

SIG SOUTHERN INDUSTRIAL GAS SDN BHD


SAFETY DATA SHEET

AMMONIA AND NITROGEN BALANCE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name	Ammonia 50ppm Balance Nitrogen
Synonyms	-
Chemical Formula	NH ₃ (Ammonia) , N ₂ (Nitrogen)
CAS No	7664-41-7 (Ammonia) ; 7727-37-9 (Nitrogen)
Use of Substance	Synthetic/Analytical chemistry
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

2. HAZARDS IDENTIFICATION

Chemical Name	CAS No.	Classification Code	Labeling		
			H-code	Signal Word	Hazard Pictogram
Ammonia 50ppm Balance Nitrogen	7664-41-7 (Ammonia); 7727-37-9 (Nitrogen)	Press. Gas	H 280	Warning	

Classification of the substance	Press. Gas	: Gases under pressure (Compressed gas)
Hazard Statement	H 280	: Contains gas under pressure; may explode if heated.
Precautionary Statement	P403	: Store in a well-ventilated place.

Other Hazards

The Ammonia component of this gas mixture may be irritating of the eyes, skin and respiratory system.

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
Ammonia 50 ppm Nitrogen Balance	Nitrogen	7727-37-9	>99.9	None established
	Ammonia	7664-41-7	Ö 0.0001 - 0.1	25 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

The Ammonia component of this gas mixture may be irritating of the eyes, skin and respiratory system.
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. This gas mixture may be extremely irritating and presents a significant contact hazard to fire fighters. Container may rupture or explode if exposed to heat.
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. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation.
Environmental precautions	Try to stop release. Prevent from entering sewers, basements and work pits, or any place where its accumulation can be dangerous.
Clean up methods	Provide adequate ventilation. Return cylinder to authorized distributor.

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.
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			
Ammonia Formula: NH₃	25	35	50	35 (Vacated in 1993)

Appropriate engineering controls

Provide adequate general and local exhaust ventilation to maintain concentration below exposure limits and to avoid asphyxiation.
Oxygen detectors should be used when asphyxiating gases may be released.
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	Pungent odor, colorless gas
Odour threshold	Not Applicable
pH	Not Available
Melting point / Freezing point	The following information is for inert component (N ₂) -210 °C
Boiling point	-196 °C
Flash point	Not Available
Evaporation rate	Not Available
Flammability	Non flammable (Nitrogen) Flammable (Ammonia)
Upper/lower explosive limit	For (Ammonia) LOWER: 16 % UPPER: 25 %
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	Titanium will burn in Nitrogen (the main component of this gas mixture, Lithium reacts slowly with nitrogen at ambient temperatures. Ammonia, a component of this gas mixture is not compatible with most metals, acids and oxidizers.
Hazardous decomposition products	-

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 Ammonia (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.
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 Ammonia, a component of this gas mixture.

Fish Toxicity:

Ammonia:

0.44 mg/L 96 hour(s) LC₅₀

Invertebrate Toxicity:

Ammonia:

25 mg/L 48 hour(s) LC₅₀

Persistence and degradability

Nitrogen is a neutral element and presents no hazard of persistence.

Bioaccumulative potential

Not available.

Mobility in soil

Not available.

Other adverse effects

No other adverse effects are identified

Do not release large amounts of Ammonia to the atmosphere.

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	<p>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.</p> <p>Secured the product containers before transporting it.</p> <p>Ensure that the cylinder valve is closed and not leaking.</p> <p>Container valve guards or caps should be in place.</p> <p>Ensure adequate air ventilation.</p>

15. REGULATORY INFORMATION

Contact local government authority.

16. OTHER INFORMATION

Date of Preparation / Revision of SDS	15-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 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

Revision Date: 15 September 2014

PEL : Permissible exposure limits

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