


HYDROGEN SULFIDE AND NITROGEN BALANCE

Product name	Hydrogen Sulfide 20ppm Balance Nitrogen
Synonyms	-
Chemical Formula	H ₂ S (Hydrogen Sulfide) , N ₂ (Nitrogen)
CAS No	7783-06-4 (Hydrogen Sulfide) ; 7727-37-9 (Nitrogen)
Use of Substance	Environmental calibration gas
Manufacturer	SOUTHERN INDUSTRIAL GAS SDN. BHD. PLO 137, Kawasan Perindustrian Senai III, 81400 Senai, Johor.
Contact Number	07-598 3863
Emergency Phone Number (24 hr)	07-598 3863

Chemical Name	CAS No.	Classification Code	Labeling		
			H-code	Signal Word	Hazard Pictogram
Hydrogen Sulfide 20ppm Balance Nitrogen	7783-06-4 (Hydrogen Sulfide); 7727-37-9 (Nitrogen)	Press. Gas	H 280	Warning	

Hazard Statement	H 280	: Contains gas under pressure; may explode if heated.
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Precautionary Statement P403 : Store in a well-ventilated place.

Other Hazards

Irritation to the eyes, mucous membranes, and upper respiratory tract.

Exposure to Hydrogen Sulfide for more than 30 minutes at concentration of greater than 600 ppm have been fatal.

Continuous inhalation of low concentrations may cause olfactory fatigue, so that the odor is no longer an effective warning of the presence of Hydrogen Sulfide.

Mixture acts as a simple asphyxiant by displacing air necessary for life.

Symptoms include rapid respiration, muscular incoordination, fatigue, dizziness, nausea, vomiting, unconsciousness, and death.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Common Name	Ingredient	CAS Number	% volume	OSHA-PEL
Hydrogen Sulfide 20ppm Balance Nitrogen	Nitrogen	7727-37-9	>99.9	None established
	Hydrogen Sulfide	7783-06-4	0.001 - 0.1	10 ppm

*Contains no other components or impurities which influence the classification of the product.

4. FIRST AID MEASURES

Eye Contact

Flush eyes with plenty of water for at least 15 minutes. Seek immediate medical attention

Inhalation

Immediately remove victim to fresh air.
If breathing stopped, give artificial respiration.
If breathing is difficult, give oxygen.
Get immediate medical attention.

Skin Contact

Wash with water for at least 15 minutes while removing contaminated clothing.
Seek immediate medical attention

Ingestion

Seek immediate medical attention

**Most important symptoms and effects,
both acute and delayed**

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Continuous inhalation of low concentrations may cause olfactory fatigue, so that the odor is no longer an effective warning of the presence of Hydrogen Sulfide.

Mixture acts as a simple asphyxiant by displacing air necessary

for life.

Symptoms include rapid respiration, muscular incoordination, fatigue, dizziness, nausea, vomiting, unconsciousness, and death.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media	Carbon dioxide, regular dry chemical.
Unsuitable extinguishing media	None known
Special hazards arising from the chemical	Non flammable. Container may rupture or explode if exposed to heat. Hazardous combustion products : Sulfur oxides.
Special protective equipment and precautions for fire fighters	Cool containers with water spray until well after fire is out. Stay away from ends of tanks. Stop flow of gas. Use Self-contained breathing apparatus while in confined space.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Evacuate area. Provide maximum explosion-proof ventilation. Eliminate ignition sources. Post warning notices (including no smoking).
Environmental precautions	Try to stop release. Prevent from entering sewers, basements and work pits, or any place where its accumulation can be dangerous. Hydrogen is unlikely to cause an environmental hazard; however emergency responders should be aware of other substances that may be involved in the release.
Clean up methods	Provide adequate ventilation.

7. HANDLING AND STORAGE

Precaution for safe handling	Operators should wear protective clothing while handling this gas. If ventilation controls are not adequate to provide sufficient oxygen content, proper respiratory protection equipment should be provided.
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Condition for safe storage

Cylinders should be stored upright and be secured firmly to prevent falling.

Protect cylinders against extreme weather and from dampness from ground to prevent rusting.

Stored cylinders in well-ventilated area, away from direct heat and ignition source.

Do not allow area where cylinders are stored to exceed 52°C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Control parameters**

INGREDIENT	Exposure Limit in Air			
	ACGIH-TLV		OSHA - STEL	
	TWA ppm	STEL ppm	TWA ppm	STEL ppm
Nitrogen Formula: N₂	No specific exposure limits for Nitrogen			
Hydrogen Sulfide Formula: H₂S	1	5	10 (Vacated)	15 (Vacated)

Appropriate engineering controls

Provide adequate general and local exhaust ventilation to maintain concentration below exposure limits and to avoid asphyxiation.

Provide local exhaust ventilation system.

Ensure compliance with applicable exposure limit.

Personal protection equipment

Eye protection recommended.

Provide emergency eye wash fountain and quick drench shower in immediate work area.

Protective industrial work gloves made of any suitable material.

Under conditions of frequent use or exposure, respiratory protection may be needed.

Wear safety shoes

9. PHYSICAL AND CHEMICAL PROPERTIES**Appearance**

Colorless, Gas

Odour

Rotten egg odor, colorless gas

Odour threshold

Not Applicable

pH

Not Available

Melting point / Freezing point

The following information is for inert component (N₂)
-210 °C

Boiling point

-196 °C

Flash point

Not Available

Evaporation rate

Not Available

Flammability

Non flammable (nitrogen)

Flammable (hydrogen sulfide)

Upper/lower explosive limit

For (hydrogen sulfide)

LOWER: 4.0%

UPPER: 44.0 %

Vapour pressure

Above Critical Temperature

Vapour density (Air =1)	0.97
Relative density	Not Available
Solubility (H₂O)	0.023
Partition coefficient	Not Available
Auto ignition temperature	Not Available
Decomposition temperature	Not Available
Viscosity	Not Available

10. STABILITY AND REACTIVITY

Reactivity	Unreactive under normal conditions.
Chemical Stability	Stable at standard temperatures within shelf-life
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Condition to avoid	Cylinders exposed to high temperatures or direct flame can rupture or burst.
Incompatible materials	Strong oxidizing agents. Bases. Metal Oxides
Hazardous decomposition products	Hydrogen gas. Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

This gas mixture is not expected to cause any Mutagenicity, Embryotoxicity, Teratogenicity, and Reproductive Toxicity.

Animal reproductive data are available for Hydrogen Sulfide (Component of this gas mixture).

Acute toxicity	Oral: LD ₅₀ > No information available. Dermal: LD ₅₀ > No information available. Inhalation: LC ₅₀ > No information available.
Skin corrosion / irritation	No specific data.
Serious eye damage/ irritation	No specific data.

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Respiratory or skin sensitisation	No specific data.
Germ cell mutagenicity	No specific data.
Carcinogenicity product	No specific data.
Reproductive toxicity product	No specific data.
Specific target organ toxicity – single exposure product.	No specific data.
Specific target organ toxicity – repeated exposure product	No specific data.
Aspiration hazard product	Not applicable to gases and gas mixtures.

12. ECOLOGICAL INFORMATION

Ecotoxicity effect

Acute toxicity product

This gas may have adverse effects on animal life exposed to very high concentrations.

Additional ecological information

This gas may have adverse effects on aquatic life. The following data are available for Hydrogen Sulfide, a component of this gas mixture.

Fish Toxicity:

Hydrogen Sulfide:
96 Hours 4.48 ug/L LC50, Lepomis macrochirus

Invertebrate Toxicity:

Hydrogen Sulfide:
22 ug/L 96 hours LC50, Gammarus psoeolimnaeus

Persistence and degradability

Nitrogen is a neutral element and presents no hazard of persistence.
Hydrogen Sulfide will convert to elemental sulfur upon standing in water.

Bioaccumulative potential

The components of this gas mixture do not have bioaccumulation or food chain contamination potential.

Mobility in soil

The components of this gas mixture will not be mobile in soil

Other adverse effects

No other adverse effects are identified

13. DISPOSAL CONSIDERATIONS**Waste from residue / unused product**

Do not attempt to dispose of residual waste or unused quantities.

Contaminated packaging

Return in the shipping container PROPERLY LABELED, WITH ANY VALVE OUTLET PLUGS SECURED AND VALVE PROTECTION CAP IN PLACE to an authorized distributor for proper disposal.

14. TRANSPORT INFORMATION**UN Number**

UN 1956

UN proper shipping name

Compressed gas, n.o.s (Oxygen, Argon)

Transport hazard class(es)

2.2 (Nonflammable)

Packing group

-

Environmental hazards

No

Special precautions for user

No

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable

Information

Ensure the driver is understand well on the potential hazards of the load and knows what to do in the event of an accident or an emergency.

Secured the product containers before transporting it.

Ensure that the cylinder valve is closed and not leaking.

Container valve guards or caps should be in place.

Ensure adequate air ventilation.

15. REGULATORY INFORMATION

Contact local government authority.

16. OTHER INFORMATION**Date of Preparation / Revision of SDS**

9-September-2014 / Rev. 00

Legend to the abbreviations and acronyms used**Classification of the substance**

Press. Gas

: Gases under pressure
(Compressed gas)

Hazard Statement	H 220	: Extremely flammable gas
	H 280	: Contains gas under pressure; may explode if heated.
Precautionary Statement	P403	: Store in a well-ventilated place
Abbreviations	LC ₅₀	: median lethal concentration
	LD ₅₀	: median lethal dose
	PEL	: Permissible exposure limits

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