

SIG SOUTHERN INDUSTRIAL GAS SDN BHD


SAFETY DATA SHEET

NITROGEN DIOXIDE IN NITROGEN BALANCE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name	Nitrogen Dioxide 5ppm in Nitrogen balance
Synonyms	-
Chemical Formula	NO ₂ (Nitrogen Dioxide) , N ₂ (Nitrogen)
CAS No	10102-44-0 (Nitrogen Dioxide) ; 7727-37-9 (Nitrogen)
Use of Substance	Environmental Calibration and Auditing 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

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	

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 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	≤ 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

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.
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			
Nitrogen Dioxide Formula: NO₂	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

Appearance	Colorless, Gas
Odour	Pungent, suffocating 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 & Nitrogen Dioxide)
Upper/lower explosive limit	LOWER: - UPPER: -
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

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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	-
Hazardous decomposition products	-

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

Not tested on this gas mixture.

Acute toxicityOral: LD₅₀ > No information available.Dermal: LD₅₀ > No information available.Inhalation: LC₅₀ > 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) 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

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

LC₅₀ : median lethal concentration

LD₅₀ : median lethal dose

PEL : Permissible exposure limits

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