

INTERNATIONAL_GASES_AND_CHEMICALS_LTD

MATERIAL SAFETY DATA SHEETS

DATE: 12/15/00

SUPPLIER ADDRESS: SPEEDWELL RD
PARKHOUSE EAST
NEWCASTLE-U-LYME

EMERGENCY PHONE: (178) 256-5556
NUMBER

1. CHEMICAL PRODUCT

PRODUCT NAME: HYDROGEN SELENIDE

SYNONYMS: Selenium hydride

2. COMPOSITION, INFORMATION ON INGREDIENTS

Ingredient Name	Formula	CAS#	Concentration	Exposure Limits (PPM)			
				ACGIH TLV	OSHA PEL	MAC	Other STEL
HYDROGEN SELENIDE	H2Se	7783-07-5	99+%	.05	.05	.05	NE

Note: NE = NONE ESTABLISHED

3. HAZARD IDENTIFICATION

*** EMERGENCY OVERVIEW ***

Poisonous, flammable liquid and gas under pressure.

May be fatal if inhaled.

Can cause irritation to eyes, skin, and respiratory tract.

Symptoms may be delayed.

Can form explosive mixtures with air.

POTENTIAL HEALTH EFFECTS

ROUTES OF ENTRY: Inhalation

ACUTE EFFECTS: Skin and eye contact with liquid may cause frostbite. Low levels have caused coughing, sneezing and difficulty in breathing. Levels of 0.2 ppm may cause nausea, vomiting, a metallic taste in the mouth and garlic breath. Levels of 1.5 ppm can cause accumulation of fluid in the lungs, onset may be delayed several hours. Hydrogen selenide is known to have a hemolytic effect. Pressure drop through valves and piping may cause extreme cold and frostbite on contact.

CHRONIC EFFECTS: None known

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: Liver disease. Respiratory problems.

OTHER EFFECTS OF OVEREXPOSURE: None

CARCINOGENICITY (US Only):

NTP - No

IARC MONOGRAPHS - No

OSHA REGULATED - No

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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: Immediately flush with copious amounts of water for at least 15 minutes.

SKIN CONTACT: Immediately flush with copious amounts of water for at least 15 minutes while removing contaminated clothing. If frostbite occurs, flush affected areas with lukewarm water.

INGESTION: None

IN EVENT OF EXPOSURE, CONSULT A PHYSICIAN

NOTE TO PHYSICIAN: None

5. FIRE FIGHTING MEASURES

FLASH POINT: N/Av

AUTOIGNITION TEMPERATURE: N/Av

FLAMMABLE LIMITS:

LOWER: 4% (est.)

UPPER: 44% (est.)

EXTINGUISHING MEDIA: Carbon dioxide, water spray, or dry chemical.

SPECIAL FIRE FIGHTING INSTRUCTION AND EQUIPMENT: Keep fire exposed cylinders cool with water spray. If possible, stop the product flow. Wear self-contained breathing apparatus and full protective clothing.

HAZARDOUS COMBUSTION PRODUCTS: Highly toxic selenium will be given off during combustion.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Vapors may travel a considerable distance to the source of ignition and flash back. Gas is heavier than air and may travel along the ground or may be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electric motors, static discharge, or other ignition

sources at location distant from material handling point.

6. ACCIDENTAL RELEASE MEASURES

CLEAN UP PROCEDURES: Evacuate and ventilate area. Remove all sources of ignition. Persons involved in the control and repair of the leak should be provided with all the necessary protective equipment and be properly trained for emergency situations involving this material.

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. Use spark-proof tool and explosion-proof equipment. Use only in a well-ventilated area. Earth ground and bond all lines and equipment associated with the material's system

PRECAUTIONS TO BE TAKEN IN STORAGE: Store in well ventilated areas. Be sure storage area is cool and dry. Store away from heat, flame, and sparks. Keep away from oxidizing agents. Keep valve protection cap on cylinders when not in use.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide adequate general and local exhaust ventilation to maintain concentration below exposure limits.

PERSONAL PROTECTION

EYE/FACE PROTECTION: Safety glasses or Goggles. A safety shower and eyewash station should be readily available.

SKIN PROTECTION: Protective gloves. Safety shoes when handling cylinders.

RESPIRATORY PROTECTION: Use a self-contained breathing apparatus in case of emergency or non-routine use.
WARNING: Do not use air-purifying respirators because they will not protect workers in oxygen deficient

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atmospheres.

OTHER PROTECTIVE EQUIPMENT: Safety shoes when handling cylinders.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colorless
ODOR: Disagreeable odor.
PHYSICAL STATE: Gas
VAPOR PRESSURE: @20 deg.C: 124.9 psig
VAPOR DENSITY (AIR=1): 2.8
BOILING POINT (C): -41.2
SOLUBILITY IN WATER: Soluble : forms a hydrate
SPECIFIC GRAVITY (H2O=1): @20 deg.C: 2.12
EVAPORATION RATE: N/Av
ODOR THRESHOLD: N/Av

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: Strong oxidizers, nitric acid, hydrogen peroxide, halogenated hydrocarbons, water.

HAZARDOUS POLYMERIZATION: Will not occur.

HAZARDOUS DECOMPOSITION: Selenium.

11. TOXICOLOGICAL INFORMATION

LETHAL CONCENTRATION (LC50): 2 ppm, rat 1 hour.
LETHAL DOSE 50 (LD50): N/Av
TERATOGENICITY: N/Av
REPRODUCTIVE EFFECTS: N/Av
MUTAGENICITY: N/Av

12. ECOLOGICAL INFORMATION

No adverse ecological effects are expected.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Dispose of non-refillable cylinders in accordance with federal, state and local regulations. Allow gas to vent slowly to atmosphere in an unconfined area or exhaust hood. If the cylinders are the refillable type, return cylinders to supplier with any valve outlet plugs or caps secured and valve protection caps in place.

14. TRANSPORT INFORMATION

CONCENTRATION: 99+%
DOT DESCRIPTION (US ONLY):
PROPER SHIPPING NAME: Hydrogen seleni
HAZARD CLASS: 2.3(poison), Hazard Zon A
IDENTIFICATION NUMBER: UN2202
REPORTABLE QUANTITIES: 1 lb.
LABELING: POSION GAS, FLAMMABLE GAS

ADR/RID (EU Only): Class 2, 1TF

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

15. REGULATORY INFORMATION

OSHA: Process Safety Management: Material is listed in appendix A of 29 CFR 1910.119 as highly hazardous chemical.

TSCA: Material is listed in TSCA inventory.

SARA: The threshold planning quantity for this material is 10 lbs.

EU NUMBER: 231-978-9

NUMBER IN ANNEX 1 OF DIR 67/548: Not listed in annex 1.

EU CLASSIFICATION: N/Av

R: 23/25-33

S: 20/21-28-44

16. OTHER INFORMATION

OTHER PRECAUTIONS: Protect containers from physical damage. Do not deface cylinders or labels. Cylinders should be refilled by qualified producers of compressed gas. 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 (49 CFR).

ABBREVIATIONS:

N/Ap - Not Applicable
N/Av - Not Available
SA - Simple Asphyxiant
NE - None Established

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