

Chemical Safety Data Sheet MSDS / SDS

Dihydrogen selenide SDS

Revision Date:2024-04-25 Revision Number:1

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SECTION 1: Identification of the substance/mixture and of the company/undertaking**Product identifier**

Product name: Dihydrogen selenide

CAS: 7783-07-5

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification**Classification of the substance or mixture**Flammable gases, Category 1A, Flammable gas
Acute toxicity - Category 2, Inhalation

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H280 Contains gas under pressure; may explode if heated

H330 Fatal if inhaled

H400 Very toxic to aquatic life

H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

P284 [In case of inadequate ventilation] wear respiratory protection.

P273 Avoid release to the environment.

Response

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381 In case of leakage, eliminate all ignition sources.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P316 Get emergency medical help immediately.

P320 Specific treatment is urgent (see ... on this label).

P391 Collect spillage.

Storage

P403 Store in a well-ventilated place.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name: Dihydrogen selenide

Common names and synonyms: Dihydrogen selenide

CAS number: 7783-07-5

EC number: 231-978-9

Concentration: 100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer for medical attention.

Following skin contact

ON FROSTBITE: rinse with plenty of water, do NOT remove clothes.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

Most important symptoms/effects, acute and delayed

no data available

Indication of immediate medical attention and special treatment needed, if necessary

no data available

SECTION 5: Firefighting measures**Suitable extinguishing media**

Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out. In other cases extinguish with powder, carbon dioxide.

Specific hazards arising from the chemical

Extremely flammable. Gas/air mixtures are explosive.

Special protective actions for fire-fighters

Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out. In other cases extinguish with powder, carbon dioxide. In case of fire: keep cylinder cool by spraying with water. Combat fire from a sheltered position.

SECTION 6: Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Ventilation. NEVER direct water jet on liquid.

Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Ventilation. NEVER direct water jet on liquid.

Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use

spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Fireproof. Separated from strong oxidants. Cool.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 0.05 ppm as TWA.MAK: 0.02 mg/m³, 0.006 ppm; peak limitation category: II(8); carcinogen category: 3B; pregnancy risk group: C.EU-OEL: 0.07 mg/m³, 0.02 ppm as TWA; 0.17 mg/m³, 0.05 ppm as STEL

Biological limit values

no data available

Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles or face shield.

Skin protection

Cold-insulating gloves.

Respiratory protection

Use closed system or ventilation.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	COLOURLESS COMPRESSED LIQUEFIED GAS WITH CHARACTERISTIC ODOUR.
Colour:	no data available
Odour:	no data available
Melting point/freezing point:	-65.73°C
Boiling point or initial boiling point and boiling range:	-41.3°C
Flammability:	Flammable Gas
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	Flammable gas
Auto-ignition temperature:	no data available
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	in water, ml/100ml at 22.5°C: 270

Partition coefficient n-octanol/water:	no data available
Vapour pressure:	kPa at 21°C: 878
Density and/or relative density:	2.12
Relative vapour density:	(air = 1): 2.8
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes above 100°C . This produces toxic and flammable products including selenium (ICSC 0072) and hydrogen (ICSC 0001). The substance is a strong reducing agent. It reacts violently with oxidants. This generates fire and explosion hazard. Contact with air generates toxic and corrosive fumes of selenium dioxide (see ICSC 0946).

Chemical stability

no data available

Possibility of hazardous reactions

The gas is heavier than air and may travel along the ground; distant ignition possible.

Conditions to avoid

no data available

Incompatible materials

CHEMICAL PROFILE: A colorless, flammable gas of unpleasant odor, a deadly poison by inhalation. It forms explosive mixtures with air. It reacts vigorously with strong oxidizing reagents, e.g., hydrogen peroxide, nitric acid [Sax, 9th ed., 1996, p.1843]. (REACTIVITY, 1999)

Hazardous decomposition products

no data available

SECTION 11: Toxicological information

Acute toxicity

Oral: no data available

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes and respiratory tract. Inhalation of this gas may cause pneumonitis. Exposure at high levels

could cause death.

STOT-repeated exposure

no data available

Aspiration hazard

A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN3526 (For reference only, please check.)

IMDG: UN3526 (For reference only, please check.)

IATA: UN3526 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: HYDROGEN SELENIDE, ADSORBED (For reference only, please check.)

IMDG: HYDROGEN SELENIDE, ADSORBED (For reference only, please check.)

IATA: HYDROGEN SELENIDE, ADSORBED (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 2.3 (For reference only, please check.)

IMDG: 2.3 (For reference only, please check.)

IATA: 2.3 (For reference only, please check.)

Packing group, if applicable

ADR/RID: (For reference only, please check.)

IMDG: (For reference only, please check.)

IATA: (For reference only, please check.)

Environmental hazards

ADR/RID: Yes
IMDG: Yes
IATA: Yes

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Not Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Not Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

The odour warning when the exposure limit value is exceeded is insufficient. Turn leaking cylinder with the leak up to prevent escape of gas in liquid state.

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any