SIG SOUTHERN INDUSTRIAL GAS SDN BHD

CHEMICAL SAFETY DATA SHEET

Ammonia and Nitrogen Balance - 2014

1. IDENTIFICATION OF THE SUBSTANCE

Product name : Ammonia 50ppm Balance Nitrogen
UN-no : UN 1956
Chemical Formula : Ammonia – NH_3; Nitrogen – N_2
Synonyms : Not applicable
Recommended Use : Synthetic/Analytical chemistry
Details of Principal Suppliers
Name : Southern Industrial Gas Sdn Bhd.
Address : PLO 137, Kawasan Perindustrian Senai III, 81400 Senai, Johor.
Phone no : 07-598 3863
Emergency Phone Number : **CHEMTREC Malaysia** 1-800-815-308
SDS Reference Number : SDS-033-NH3.N2

2 HAZARDS IDENTIFICATION

Classification of the Hazardous Chemical : Compressed Gas (H-Code: H280)
Hazards identification : 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.

Hazard Classification				
Hazard Class	**Hazard Category**	**Hazard Pictogram**	**Signal Word**	**Hazard Statement**
Gases under pressure	**Compressed Gas**		**Warning**	**Contains gas under pressure, may explode if heated.**

3 COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	CAS NUMBER	Mole %	Exposure Limit in Air			
			ACGIH-TLV		OSHA - STEL	
			TWA ppm	STEL ppm	TWA ppm	STEL ppm
Nitrogen Formula: N_2	**7727-37-9**	>99.9	No specific exposure limits for Nitrogen			
Ammonia Formula: NH_3	**7664-41-7**	0.0001 - ≤ 0.1	25	35	50	35 (Vacated in 1993)

4 FIRST AID MEASURES

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

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

Ingestion : Seek immediate medical attention.

Inhalation Effects : PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF INHALATION OVERPRESSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS**.**
Immediately remove victim to fresh air. If breathing stopped, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

5 FIRE FIGHTING MEASURES

Extinguishing Media : Carbon dioxide, regular dry chemical.

Physicochemical 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.

Fire Fighting **:** Cool containers with water spray until well after fire is out. Stay away from ends of tanks. Stop flow of gas.

RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

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 : Ventilate area. Return cylinder to authorized distributor.

Occupational release : Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Use proper protective equipment in the event of a significant release from cylinder .Stop leak if possible without personal risk.

Water Release : Collect spilled material using mechanical equipment. Keep out of water supplies and sewers.

Soil Release : Absorb spilled material using suitable absorbents. Contact skilled party to remove contaminated materials.

7 HANDLING AND STORAGE

Precautions 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.

Conditions for Safe Storage, Including Any Incompatibilities : 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 area stored to exceed 52^{o}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: N_2	No specific exposure limits for Nitrogen			
Ammonia Formula: NH_3	25	35	50	35 (Vacated in 1993)

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.

Ventilation : Provide local exhaust ventilation system. Ensure compliance with applicable exposure limit.

Eye/Face Protection : Eye protection recommended. Provide emergency eye wash fountain and quick drench shower in immediate work area.

Skin Protection : Protective industrial work gloves made of any suitable material.

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

General Protection : Safety shoes.

9 PHYSICAL AND CHEMICAL PROPERTIES

Physical state (gas, liquid, solid) : Gas

Odor and appearance : Pungent odor, colorless gas

Odor threshold : Not Applicable

pH : Not Available

The following information is for the inert components.

Freezing point/Melting Point : -210^{o}C

Boiling point : -196^{o}C

Flash point **:** Not Available

Evaporation point : Not Available

UEL/LEL **:** Not Available

Vapor pressure	: Above Critical Temperature
Vapor density (Air = 1)	: 0.97
Specific gravity	: 0.906
Solubility (H2O)	: 0.023
Partition coefficient :n-octanol/water	**:** Not Available
Auto-ignition temperature	**:** Not Available
Decomposition temperature	**:** Not Available
Viscosity	**:** Not Available
Oil/water partition coefficient	: Not Available

10 STABILITY AND REACTIVITY

Stability and Reactivity	: Stable at standard temperatures within shelf-life.
Conditions to Avoid	: Cylinders exposed to high temperatures or direct flame can rupture or burst.
Incompatible Products	: 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.

11 TOXICOLOGICAL INFORMATION

Ammonia

LCLo (inhalation, human) = 5000ppm / 5 minute(s)
LCLo (inhalation, mammal) = 5000ppm/5 minute(s)
LC_{50} (inhalation, rat) = 2000 ppm/4 hour
LC_{50} (inhalation, mouse) = 4500 ppm/1 hour
LD_{50} (oral, rat) = 350mg/kg

12 ECOLOGICAL INFORMATION

Fish Toxicity:
Ammonia:
0.44 mg/L 96 hour(s) LC_{50}

Invertebrate Toxicity:
Ammonia:
25 mg/L 48 hour(s) LC_{50}

13 DISPOSAL CONSIDERATIONS

General	: Do not attempt to dispose of residual waste or unused quantities. 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 No	: 1956
Proper Shipping Name	: Compressed gas, n.o.s. (Oxygen, Argon)
Hazard Class	: 2.2(Nonflammable)
Environmental Hazards	: No

Labelling ADR : Non flammable gas, Oxidizer
Special Precaustions : Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers ensure that they are firmly secured and:
– Cylinder valve is closed and not leaking.
– Valve outlet cap nut or plug (where provided) is correctly fitted.
– Valve protection device (where provided) is correctly fitted.
– Compliance with applicable regulations.

15 REGULATORY INFORMATION

Contact local government authority

16 OTHER INFORMATION

Date of Preparation of SDS : 15 September 2014
Date of Revision of the SDS : -

When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce and use the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death. Although reasonable care has been taken in the preparation of this document we extend no warranties and make no representations as to the accuracy or completeness of the information contain herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s)