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Material Safety Data Sheet HYDROGEN IN ARGON MIXTURE 0.0001% TO 50%	Page: 1 Rev. Date 08/08/89
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SECTION #1 - IDENTIFICATION

Product: HYDROGEN IN ARGON MIXTURE 0.0001% TO 50%

CAS Number: Not Established
Product Code: MSDS CODE G-145
Chemical Family: Gas Mixture
Chemical Formula: H₂ in Ar

Synonyms: G-145

Hazard Rating - Health: 1 Slight
- Fire: 4 Extreme
- Reactivity: 0 Negligible

SECTION #2 - CHEMICAL COMPONENTS

Component: ARGON
CAS Number: 7440-37-1 Percent of Mixture: 50.0000 to 99.9999
Simple Asphyxiant - maintain oxygen
levels above 19.5 percent

Component: HYDROGEN
CAS Number: 7333-74-0 Percent of Mixture: 0.0001 to 50.0000
Simple Asphyxiant - maintain oxygen
levels above 19.5 percent

SECTION #3 - PHYSICAL DATA

Solubility (H₂O): Slight

Appearance

A colorless gas.

SECTION #3 - PHYSICAL DATA Continued...Odor

Odorless

SECTION #4 - FIRE FIGHTING & EXPLOSION DATA

Flash Point: Gas°F

Lower Explosive Limit (%): 4 (H2)

Upper Explosive Limit (%): 74.5 (H2)

Fire and Explosion Hazards

Hydrogen is very light and rises very rapidly in air. Should a hydrogen gas mixture fire be extinguished and the flow of gas continue, increase ventilation to prevent an explosion hazard, particularly in the upper portions of buildings or sheds where the gas might "collect".

Electrical Classification: Class 1, Group B

Concentrations of hydrogen less than 6.5% require DOT label Nonflammable. Concentrations of hydrogen greater than 6.5% require DOT label Flammable. The Auto ignition temperature for hydrogen is 1058° F. The LEL of hydrogen is and the UEL is 74.5.

Extinguishing Media

Water, carbon dioxide, dry chemical.

Special Fire Fighting Instructions

If possible, stop the flow of gas mixture. Cool surrounding containers with water spray. Hydrogen burns with an almost invisible flame of relatively low thermal radiation. Do not detect leaks with hands or open flame!

SECTION #5 - EXPOSURE and EFFECTS - INHALATIONRoutes of Exposure - Inhalation

Hydrogen in Argon gas mixture is a simple asphyxiant. Oxygen levels should be maintained at greater than 19.5 percent at normal atmospheric pressure which is equivalent to a partial pressure of 135 mm Hg.

High concentrations of this gas mixture which exclude an adequate supply of oxygen from the lungs causes dizziness, deeper breathing due to air hunger (anoxia), possible nausea and eventual unconsciousness.

SECTION #5 - EXPOSURE and EFFECTS - INHALATION Continued...Routes of Exposure - Inhalation

Hydrogen and Argon are relatively inactive biologically and essentially nontoxic; therefore, the major hazard is the exclusion of an adequate supply of oxygen to the lungs.

First Aid - Inhalation

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVER EXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

Victims should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. If breathing has stopped administer artificial resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive.

SECTION #5 - MISCELLANEOUS TOXICOLOGICAL INFORMATION

Carcinogenicity: NTP: No

IARC: No

OSHA: No

SECTION #6 - REACTIVITY & POLYMERIZATION

Stability: Stable

Hazardous Polymerization: Will not occur

SECTION #7 - SPILL, LEAK, & DISPOSAL PROCEDURESSteps to be Taken in The Event of Spills, Leaks, or Release

Evacuate all personnel from affected area. Use appropriate protective equipment. If a leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is in container or container valve, contact CHEMTREC for emergency assistance or your closest Airco location.

Waste Disposal Methods

Do not attempt to dispose of waste or unused quantities. Return in the shipping container PROPERLY LABELED, WITH ANY VALVE OUTLET PLUGS OR CAPS SECURE AND VALVE PROTECTION CAP IN PLACE to Airco for proper disposal.

HYDROGEN IN ARGON MIXTURE 0.0001% TO 50%

SECTION #7 - SPILL, LEAK, & DISPOSAL PROCEDURES Continued...

SECTION #8 - SPECIAL PROTECTIVE MEASURES

Ventilation

Use local exhaust to prevent accumulation of high concentrations so as to reduce the oxygen level in the air to less than 18 molar percent.

Mechanical in accordance with electrical codes.

Eye Protection

Safety goggles or glasses.

Skin Protection

Protective gloves: Cloth or leather.

Respiratory Protection

Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use.

Other Protection

Safety shoes, safety shower

SECTION #9 - SPECIAL PRECAUTIONS - STORAGE & HANDLING

Storage & Handling Conditions

Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure (<3000 psig) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the system. Protect cylinders from physical damage.

Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130°F (54°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time. Post "NO SMOKING OR

SECTION #9 - SPECIAL PRECAUTIONS - STORAGE & HANDLING Continued...Storage & Handling Conditions

OPEN FLAMES" signs in the storage area or use area. There should be no sources of ignition in the storage or use area.

Earth-ground and bond all lines and equipment associated with the hydrogen in argon gas mixture system. All electrical equipment should be non-sparking or explosion proof. Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with his (written) consent is a violation of Federal Law (49CFR).

This gas mixture is noncorrosive and may be used with all materials of construction.

Never carry a compressed gas cylinder stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time. Post "NO SMOKING OR OPEN FLAMES" signs in the storage area or use area. There should be no sources of ignition in the storage or use area.

SECTION #10 - SHIPPING INFORMATION

Proper Shipping Name: Compressed gas, n.o.s.

Hazard Class: Flammable Gas (if above 6.5% H)

DOT Identification Number: UN1954

DOT Shipping Label: Flammable Gas (if above 6.5% H)

SECTION #11 - MISC COMMENTS & REFERENCE DOCUMENTATION

For additional recommendations, consult Compressed Gas Association Pamphlets G-5, P-1, P-14, and Safety Bulletin SB-2. OSHA 1910 Subpart H.

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