



MATERIAL SAFETY DATA SHEET

RH5

DATE: Dec 2018

1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFICATION

Product Name Gas mixtures
Chemical Formula 5% H₂ bal N₂
Company Identification Les Gaz Industriels Ltd
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2 COMPOSITION/INFORMATION ON INGREDIENTS

Trade Names RH5
Chemical Names Nitrogen plus Hydrogen
UN No. 1954
Hazchem Code: 2 SE
Hazchem Warning 2 A Flammable gas

3 HAZARDS IDENTIFICATION

Main Hazards The above listed shielding gas mixtures do not support life. They can act as simple asphyxiants by diluting the concentration of oxygen in the air to below levels necessary to support life.

Adverse Health effects Inhalation of gas mixtures in excessive concentrations can result in dizziness, nausea, vomiting, loss of consciousness and death.

Chemical hazards The argon component is inert, but the hydrogen becomes highly reactive under excessive conditions of temperature and pressure.

Biological Hazards No known effect.

Vapour inhalation As these listed gas mixtures act as simple asphyxiants death may result from errors in judgement, confusion, or loss of consciousness which prevents self-rescue. At low oxygen concentrations, unconsciousness and death may occur in seconds without warning.

Eye Contact No known effect.

Skin Contact No known effect.

Ingestion See "Vapour inhalation" above

4 FIRST AID MEASURES

Prompt medical attention is mandatory in all cases of overexposure to Gas mixtures. Rescue personnel should be equipped with self-contained breathing apparatus. Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be removed to an uncontaminated area, and given mouth-to-mouth resuscitation and supplemental oxygen.

Eye contact No known effect.

Skin contact No known effect.

Ingestion (See Section 3 above)

5 FIRE FIGHTING MEASURES

Extinguishing media Although the nitrogen component of these Gas mixtures is inert, the hydrogen component could separate and form pockets of highly flammable or explosive hydrogen/air mixtures. These could be found entrapped in high-lying enclosed areas.

Specific hazards Do not extinguish the fire unless the leakage can be stopped immediately. May form explosive gas mixtures with air. Is a simple asphyxiant.

Emergency actions If possible, shut off the ignition at source. Evacuate area. Post warnings to prevent persons from approaching with lit cigarettes or open flames. Using water, keep all cylinders in the vicinity of the fire cool. Remove cylinders from the vicinity of the fire if possible. Remove all cylinders with signs of overheating to a safe area. Keep cool.

Protective clothing Exposed fire-fighters should wear approved self-contained breathing apparatus with full face mask.

Environmental precautions As the hydrogen component is lighter than air ensure that it is not entrapped in confined spaces otherwise this could lead to the formation of highly explosive gas-air mixture. Ventilate all confined spaces using forced-draft if necessary. Ensure that all electrically powered equipment is flameproof.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions As this gas mixture is a simple asphyxiants, care should be taken when entering confined spaces where leaks have occurred. Do NOT enter any potentially hazardous area with any source of ignition such as a lit cigarette or match.

Environmental Precautions This gas mixtures does not pose a hazard to the environment. An explosive gas-air mixture could be formed when leaks occur, so eliminate all forms of ignition.

Small spills Small leaks should be extinguished by shutting off the source of supply, e.g. closing the valve on the cylinder, or tightening the gland nut. If unable to stop small leaks the cylinder should be moved into the open well away from any source of ignition.

Large spills Stop the source if it can be done without risk. Eliminate all sources of ignition and static discharges. Restrict access to the area until completion of the clean-up procedure. Post relevant warning signs. Wear adequate protective clothing when working near the source of the leak. Ventilate the area using forced draft if necessary. Ensure that all equipment is flameproof.

7 HANDLING AND STORAGE

Do not allow cylinders to slide or come into contact with sharp edges. Shielding gas cylinders may be stacked horizontally provided that they are firmly secured at each end to prevent rolling. Ensure equipment is adequately earthed. Conspicuous signs should be posted in the storage area forbidding smoking or the use of naked lights. Use the "first in - first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Compliance with all relevant legislation is essential. Keep away from children.



8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure hazards	No known effect.
Engineering control measures	Engineering control measures are preferred to reduce exposures. General methods include mechanical ventilation, process or personal enclosure, and control of process conditions. Administrative controls and personal protective equipment may also be required. Use a suitable flameproof ventilation system separate from other exhaust ventilation systems. Exhaust direct to outside. Supply sufficient replacement air to make up for air removed by exhaust system.
Personal protection	Use self-contained breathing apparatus when fighting large fires.
Eyes	Use safety glasses when working with cylinders.
Hands	Use suitable protective gloves when working with cylinders.
Skin	No known effect.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Nitrogen

Chemical Symbol	N ₂
Molecular Weight	28
Relative density of gas @ 101,325 kPa (Air=1)	1,160
Flammable limits in air (by volume)	----
Colour	None
Taste	None
Odour	None

Hydrogen

Chemical Symbol	H ₂
Molecular Weight	2,016
Specific volume @ 20°C & 101,325 kPa	11976 ml/g
Relative density of gas @ 101,325 kPa (Air=1)	0,08989
Flammable limits in air (by volume)	4,0 - 75%
Colour	None
Taste	None
Odour	None

10 STABILITY AND REACTIVITY

Conditions to avoid	Overheating of cylinders. Keep sparks and flames away from cylinder, and under no circumstances allow a torch flame to come into contact with any part of the cylinder. Never test for leaks with a flame. Use soapy water when testing for leaks. Never use cylinders as rollers or supports, or for any other purpose than the storing of Gas mixtures.
Incompatible materials	This gas mixture is non-corrosive and may be contained at ambient temperatures by most common metals used in installations designed to have sufficient strength for the working pressures involved.
Hazardous Decomposition	No hazardous compounds are formed when hydrogen / air mixtures burn to give water and heat
Products	

11 TOXICOLOGICAL INFORMATION

Acute Toxicity	No known effect
Skin & eye contact	No known effect
Chronic Toxicity	No known effect
Carcinogenicity	No known effect
Mutagenicity	No known effect
Reproductive Hazards	No known effect
For further information see Section 3. Adverse Health Effects	

12 ECOLOGICAL INFORMATION

As these Gas mixtures are heavier than air they can cause pockets of oxygen-depleted atmosphere in low-lying areas. They do not pose a hazard to the ecology.

13 DISPOSAL CONSIDERATIONS

Disposal Methods	Small amounts may be blown to the atmosphere under controlled conditions. No sources of ignition should be in the vicinity. Large amounts should only be handled by the gas supplier.
Disposal of packaging	The disposal of containers must only be handled by the gas supplier.

14 TRANSPORT INFORMATION

ROAD TRANSPORTATION

UN No.	1954
Hazchem code	2 SE
Hazchem warning	2A Flammable gas

SEA TRANSPORTATION

IMDG	1954
Class	2.1
Label	Flammable gas

AIR TRANSPORTATION

ICAO/IATA Code	1954
Class	2.1
Packaging instructions	
- Cargo	200
- Passenger	Forbidden
Maximum quantity allowed	
- Cargo	150 kg
- Passenger	Forbidden

15 REGULATORY INFORMATION

EEC Hazard class	Flammable gas
Risk phrases	R18 In use may form flammable explosive vapour-air mixture
Safety phrases	S2 Keep out of reach of children S15 Keep away from heat S16 Keep away from sources of ignition S21 When using do not smoke S37 Wear suitable gloves S51 Use only in well-ventilated areas

National legislation None

Refer to SABS 0625 for explanation of the above

16 OTHER INFORMATION

Bibliography
Compressed Gas Association, Arlington, Virginia
Handbook of Compressed Gases - 3rd Edition
Matheson. Matheson Gas Data Book - 6th Edition

17 EXCLUSION OF LIABILITY

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