

Safety Data Sheet

Section 1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name : Zinc Selenide (ZnSe)

Product code (SDS NO) : BQN-G-41357_US-1

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

Relevant identified uses of the product: Optical components for laser processing machines(Coated)

Uses advised against: Do not use for any purpose other than that recommended.

Details of the supplier of the safety data sheet

Manufacturer/Supplier : Mitsubishi Electric Corporation

Address : 5-1-14, Yada-minami, Higashi-ku, Nagoya-shi, Aichi 461-8670, Japan

Division : Laser Systems Dept.

Telephone number : +81-52-721-2111

FAX : +81-52-721-1941

Section 2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

Classification according to Hazard Communication Standard - 2012 (29 CFR 1910.1200)

HEALTH HAZARDS

Acute toxicity (Oral): Category 3

Acute toxicity (Inhalation): Category 3

Specific target organ toxicity - repeated exposure: Category 2

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment, short-term (acute): Category 1

Hazardous to the aquatic environment, long-term (chronic): Category 1

(Note) GHS classification without description: Not classified/Classification not possible

Label elements

Labelling according to Hazard Communication Standard - 2012 (29 CFR 1910.1200)



Signal word: Danger

HAZARD STATEMENT

H301 Toxic if swallowed

H331 Toxic if inhaled

H373 May cause damage to organs through prolonged or repeated exposure

H400 Very toxic to aquatic life

H410 Very toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENT

Prevention

- P273 Avoid release to the environment.
- P260 Do not breathe dust.
- P271 Use only outdoors or in a well-ventilated area.
- P264 Wash contaminated parts thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.

Response

- P391 Collect spillage.
- P321 Specific treatment is required.
- P314 Get medical advice/attention if you feel unwell.
- P311 Call a POISON CENTER/doctor/physician.
- P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P330 Rinse mouth.
- P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician.

Storage

- P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.

Disposal

- P501 Dispose of contents/container in accordance with local/national regulation.

Section 3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Ingredient name	CAS No.	Content (%)
Zinc selenide	1315-09-9	100

Chemical formula : ZnSe, Formula weight : 144.34

Note : The figures shown above are not the specifications of the product.

Section 4. First-aid measures

Descriptions of first-aid measures

IF INHALED

- Remove person to fresh air and keep comfortable for breathing.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Call a POISON CENTER/doctor/physician if you feel unwell.

IF ON SKIN (or hair)

Wash with plenty of soap and water.

If skin irritation occurs: Get medical advice/attention.

IF IN EYES

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Rinse in order to better reach all parts of eyes.

If eye irritation persists: Get medical advice/attention.

IF SWALLOWED

Rinse mouth.

Immediately call a POISON CENTER/doctor/physician.

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

Cough

Dyspnea

(Symptoms when skin and/or eye contact)

Skin Irritation

Eye irritation

Indication of any immediate medical attention and special treatment needed

Specific treatment is required.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

In case of fire, use foam, dry powder, CO₂, dry sand to extinguish.

The product is non-flammable.

Unsuitable extinguishing media

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

Will form toxic selenium vapor, selenium oxides, hydrogen selenide, zinc vapor, zinc oxides upon combustion.

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Cool container with water spray.

Prevent extinguishing water from entering sewers.

Move containers from fire area if this can be done without risk.

Extinguish from the windward to the extent possible.

Special protective equipment and precautions for fire-fighters

Wear protective gloves/protective clothing/eye protection/face protection.

Firefighters should wear self-contained breathing apparatus with a full facepiece operated in the positive pressure mode.

Section 6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

- Keep unauthorized personnel away.
- Ventilate area until material pick up is complete.
- Wear proper protective equipment.
- Stop leak if safe to do so.

Environmental precautions

- Prevent spills from entering sewers, watercourses or low areas.
- Do not wash away into sewers or waterway.
- Avoid raising dust.

Methods and materials for containment and cleaning up

- Sweep up, place in a bag and hold for waste disposal.
- Fill the disposal into labelled, closable containers.

Preventive measures for secondary accident

- Collect spillage.

Section 7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

- Do not breathe dust.

(Exhaust/ventilator)

- Exhaust/ventilator should be available.

(Safety treatments)

- Avoid contact with skin.
- Avoid contact with eyes.
- Prevent generation and deposition of dust.

Safety Measures

- Use only outdoors or in a well-ventilated area.
- Use personal protective equipment as required.

Any incompatibilities

Strong acids, Strong bases, Strong oxidizing agents should not be mixed with the chemicals.

Advice on general occupational hygiene

- Do not get in eyes, on skin, or on clothing.
- Wash contaminated parts thoroughly after handling.
- Do not eat, drink or smoke when using this product.

Wash hands thoroughly after handling.

Storage

Conditions for safe storage

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

Keep cool. Protect from sunlight.

Store locked up.

Store in a dry place.

(Incompatible storage condition)

Avoid direct sunlight, heat and sources of ignition (flames, sparks, etc.).

Container and packaging materials for safe handling

Keep only in original packaging.

Section 8. Exposure controls/personal protection

Control parameters

Adopted value

ACGIH(1992) TWA: 0.2mg-Se/m³ (Eye & URT irr)

OSHA-PEL

TWA: 0.2mg-Se/m³

NIOSH-REL

TWA: 0.2mg-Se/m³

Exposure controls

Appropriate engineering controls

Exhaust/ventilator should be available.

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures

Respiratory protection

Wear respiratory protection.

Hand protection

Wear protective gloves. Recommended material(s): impermeable or chemical resistant rubber

Eye protection

Wear safety glasses with side-shields or chemical safety goggle.

Skin and body protection

Wear protective clothing.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Solid

Color: Yellow-orange transparent

Odor: None

Odor threshold data is not available.

Melting point/Freezing point: 1520 - 1525°C

Boiling point or initial boiling point data is not available.

Boiling range data is not available.

Flammability (gases, liquids and solids): Non-flammable

Lower and upper explosion limit/flammability limit data is not available.

Flash point: Non-flammable

Auto-ignition temperature: Not applicable

Decomposition temperature data is not available.

pH data is not available.

Kinematic viscosity: Not applicable

Solubility:

Solubility in water: Insoluble

Solubility in solvent data is not available.

n-Octanol/water partition coefficient data is not available.

Vapor pressure data is not available.

Density and/or relative density: 5.27

Relative vapor density (Air=1) data is not available.

Particle characteristics data is not available.

Evaporation rate data is not available.

Section 10. Stability and Reactivity

Reactivity

Reactivity data is not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

Possible hydrogen selenide formation upon contact with strong acids.

Conditions to avoid

Avoid direct sunlight, heat and sources of ignition (flames, sparks, etc.).

Incompatible materials

Strong acids, Strong bases, Strong oxidizing agents

Hazardous decomposition products

The following substances are produced by pyrolysis.

Selenium vapor, Selenium oxides, Hydrogen selenide, Zinc vapor, Zinc oxides

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Product]

Category 3, Toxic if swallowed

[Data for components of the product]

[Table 3 of Annex VI to the CLP Regulations]

Category 3

Acute toxicity (Dermal)

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Acute toxicity (Inhalation)

[Product]

Category 3, Toxic if inhaled

[Data for components of the product]

[Table 3 of Annex VI to the CLP Regulations]

Category 3

Irritant properties

Skin corrosion/irritation

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Serious eye damage/irritation

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Sensitization

Respiratory sensitization

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Skin sensitization

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Germ cell mutagenicity

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Carcinogenicity

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Reproductive toxicity

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Specific target organ toxicity (STOT)

STOT-single exposure

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

STOT-repeated exposure

[Product]

Category 2, May cause damage to organs through prolonged or repeated exposure

[Data for components of the product]

[cat.2]

[Table 3 of Annex VI to the CLP Regulations]

No target organ information

Aspiration hazard

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Section 12. Ecological Information

Toxicity

Aquatic toxicity

[Product]

Category 1, Very toxic to aquatic life

Category 1, Very toxic to aquatic life with long lasting effects

[Data for components of the product]

Hazardous to the aquatic environment, short-term (acute)

[Table 3 of Annex VI to the CLP Regulations]

Category 1

Hazardous to the aquatic environment, long-term (chronic)

[Table 3 of Annex VI to the CLP Regulations]

Category 1

Persistence and degradability

Persistence and degradability data is not available.

Bioaccumulative potential

Bioaccumulative potential data is not available.

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

Section 13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Avoid release to the environment.

Dispose of contents/container in accordance with local/national regulation.

Dispose to an authorized waste collection point.

Do not dump into sewers, on the ground or into any body of water.

Contaminated packing

Dispose of container after using the contents completely.

Section 14. Transport Information

UN No., UN CLASS

UN Number or ID Number : 3283

UN Proper Shipping Name : SELENIUM COMPOUND, N.O.S.(ZINC SELENIDE)

Class or division (Transport hazard class) : 6.1

Packing group : III

ERG GUIDE No.: 151

Special provisions No.: 223; 274

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : 3283

UN Proper Shipping Name : SELENIUM COMPOUND, N.O.S.(ZINC SELENIDE)

Class or division (Transport hazard class) : 6.1

Packing group : III

Special provisions No.: 223; 274

IATA (Dangerous Goods Regulations)

UN Number or ID Number : 3283

UN Proper Shipping Name : SELENIUM COMPOUND, N.O.S.(ZINC SELENIDE)

Class or division (Transport hazard class) : 6.1

Hazard labels : Toxic

Packing group : III

Special provisions No.: A3; A5

Environmental hazards

Marine pollutants (yes/no) : yes

Special precautions for user

Special precautions for user is not applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable to Transport in bulk according to Annex II of MARPOL and the IBC Code

MARPOL Annex V - HME (Harmful to the Marine Environment)

Hazardous to the aquatic environment - short-term (acute): cat.1

Applicable

Hazardous to the aquatic environment - long-term (chronic): cat.1, 2

Applicable

Section 15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Toxic Substances Control Act (TSCA) Inventory

Chemicals listed in TSCA Inventory

Applicable

Superfund Amendments and Reauthorizations Act (SARA), Title III

SARA 313 (TRI)

Applicable

California proposition 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Section 16. Other information

GHS classification and labelling

Acute toxicity, Category 3: H301 Toxic if swallowed

Acute toxicity, Category 3: H331 Toxic if inhaled

STOT - Repeated exposure, Category 2: H373 May cause damage to organs through prolonged or repeated exposure

Hazardous to the aquatic environment, short-term (acute), Category 1: H400 Very toxic to aquatic life

Hazardous to the aquatic environment, long-term (chronic), Category 1: H410 Very toxic to aquatic life with long lasting effects

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 22nd edit., 2021 UN

IMDG Code, 2022 Edition (Incorporating Amendment 41-22)

IATA Dangerous Goods Regulations (65th Edition) 2024

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2024 TLVs and BEIs. (ACGIH)

Supplier's data/information

Hazard Communication Standard - 2012 (29 CFR 1910.1200)

GESTIS-Stoffdatenbank

Pub Chem (OPEN CHEMISTRY DATABASE)

General Disclaimer

The GHS classification data given here is based on current EU official data (Consolidated version of the CLP Regulation published in 17/12/2022 and Commission delegated regulation (EU) 2022/692 (ATP18)) & US Hazard Communication Standard - 2012.

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.