



Material Safety Data Sheet

FM.PRO-35

1. Chemical Product and Company Identification

PRODUCT NAME : **HYDROGEN, COMPRESSED**
TRADE NAME/SYNONYMS : None

COMPANY IDENTIFICATION :

PT. BSG GASES

**Jl. Cempaka, Desa Jatimulya
Tambun, Bekasi - Indonesia**

EMERGENCY PHONE : **+62 21 8812507 – 08**

2. Composition, Information on Ingredients

COMPONENT : Hydrogen

FORMULA : H₂

PERCENTAGE : 99+%

3. Hazards Identification

EMERGENCY OVERVIEW : Flammable high pressure gas.
Can form explosive mixtures with air. May ignite if valve is open to air. Burns with an invisible flame.

POTENTIAL HEALTH EFFECTS:

ROUTES OF ENTRY: Inhalation

ACUTE EFFECTS: Material acts as a simple asphyxiant by displacing air necessary for life. Symptoms include rapid respiration, muscular incoordination, fatigue, dizziness, nausea, vomiting, unconsciousness, and death.

CHRONIC EFFECTS: None

4. First Aid Measures

INHALATION: Immediately remove victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.

EYE CONTACT: None

SKIN CONTACT: None

INGESTION: None

5. Fire Fighting Measures

FLASH POINT: Gas

AUTOIGNITION TEMPERATURE: 500 deg.C

FLAMMABLE LIMITS:

LOWER: 4%

UPPER: 75%

EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, or halogenated gas.

SPECIAL FIRE FIGHTING INSTRUCTION AND EQUIPMENT: Wear self-contained breathing apparatus and full protective clothing. Do not extinguish a gas fire unless immediate shut-off of gas flow is possible. Explosive vapor could form. Keep fire exposed cylinders cool with water spray. HAZARDOUS COMBUSTION PRODUCTS: None

UNUSUAL FIRE AND EXPLOSION HAZARDS: Cylinder rupture may occur under fire conditions. Severe when exposed to heat or flame. Contact with strong oxidizers may cause a fire or explosion. Pure hydrogen burns with a pale, blue, nearly invisible flame. Vapors may travel a considerable distance to the source of ignition and flash back.

6. Accidental Release Measures

CLEAN UP PROCEDURES: Evacuate and ventilate area. Shut off source if possible and remove source of heat. Remove leaking cylinder to exhaust hood or safe outdoor area. Allow gas to dissipate.

SPECIALIZED EQUIPMENT: None

7. Handling And Storage

PRECAUTIONS TO BE TAKEN IN HANDLING: Secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders. No part of cylinder should be exposed to temperatures above 52 degrees celsius. Return to supplier with positive pressure

PRECAUTIONS TO BE TAKEN IN STORAGE: Store in well ventilated areas. Keep valve protection cap on cylinders when

not in use. Quantities greater than 400 standard cubic feet should be stored in specially ventilated rooms or outside. Store away from oxidizers, combustible materials, and source of ignition or heat. Ventilation equipment should be explosion proof.

8. Exposure Controls, Personal Protection

ENGINEERING CONTROLS: Provide adequate general and local exhaust ventilation to maintain concentrations below flammable limits and to avoid asphyxiation.

EYE / FACE PROTECTION: Safety glasses.

SKIN PROTECTION: None

RESPIRATORY PROTECTION: In case of leakage, Use a self-contained breathing apparatus

OTHER PROTECTIVE EQUIPMENT: Safety shoes when handling cylinders.

9. Physical And Chemical Properties

APPEARANCE: Colorless

ODOR: Odorless

PHYSICAL PRESSURE: Gas

VAPOR PRESSURE: Gas

VAPOR DENSITY (AIR=1): 0.07

BOILING POINT (C): -252

SOLUBILITY IN WATER: @20 deg.C: 1.82%

SPECIFIC GRAVITY (H₂O=1): Gas

EVAPORATION RATE: Gas

ODOR THRESHOLD: N/Ap

10. Stability and Reactivity

STABILITY: Stable under normal storage conditions.

CONDITIONS TO AVOID: Storage in poorly ventilated areas. Storage near a heat source.

MATERIALS TO AVOID: Oxidizing agents: hydrogen can react with some metals (i.e. hardened steel) to cause embrittlement, alkaline materials, halogens

HAZARDOUS POLYMERIZATION: Will not occur.

HAZARDOUS DECOMPOSITION: None

11. Toxicological Information

Not available

12. Ecological Information

Not available

13. Disposal Considerations

WASTE DISPOSAL METHOD: Non-returnable cylinders must not be refilled. Dispose of non-refillable cylinders in accordance with federal, state, and local regulations. Allow gas to discharge at a moderate rate. Return cylinders to supplier with any valve outlet plugs or caps secured and valve protection cap in place.

14. Transport Information

PROPER SHIPPING NAME: Hydrogen, Compressed

HAZARD CLASS: 2.1 (flammable gas)

IDENTIFICATION NUMBER: UN1049

LABELING: FLAMMABLE GAS



SPECIAL PRECAUTIONS: Cylinders should be transported in a secure upright position in a well ventilated truck.

15. Other Information

OTHER PRECAUTIONS: Protect containers from physical damage. Do not deface cylinders or labels. Cylinders should be refilled by PT. BSG GASES qualified producers of compressed gas.