

# SIG SOUTHERN INDUSTRIAL GAS SDN BHD

## SAFETY DATA SHEET

### AMMONIA AND NITROGEN BALANCE

#### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<b>Product name</b>	Nitrogen Dioxide 5ppm and Nitrogen balance
<b>Synonyms</b>	-
<b>Chemical Formula</b>	NO <sub>2</sub> (Nitrogen Dioxide) , N <sub>2</sub> (Nitrogen)
<b>CAS No</b>	10102-44-0 (Nitrogen Dioxide) ; 7727-37-9 (Nitrogen)
<b>Use of Substance</b>	Environmental Calibration and Auditing Gas
<b>Manufacturer</b>	SOUTHERN INDUSTRIAL GAS SDN. BHD. PLO 137, Kawasan Perindustrian Senai III, 81400 Senai, Johor.
<b>Contact Number</b>	07-598 3863
<b>Emergency Phone Number (24 hr)</b>	07-598 3863

#### 2. HAZARDS IDENTIFICATION

Chemical Name	CAS No.	Classification Code	Labeling		
			H-code	Signal Word	Hazard Pictogram
Nitrogen Dioxide 5ppm and Nitrogen Balance	10102-44-(Nitrogen Dioxide); 7727-37-9 (Nitrogen)	Press. Gas	H 280	Warning	

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

**Other Hazards**

The mixture may be moderately to extremely irritation, depending on the concentration of Nitrogen Dioxide present and the length of exposure. Symptoms can include tightness in the chest, headache, nausea and a slow loss of strength.

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
Nitrogen Dioxide 5ppm and Nitrogen Balance	Nitrogen	7727-37-9	>99.9	None established
	Nitrogen Dioxide	10102-44-0	Ö 0.0005 - 0.1	3 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 mixture may be moderately to extremely irritation, depending on the concentration of Nitrogen Dioxide present and the length of exposure.

Symptoms can include tightness in the chest, headache, nausea and a slow loss of strength.

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**

<b>Suitable extinguishing media</b>	Carbon dioxide, regular dry chemical.
<b>Unsuitable extinguishing media</b>	None known
<b>Special hazards arising from the chemical</b>	Non flammable. Container may rupture or explode if exposed to heat.
<b>Special protective equipment and precautions for fire fighters</b>	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**

<b>Personal precautions</b>	Evacuate area. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation.
<b>Environmental precautions</b>	Try to stop release. Prevent from entering sewers, basements and work pits, or any place where its accumulation can be dangerous.
<b>Clean up methods</b>	Provide adequate ventilation. Return cylinder to authorized distributor.

**7. HANDLING AND STORAGE**

<b>Precaution for safe handling</b>	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.
<b>Condition for safe storage</b>	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
<b>Nitrogen</b> <b>Formula: N<sub>2</sub></b>	No specific exposure limits for Nitrogen			
<b>Nitrogen Dioxide</b> <b>Formula: NO<sub>2</sub></b>	3	5	Non established	1 (Vacated 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

<b>Appearance</b>	Colorless, Gas
<b>Odour</b>	Pungent, suffocating odor; colorless gas
<b>Odour threshold</b>	Not Applicable
<b>pH</b>	Not Available
<b>Melting point / Freezing point</b>	The following information is for inert component (N <sub>2</sub> ) -210 °C
<b>Boiling point</b>	-196 °C
<b>Flash point</b>	Not Available
<b>Evaporation rate</b>	Not Available
<b>Flammability</b>	Non flammable (Nitrogen & Nitrogen Dioxide)
<b>Upper/lower explosive limit</b>	<b>LOWER: -</b> <b>UPPER: -</b>
<b>Vapour pressure</b>	Above Critical Temperature
<b>Vapour density (Air =1)</b>	0.97
<b>Relative density</b>	Not Available
<b>Solubility (H<sub>2</sub>O)</b>	0.023
<b>Partition coefficient</b>	Not Available
<b>Auto ignition temperature</b>	Not Available
<b>Decomposition temperature</b>	Not Available
<b>Viscosity</b>	Not Available

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**10. STABILITY AND REACTIVITY**

<b>Reactivity</b>	Unreactive under normal conditions.
<b>Chemical Stability</b>	Stable at standard temperatures within shelf-life
<b>Possibility of hazardous reactions</b>	Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Condition to avoid</b>	Cylinders exposed to high temperatures or direct flame can rupture or burst.
<b>Incompatible materials</b>	-
<b>Hazardous decomposition products</b>	-

**11. TOXICOLOGICAL INFORMATION****Information on toxicological effects**

Not tested on this gas mixture.

**Acute toxicity**

Oral: LD<sub>50</sub> > No information available.  
 Dermal: LD<sub>50</sub> > No information available.  
 Inhalation: LC<sub>50</sub> > 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.

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**12. ECOLOGICAL INFORMATION****Ecotoxicity effect****Acute toxicity product**

Not Available.

**Additional ecological information**

The following data are available for Nitrogen Dioxide, a component of this gas mixture.

**Fish Toxicity:**

Nitrogen Dioxide:  
3000 ug/L 24 hour(s)

**Invertebrate Toxicity:**

Nitrogen Dioxide:  
30330ug/L 144 hour(s) LC<sub>50</sub>

**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

**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

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

Not applicable

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**

7-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<sub>50</sub> : median lethal concentration

LD<sub>50</sub> : median lethal dose

PEL : Permissible exposure limits

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