



Safety Data Sheet

Material Name: Hydrogen Sulfide (24-61%) balance Nitrogen

SDS ID: 00244528

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name

Hydrogen Sulfide (24-61%) balance 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.

Flammable Gases - Category 1

Gases Under Pressure - Compressed gas

Acute Toxicity - Inhalation - Gas - Category 2

Skin Corrosion/Irritation - Category 2

Serious Eye Damage/Eye Irritation - Category 2A

Specific target organ toxicity - Single exposure - Category 1

Specific target organ toxicity - Repeated exposure - Category 1

Hazardous to the Aquatic Environment - Acute - Category 1

Hazardous to the Aquatic Environment - Chronic - Category 1

GHS Label Elements

Symbol(s)



Signal Word

Danger

Hazard Statement(s)

Extremely flammable gas.

Contains gas under pressure; may explode if heated.

Fatal if inhaled.

May displace oxygen and cause rapid suffocation.

Causes skin irritation.

Causes serious eye irritation.

Causes damage to organs. (Cardiovascular system , central nervous system , respiratory system)

Causes damage to organs through prolonged or repeated exposure. (blood , nervous system , respiratory system)

Very toxic to aquatic life with long lasting effects.

Precautionary Statement(s)



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Material Name: Hydrogen Sulfide (24-61%) balance Nitrogen**SDS ID: 00244528****Prevention**

Keep away from heat, sparks, open flame, and hot surfaces - No smoking.
Do not breathe gas.
Use only outdoors or in a well-ventilated area.
Wear respiratory protection.
Wear protective gloves and eye/face protection.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Avoid release to the environment.

Response

Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
Eliminate all ignition sources if safe to do so.
IF exposed.
Call a POISON CENTER or doctor/physician.
IF INHALED.
Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Immediately call a POISON CENTER or doctor/physician.
Specific treatment is urgent, see first aid section of Safety Data Sheet.
IF ON SKIN: Wash with plenty of soap and water.
If skin irritation occurs.
Get medical advice/attention.
Take off contaminated clothing and wash before reuse.
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.
Collect spillage.
Storage
Store in a well-ventilated place.
Keep container tightly closed.
Protect from sunlight.
Store locked up.

Disposal

Dispose in accordance with all applicable regulations.

Other Hazards

Rapid release of compressed gas may cause frostbite. May cause asphyxia.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
7783-06-4	Hydrogen sulfide	24-61
7727-37-9	Nitrogen	39-76

Section 4 - FIRST AID MEASURES**Inhalation**



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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. Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

Eyes

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

Ingestion

Ingestion is not a route of exposure.

Most Important Symptoms/Effects**Acute**

frostbite, suffocation, respiratory tract irritation, skin irritation, eye irritation, cardiovascular system damage, central nervous system damage, respiratory system damage

Delayed

blood damage, nervous system damage, respiratory system damage

Note to Physicians

For inhalation, consider oxygen.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media**Suitable Extinguishing Media**

regular dry chemical, carbon dioxide, water spray, alcohol resistant foam, Let burn unless leak can be stopped immediately.

Unsuitable Extinguishing Media

Do not direct water at source of leak or safety devices; icing may occur.

Special Hazards Arising from the Chemical

Extremely flammable gas. Containers may rupture or explode if exposed to heat.

Hazardous Combustion Products

oxides of nitrogen, oxides of sulfur

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. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Keep unnecessary people away, isolate hazard area and deny entry. Do not attempt to extinguish fire unless flow of material can be stopped first. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

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

Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up

Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. All equipment used when handling the product must be grounded. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Do not touch or walk through spilled material. Stop leak if possible



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without personal risk. 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. Isolate area until gas has dispersed. Keep unnecessary people away, isolate hazard area and deny entry.

Environmental Precautions

Avoid release to the environment. Collect spillage.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Keep away from heat, sparks, open flame, and hot surfaces - No smoking. Do not breathe gas. Use only outdoors or in a well-ventilated area. Wear respiratory protection. Wear protective gloves/eye protection/face protection. Wash hands thoroughly after handling. Do not eat, drink, or smoke when using this product.

Conditions for Safe Storage, Including any Incompatibilities

Store in a well-ventilated place.

Keep container tightly closed.

Protect from sunlight.

Store locked up.

Store and handle in accordance with all current regulations and standards. Store in a well-ventilated area. Store in a tightly closed container. Protect from sunlight. Keep locked up. Keep separated from incompatible substances.

Incompatible Materials

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

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Hydrogen sulfide	7783-06-4
ACGIH:	1 ppm TWA
	5 ppm STEL
NIOSH:	10 ppm Ceiling 10 min ; 15 mg/m3 Ceiling 10 min
	100 ppm IDLH
Europe:	5 ppm TWA ; 7 mg/m3 TWA
	10 ppm STEL ; 14 mg/m3 STEL
OSHA (US):	20 ppm Ceiling
Mexico:	10 ppm TWA VLE-PPT ; 14 mg/m3 TWA VLE-PPT
	15 ppm STEL [PPT-CT] ; 21 mg/m3 STEL [PPT-CT]
Nitrogen	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.



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Material Name: Hydrogen Sulfide (24-61%) balance Nitrogen**SDS ID: 00244528****Engineering Controls**

Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. 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**

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: Wear appropriate chemical resistant clothing. For the liquid: Wear appropriate protective, cold insulating clothing.

Respiratory Protection

hydrogen sulfide. The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA. 100 ppm. Any powered, air-purifying respirator with cartridge(s) providing protection against this substance. Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted canister providing protection against the compound of concern. Any supplied-air respirator. Any self-contained breathing apparatus with a full facepiece. Emergency or planned entry into unknown concentrations or IDLH conditions -. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. 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. Escape -. Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted canister providing protection against the compound of concern. Any appropriate escape-type, self-contained breathing apparatus.

Glove Recommendations

For the gas: Wear appropriate chemical resistant gloves. For the liquid: Wear insulated gloves.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	colorless gas	Physical State	gas
Odor	Not available	Color	colorless
Odor Threshold	0.14 ppm (Recognition Arsine)	pH	Not available
Melting Point	-85.6 °C (-122 °F)	Boiling Point	-60.2 °C (-76 °F)
Boiling Point Range	Not available	Freezing point	Not available
Evaporation Rate	Not available	Flammability (solid, gas)	Not available
Autoignition Temperature	Not available	Flash Point	(Flammable gas)
Lower Explosive Limit	Not available	Decomposition temperature	Not available
Upper Explosive Limit	Not available	Vapor Pressure	Not available
Vapor Density (air=1)	Not available	Specific Gravity (water=1)	Not available



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Water Solubility	Not available	Partition coefficient: n-octanol/water	Not available
Viscosity	Not available	Kinematic viscosity	Not available
Solubility (Other)	Not available	Density	Not available
Physical Form	compressed gas	Molecular Weight	Not available

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 heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

Avoid inhalation of material or combustion by-products.

Incompatible Materials

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

Hazardous decomposition products

oxides of nitrogen, oxides of sulfur

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure**Inhalation**

irritation, cough, nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, Disorientation, tingling sensation, loss of coordination, lack of sense of smell, sensitivity to light, changes in blood pressure, hallucinations, pain in extremities, irregular heartbeat, sleep disturbances, tremors, visual disturbances, lung congestion, paralysis, heart disorders, nerve damage, brain damage, convulsions, coma

Skin Contact

frostbite, irritation, skin disorders

Eye Contact

frostbite, irritation, sensitivity to light, tearing, visual disturbances, eye damage

Ingestion

ingestion of a gas is 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, respiratory tract irritation, skin irritation, eye irritation, cardiovascular system damage, central nervous system damage, respiratory system damage



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Delayed Effects

blood damage, nervous system damage, respiratory system damage

Irritation/Corrosivity Data

respiratory tract irritation, skin irritation, eye 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 for the mixture.

Tumorigenic Data

No data available

Reproductive Toxicity

No data available for the mixture.

Specific Target Organ Toxicity - Single Exposure

Respiratory system, Cardiovascular system, central nervous system

Specific Target Organ Toxicity - Repeated Exposure

blood, nervous system, Respiratory system

Aspiration hazard

Not applicable.

Medical Conditions Aggravated by Exposure

eye disorders, respiratory disorders, nervous system disorders

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life with long lasting effects.

Component Analysis - Aquatic Toxicity

Hydrogen sulfide	7783-06-4
Fish:	LC50 96 h <i>Lepomis macrochirus</i> 0.0448 mg/L [flow-through]; LC50 96 h <i>Pimephales promelas</i> 0.016 mg/L [flow-through]

Persistence and Degradability

No data available for the mixture.

Bioaccumulative Potential

No data available for the mixture.

Mobility

No data available for the mixture.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. U.S. EPA 40 CFR 262.

Hazardous Waste Number(s): D001.

Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components.



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Section 14 - TRANSPORT INFORMATION

US DOT Information:

Shipping Name: COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S. , (Contains: Hydrogen sulfide , Nitrogen)

Hazard Class: 2.3

UN/NA #: UN1953

Required Label(s): 2.3 2.1

Marine pollutant

IMDG Information:

Shipping Name: COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S. , (Contains: Hydrogen sulfide , Nitrogen)

Hazard Class: 2.3

UN#: UN1953

Required Label(s): 2.3 2.1

Marine pollutant

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

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.

Hydrogen sulfide	7783-06-4
SARA 302:	500 lb TPQ
SARA 313:	1 % de minimis concentration
CERCLA:	100 lb final RQ ; 45.4 kg final RQ
OSHA (safety):	1500 lb TQ
SARA 304:	100 lb EPCRA RQ

SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories

Flammable; Gas Under Pressure; Acute toxicity; Skin Corrosion/Irritation; Serious Eye Damage/Eye Irritation; Specific Target Organ Toxicity

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
Hydrogen sulfide	7783-06-4	Yes	Yes	Yes	Yes	Yes
Nitrogen	7727-37-9	No	Yes	Yes	Yes	Yes

Not listed under California Proposition 65



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Material Name: Hydrogen Sulfide (24-61%) balance Nitrogen**SDS ID: 00244528****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

Hydrogen sulfide	7783-06-4
	1 %

Component Analysis - Inventory**Hydrogen sulfide (7783-06-4)**

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes

Nitrogen (7727-37-9)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
Yes	DSL	EIN	Yes	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes

Section 16 - OTHER INFORMATION**NFPA Ratings**

Health: 4 Fire: 4 Reactivity: 0

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

Summary of Changes

Updated: 05/01/2015

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; 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;



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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

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