

Overview

- Hydrogen is commonly used in the semiconductor industry in wide range of process applications viz epitaxy, annealing, deposition, passivation, plasma etch, carrier gas and ion implantation.
- It can be supplied as Liquefied Hydrogen with vaporizers and manifolds to the manufacturing tools' point of use.
- It is important that Liquefied Hydrogen is supplied, stored, used safely and in accordance with the applicable local laws.

Properties and Hazards of Liquefied Hydrogen (LH2)



- ✓ It exists as a liquid at low temperature of -253°C at atmospheric pressure
- ✓ 1 liter of LH2 can expand to 800 liter of gas at room temperature
- ✓ It is non-corrosive and a cryogenic which can cause frostbite and cryogenic burns
- ✓ Pay attention to Hydrogen Embrittlement while selecting material for liquid service
- ✓ All ignition sources should be avoided

Personal Protective Equipment



Face Shield



Cryogenic Gloves



Safety Glasses



Apron



Safety Shoes

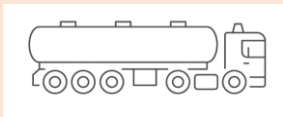


Safety Hardhats



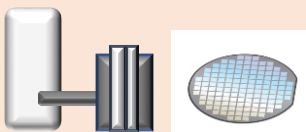
Coveralls (Flame Retardant Clothing)

Transportation, Storage and Safe Point of Use



Transport

- ✓ Transport of LH2 in designated tankers only
- ✓ Conduct transport route risk assessment
- ✓ Ensure Emergency Preparedness for any Road Transport & Product Delivery



H2 storage /supply
Safe Point of Use

- ✓ Product hazard and safety training for all personnel
- ✓ Conduct Design reviews for supply systems
- ✓ Adopt code of practices for design of LH2 systems
- ✓ Make available Operations and maintenance procedures
- ✓ Conduct Risk assessments are conducted for all tasks
- ✓ Ensure Installation of Safety critical systems
- ✓ Carry out Security Vulnerability Studies are conducted
- ✓ Conduct customer screening to assure safe supply and use of product
- ✓ Ensure Emergency Response Preparedness
- ✓ Comply to applicable Local regulation

Always refer to Safety Data Sheet for latest product handling safety information

References:

1. AIGA 043, Transport Security Guidelines www.asiiga.org
2. AIGA 039, Road Transport and Product Delivery Emergency Preparedness www.asiiga.org
3. AIGA 018, Safe Handling of Electronic Specialty Gases www.asiiga.org

