vapor Pressure</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor Density (air=1)</td>
<td>Not available</td>
<td>Specific Gravity (water=1)</td>
<td>Not available</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Not available</td>
<td>Partition coefficient: n-octanol/water</td>
<td>Not available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available</td>
<td>Kinematic viscosity</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility (Other)</td>
<td>Not available</td>
<td>Density</td>
<td>Not available</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
Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.

Incompatible Materials
combustible materials, metals, oxidizing materials, halogens, metal oxides, metal salts, bases

Hazardous decomposition products
oxides of sulfur, oxides of nitrogen

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation
irritation, cough, lack of sense of smell, sensitivity to light, changes in blood pressure, nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, disorientation, hallucinations, pain in extremities, tremors, visual disturbances, suffocation, lung congestion, internal bleeding, heart disorders, nerve damage, respiratory system damage, cardiovascular system damage, brain damage, convulsions, coma, tingling sensation, loss of coordination

Skin Contact
frostbite

Eye Contact
frostbite

Ingestion
Ingestion of a gas in unlikely.

Acute and Chronic Toxicity

Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and the following selected endpoints are published:

Hydrogen sulfide (7783-06-4)
Inhalation LC50 Rat 700 mg/m3 4 h

Product Toxicity Data

Acute Toxicity Estimate
No data available.

Immediate Effects
frostbite, suffocation, cardiovascular system effects, central nervous system effects, respiratory system effects

Delayed Effects
nervous system damage, respiratory system damage

Irritation/Corrosivity Data
No data available.

Respiratory Sensitization
No data available.

Dermal Sensitization
No data available.

Component Carcinogenicity
Safety Data Sheet

Material Name: ≤6.7% Hydrogen Sulfide in Nitrogen

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
Cardiovascular system, central nervous system, respiratory system

Specific Target Organ Toxicity - Repeated Exposure
Respiratory system nervous system,

Aspiration hazard
No data available.

Medical Conditions Aggravated by Exposure
No data available.

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity

<table>
<thead>
<tr>
<th>Component</th>
<th>Aquatic Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide</td>
<td>7783-06-4</td>
</tr>
<tr>
<td>Fish:</td>
<td>LC50 96 h Lepomis macrochirus 0.0448 mg/L [flow-through ]; LC50 96 h Pimephales promelas 0.016 mg/L [flow-through ]</td>
</tr>
</tbody>
</table>

Persistence and Degradability
No information available for the mixture.

Bioaccumulative Potential
No information available for the mixture.

Mobility
No information available for the mixture.

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: COMPRESSED GAS, N.O.S. , (Contains: Hydrogen sulfide, Nitrogen)
Hazard Class: 2.2
UN/NA #: UN1956
Required Label(s): 2.2

IMDG Information:
Shipping Name: COMPRESSED GAS, N.O.S. , (Contains: Hydrogen sulfide, Nitrogen)
Hazard Class: 2.2
UN#: UN1956
Required Label(s): 2.2
International Bulk Chemical Code
Material Name: ≤6.7% Hydrogen Sulfide in Nitrogen
SDS ID: 00244711

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**
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

<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>Hydrogen sulfide</td>
<td>7783-06-4</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</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>

**SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories**
Gas Under Pressure; Specific Target Organ Toxicity; Simple Asphyxiant

**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>CA</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nitrogen</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**

**Canada Regulations**
**Canadian WHMIS Ingredient Disclosure List (IDL)**
Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL.

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</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide</td>
<td>Yes</td>
<td>DSL</td>
<td>EIN</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Safety Data Sheet

Material Name: ≤6.7% Hydrogen Sulfide in Nitrogen

SDS ID: 00244711

Nitrogen (7727-37-9)

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</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>DSL</td>
<td>EIN</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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: 12/14/2015

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; DSL - Dangerous Substance Directive; EC - European Union; EEC - European Economic Community; 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; TLEV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW - Taiwan; 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:

Issue date: 2018-04-05  Revision 1.8  Print date: 2018-04-05
Safety Data Sheet

Material Name: ≤6.7% Hydrogen Sulfide in Nitrogen

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