

Mercury selenide (HgSe) (cas 20601-83-6) MSDS

Material Safety Data Sheet

acc. to OSHA and ANSI

1 Identification of substance:

Product details:

Product name: mercury (II) selenide

2 Composition/Data on components:

Chemical characterization:

Description: (CAS#)

Mercury (II) selenide (CAS# 20601-83-6), 100%

Identification number(s):

EINECS Number: 243-910-5

3 Hazards identification

Hazard description:

T+ Very toxic

N Dangerous for the environment

Information pertaining to particular dangers for man and environment

R 26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.

R 33 Danger of cumulative effects.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Classification system

HMS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH 3 Health (acute effects) = 3

Flammability = 0

FIRE 0

Reactivity = 1

REACTIVITY 1

4 First aid measures

General information

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing has been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

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After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing

Do not induce vomiting; immediately call for medical help.

Seek immediate medical advice.

5 Fire fighting measures

Suitable extinguishing agents

Product is not flammable. Use fire fighting measures that suit the surrounding fire.

Special hazards caused by the material, its products of combustion or resulting gases:

In case of fire, the following can be released:

Toxic metal oxide fume

Hydrogen selenide

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures

Person-related safety precautions:

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Measures for environmental protection:

Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting:

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Additional information:

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

Handling

Information for safe handling:

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

Information about protection against explosions and fires:

The product is not flammable

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Storage

Requirements to be met by storerooms and receptacles:

No special requirements.

Information about storage in one common storage facility:

Do not store together with acids.

Store away from oxidizing agents.

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

8 Exposure controls and personal protection

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace:

selenium and selenium compounds (as Se)

mg/m³

ACGIH TLV 0.2

Austria MAK 0.1

Belgium TWA 0.2

Denmark TWA 0.1

Finland TWA 0.1; 0.3-STEL

Germany MAK 0.1

Hungary 0.1-STEL

Japan OEL 0.1

Korea TLV 0.2

Netherlands MAC-TGG 0.2

Poland TWA 0.1; 0.3-STEL

Sweden NGV 0.1

Switzerland MAK-W 0.1

United Kingdom TWA 0.1

USA PEL 0.2

Mercury, inorganic compounds (as Hg)

mg/m³

ACGIH TLV 0.025 (skin)

Not classified as a human carcinogen

Austria MAK 0.05

Belgium TWA 0.1 (skin)

Denmark TWA 0.05 (skin)

Finland TWA 0.05

France VME 0.05 (skin)(vapor)

Germany MAK 0.1

Hungary TWA 0.02; 0.04-STEL

Japan OEL 0.05

Korea TLV 0.025 (vapor) (skin)

Netherlands MAC-TGG 0.05; 0.5-MAC-K

Norway TWA 0.05

Poland TWA 0.025 (vapors); 0.2-STEL (vapors)

Sweden NGV 0.05

Switzerland MAK-W 0.01 (skin)

United Kingdom TWA 0.025

USA PEL 0.1-Ceiling

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Additional information: No data

Personal protective equipment

General protective and hygienic measures

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

Breathing equipment:

Use suitable respirator when high concentrations are present.

Protection of hands: Impervious gloves

Eye protection: Safety glasses

Body protection: Protective work clothing.

9 Physical and chemical properties:

General Information

Form: Powder

Color: Grey

Odor: Odorless

Change in condition

Melting point/Melting range: 600-650°C (1112-1202°F) ((vac))

Boiling point/Boiling range: Not determined

Sublimation temperature / start: Not determined

Flash point: Not applicable

Ignition temperature: Not determined

Decomposition temperature: Not determined

Danger of explosion: Product does not present an explosion hazard.

Explosion limits:

Lower: Not determined

Upper: Not determined

Vapor pressure: Not determined

Density at 20°C (68°F): 8.266 g/cm³

Solubility in / Miscibility with

Water: Insoluble

10 Stability and reactivity

Thermal decomposition / conditions to be avoided:

Decomposition will not occur if used and stored according to specifications.

Materials to be avoided:

Acids

Oxidizing agents

Dangerous reactions No dangerous reactions known

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Dangerous products of decomposition:

Toxic metal oxide fume

Hydrogen selenide

11 Toxicological information

Acute toxicity:

Primary irritant effect:

on the skin: Irritant to skin and mucous membranes.

on the eye: Irritating effect.

Sensitization: No sensitizing effects known.

Subacute to chronic toxicity:

Acute and chronic exposure to inorganic mercury can cause salivation with metallic taste, pain on chewing, gingivitis, colitis, stomatitis, kidney damage, and central nervous system damage. The latter can cause tremors, convulsive or shaking movements and psychic disturbances such as memory loss, insomnia, loss of confidence, irritability and depression.

Excessive exposure may result in death.

Selenium may cause amyotrophic lateral sclerosis, bronchial irritation, gastrointestinal distress, vasopharyngeal irritation, garlic odor on breath and sweat, metallic taste, pallor, irritability, excessive

fatigue, loss of fingernails and hair, pulmonary edema, anemia and weight loss.

Additional toxicological information:

Danger through skin absorption.

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.

IARC-3: Not classifiable as to carcinogenicity to humans.

NTP-2: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.

ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

12 Ecological information:

Ecotoxic effects:

Remark: Very toxic for fish

General notes:

Also poisonous for fish and plankton in water bodies.

Do not allow material to be released to the environment without proper governmental permits.

Very toxic for aquatic organisms

13 Disposal considerations

Product:

Recommendation

Consult state, local or national regulations to ensure proper disposal.

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Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

14 Transport information

DOT regulations:

Hazard class: 6.1

Identification number: UN2025

Packing group: II

Proper shipping name (technical name): Mercury compound, solid, n.o.s., mercury (II) selenide

Land transport ADR/RID (cross-border)

ADR/RID class: 6.1 Toxic substances

Item: 52b

Danger code (Kemler): 60

UN-Number: 2025

Description of goods: Mercury compound, solid, n.o.s., mercury (II) selenide

Maritime transport IMDG:

IMDG Class: 6.1
UN Number: 2025
Packaging group: II
Proper shipping name: Mercury compound, solid, n.o.s., mercury
(II) selenide
Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 6.1
UN/ID Number: 2025
Packaging group: II
Proper shipping name: Mercury compound, solid, n.o.s., mercury
(II) selenide

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15 Regulations

Product related hazard informations:

Hazard symbols:

T+ Very toxic

N Dangerous for the environment

Risk phrases:

26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.

33 Danger of cumulative effects.

50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety phrases:

13 Keep away from food, drink and animal feedingstuffs.

20/21 When using do not eat, drink or smoke.

28 After contact with skin, wash immediately with plenty of water

45 In case of accident or if you feel unwell, seek medical advice immediately.

60 This material and its container must be disposed of as hazardous waste.

61 Avoid release to the environment. Refer to special instructions/
Safety data sheets

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.

All components of this product are listed on the Canadian Non-Domestic Substances List (NDSL).

Information about limitation of use:

For use only by technically qualified individuals.

This product contains mercury and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

This product contains selenium and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

