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Safety advice.

Compressed gases

Safety Data Sheet
VARIGON® H2
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Version: 01

1. PRODUCT AND COMPANY IDENTIFICATION Product

Name	VARIGON® H2
UN-Number	UN 1956
Recommended Use	Gas Metal Arc Welding
Synonyms	N/A

Manufacturer's Registered Office	Oxygen House, P-43 Taratala Road, Kolkata - 700 088, India www.linde.in
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Telephone Number	(+91 33) 66021600
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24 Hour Emergency Contact Number:	(+91) 9831851034
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2. HAZARDS IDENTIFICATION

WARNING!	EMERGENCY OVERVIEW	
	Simple asphyxiant Contents under pressure May explode if heated	
Appearance Colorless	Physical State Compressed gas	Odor Odorless

Potential Health Effects

Principle Routes of Exposure

Inhalation.

Acute Toxicity

Inhalation

Simple asphyxiant. May cause suffocation by displacing the oxygen in the air. Exposure to oxygen-deficient atmosphere (<19.5%) may cause dizziness, drowsiness, nausea, vomiting, excess salivation, diminished mental alertness, loss of consciousness and death. Exposure to atmospheres containing 8-10% or less oxygen will bring about unconsciousness without warning and so quickly that the individuals cannot help or protect themselves. Lack of sufficient oxygen may cause serious injury or death.

Eyes

Contact with rapidly expanding gas near the point of release may cause frostbite

Skin

Contact with rapidly expanding gas near the point of release may cause frostbite

Skin Absorption Hazard

No known hazard by skin absorption.

Ingestion

Not an expected route of exposure.

Chronic Effects

None known.

Aggravated Medical Conditions

None known.

Environmental Hazard

See Section 12 for additional Ecological Information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Volume %	Chemical Formula
Argon	7440-37-1	98	Ar
Hydrogen	1333-74-0	2	H ₂

4. FIRST AID MEASURES

Eye Contact

If frostbite is suspected, flush eyes with cool water for 15 minutes and obtain immediate medical attention.

Skin Contact

None required for gas. For dermal contact or suspected frostbite, remove contaminated clothing and flush affected areas with lukewarm water. DO NOT USE HOT WATER. A physician should see the patient promptly if contact with the product has resulted in blistering of the dermal surface or in deep tissue freezing.

Inhalation

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF INHALATION OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS (SCBA).
Conscious inhalation victims should be assisted to an uncontaminated area and inhale fresh air. If breathing is difficult,

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Administer oxygen under medical supervision / trained personnel supervision. Unconscious persons should be moved to an uncontaminated area and, as necessary, given artificial resuscitation and supplemental oxygen. Treatment should be symptomatic and supportive.

Ingestion None under normal use. Get medical attention if symptoms occur.

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flammable Properties Not flammable. Hydrogen concentrations less than or equal to 2.93% in Ar, Kr, Ne, and Xe are considered non-flammable.

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Explosion Data

Sensitivity to Mechanical Impact None

Sensitivity to Static Discharge None

Specific Hazards Arising from the Chemical Cylinders may rupture under extreme heat. Continue to cool fire-exposed cylinders until flames are extinguished. Damaged cylinders should be handled only by specialists.

Protective Equipment and Precautions for Firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Ensure adequate ventilation. Evacuate personnel to safe areas. Use personal protective equipment. Monitor oxygen level.

Environmental Precautions Prevent spreading of vapors through sewers, ventilation systems and confined areas.

Methods for Containment Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. If leaks in container or container valve, contact the appropriate emergency telephone number in Section 1 or call your closest Linde location.

Methods for Cleaning Up Return cylinder to Linde India Limited.

Other Information Ventilate the area.

7. HANDLING AND STORAGE

Handling Use only in ventilated areas. Never attempt to lift a cylinder by its valve protection cap.

Protect cylinders from physical damage; do not drag, roll, slide or drop. When moving cylinders, even for a short distance, use a trolley designed to transport cylinders. Use equipment rated for cylinder pressure. Use a backflow preventive device in the piping. Never insert an object (e.g., wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage the valve, causing a leak to occur.

Use an adjustable strap wrench to remove over-tight or rusted caps. Close valve after each use and when empty. If the user experiences any difficulty operating the cylinder valve discontinue use and contact the supplier.

Never put cylinders into trunks of cars or unventilated areas of passenger vehicles. Never attempt to re-fill a compressed gas cylinder without the owner's written consent. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit.

For additional recommendations consult rule number 20 of the Gas Cylinders, Rules, 2016.

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Storage Outside or detached storage is preferred. Protect from physical damage. Cylinders should be stored upright with a valve protection cap in place and firmly secured to prevent falling. Store it in a cool, dry, and well-ventilated area of non-combustible construction away from high traffic areas and emergency exits. Keep at temperatures below 52°C / 125°F. Full and empty cylinders should be segregated. Use a "First-In-First-Out" (FIFO) inventory system to prevent full cylinders from being stored for excessive periods of time. Always store and handle compressed gas cylinders in accordance with rule number 21 of the Gas Cylinders, Rules, 2016.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region-specific regulatory bodies.

Engineering Measures Local exhaust ventilation to prevent accumulation of high concentrations and maintain air-oxygen levels at or above 19.5%.

Ventilation Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/Face Protection Wear protective eyewear (safety glasses).

Skin and Body Protection Work gloves and safety shoes are recommended when handling cylinders.

Respiratory Protection

General Use No respiratory equipment is needed if workplace oxygen levels are kept above 19.5%.

Emergency Use Use positive pressure airline respirator with escape cylinder or self-contained breathing apparatus for oxygen-deficient atmospheres (<19.5%).

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colorless.	Odor	Odorless.
Odor Threshold	No information available.	Physical State	Compressed gas
Flash Point	Not applicable.	Autoignition Temperature	No information available.
Flammability Limits in Air			
Upper	Not applicable.		
Lower	Not applicable.		

The following information is for the NON-INERT components of this mixture:

Chemical Name	Boiling Point	Melting Point	Molecular Weight	Evaporation Rate	Water Solubility	Vapor Pressure	Vapor Density (Air=1)	Gas Density Kg/m ³ @20°C
Hydrogen	-252.8°C	-259.2°C	1.00	-	0.019 (vol/vol @ 20°C and 1 atm)	Above critical temperature	0.07	0.08

The following information is for the INERT components that may be part of this mixture:

Chemical Name	Boiling Point	Melting Point	Molecular Weight	Evaporation Rate	Water Solubility	Vapor Pressure	Vapor Density (Air=1)	Gas Density Kg/m ³ @20°C
Argon	-185.9°C	-189.4°C	39.94	-	0.056 (vol/vol @ 0°C and 1 atm)	Above critical temperature	1.38	1.65

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10. STABILITY AND REACTIVITY

Stability	Stable.
Incompatible Products	None known.
Conditions to Avoid	None known.
Hazardous Decomposition Products	None known.
Hazardous Polymerization	Does not occur.

11. TOXICOLOGICAL INFORMATIONAcute Toxicity

Product Information

LD50 Oral:	No information available.
LD50 Dermal:	No information available.
Repeated Dose Toxicity	No information available.

Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrogen	-	-	15000 ppm (Rat) 1 h

Chronic Toxicity

Chronic Toxicity	None known.
Carcinogenicity	Contains no ingredient listed as a carcinogen.
Irritation	No information available.
Sensitization	No information available.
Reproductive	No information available.

Toxicity

Developmental Toxicity	Oxygen deficiency during pregnancy has produced developmental abnormalities in humans and in experimental animals.
Synergistic Materials	None known.
Target Organ Effects	None known.

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12. ECOLOGICAL INFORMATION

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Ozone depletion potential; ODP; (R-11 = 1): Does not contain ozone depleting chemical.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to Linde for proper disposal.

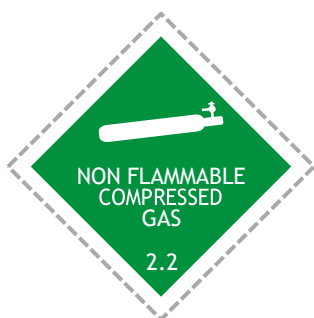
14. TRANSPORT INFORMATION

Proper Shipping Name	Compressed gas, n.o.s.
Hazard Class	2.2
Subsidiary Class	None
UN-No	UN1956
Description	UN1956, Compressed gas, n.o.s., 2.2

15. REGULATORY INFORMATION

Labeling of cylinders	Label 2.2 : non-flammable non-toxic gas.
Risk phrases	RAs Asphyxiate in high concentrations.
Safety phrases	S9 Keep container in a well-ventilated place. S23 Do not breathe gas.

16. OTHER INFORMATION



General: Ensure all national/local regulations are observed. The hazard of asphyxiation is often overlooked and must be stressed during operator training.

Document Information: In preparing this document help has been taken from MSDS for Linde (US)

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End of Safety Data Sheet

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