Date of issue: 2018/01/16
Date of revision: 2021/12/16

Safety Data Sheet

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

Product identifier:
- Product name: Selenium(IV)dioxide
- SDS No. : 6991E-3

Details of the supplier of the safety data sheet
- Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.
- Address: 3-1, Honmachibashi, Chuo-ku,Osaka ,JAPAN
- Division: Chemical Safety Management Department
- Telephone number: +81-6-6946-8061
- FAX: +81-6-6946-1607
- e-mail address: kagakuhinanzenkanri@kishida.co.jp

2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

HEALTH HAZARDS
- Acute toxicity (Oral): Category 3
- Serious eye damage/eye irritation: Category 2
- Specific target organ toxicity - single exposure: Category 1(central nervous system; respiratory system; heart; blood system; kidney)
- Specific target organ toxicity - repeated exposure: Category 1(nervous system; respiratory system)
- Specific target organ toxicity - repeated exposure: Category 2(liver)

ENVIRONMENT HAZARDS
- Hazardous to the aquatic environment (Acute): Category 1
- Hazardous to the aquatic environment (Long-term): Category 1

Label elements



Signal word: Danger

HAZARD STATEMENT
- Toxic if swallowed
- Causes serious eye irritation
- Causes damage to organs(central nervous system; respiratory system; heart; blood system; kidney)
- Causes damage to organs through prolonged or repeated exposure(nervous system; respiratory system)
- May cause damage to organs through prolonged or repeated exposure(liver)
- Very toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENT

Prevention
- Avoid release to the environment.
- Do not breathe dust/fume/gas/mist/vapors/spray.
- Wash contaminated parts thoroughly after handling.
- Wear eye protection/face protection.
- Do not eat, drink or smoke when using this product.

Response
Collect spillage.
Get medical advice/attention if you feel unwell.
IF exposed or concerned: Call a POISON CENTER/doctor/physician.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician.
IF SWALLOWED: Rinse mouth.
Disposal
Dispose of contents/container in accordance with local/national regulation.

3. Composition/information on ingredients

Mixture/Substance selection:
Substance
Ingredient name:Selenium(IV) dioxide
Content (%):95(min)
Chemical formula:SeO2
Chemicals No, Japan:1-546
CAS No.:7446-08-4
MW:110.96
ECNO:231-194-7
Note : The figures shown above are not the specifications of the product.

4. First-aid measures

Descriptions of first-aid measures
General measures
Get medical advice/attention if you feel unwell.
IF INHALED
Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor/physician if you feel unwell.
IF ON SKIN (or hair)
Take off immediately all contaminated clothing. Rinse skin with water or shower.
If skin irritation or rash 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.
If eye irritation persists: Get medical advice/attention.
IF SWALLOWED
Rinse mouth.
Immediately call a POISON CENTER/doctor/physician.

5. Fire-fighting measures

Extinguishing media
Suitable extinguishing media
Use appropriate extinguishing media suitable for surrounding facilities.
Unsuitable extinguishing media
Unsuitable extinguishing media data is not available.
Specific hazards arising from the substance or mixture
Containers may explode when heated.
Fire may produce irritating, corrosive and/or toxic gases.

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.

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

Firefighters should wear self-contained breathing apparatus with full face peace operated positive pressure mode.

6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Ventilate area until material pick up is complete.

Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses or low areas.

Avoid raising dust.

Methods and materials for containment and cleaning up

Sweep up, place in a bag and hold for waste disposal.

Preventive measures for secondary accident

Collect spillage.

7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

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

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

Safety Measures

Wear protective gloves, protective clothing or face protection.

Wear eye protection/face protection.

When using do not eat, drink or smoke.

Any incompatibilities

See "10.Stability and Reactivity"

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

Do not eat, drink or smoke when using this product.

Storage

Conditions for safe storage

Keep container tightly closed.

Store in a cool, dry place. Do not store in direct sunlight.

Keep under lock and key.

Container and packaging materials for safe handling

Glass

Polyethylene

8. Exposure controls/personal protection
Control parameters
Adopted value
(Selenium(IV) dioxide)
ACGIH(1992) TWA: 0.2mg-Se/m3 (Eye & URT irr)
OSHA-PEL
(Selenium(IV) dioxide)
TWA: 0.2mg-Se/m3
Exposure controls
Appropriate engineering controls
Do not use in areas without adequate ventilation.
Eye wash station should be available.
Washing facilities should be available.
Individual protection measures
Respiratory protection
Wear respiratory protection.
Hand protection
Wear protective gloves.
Eye protection
Wear eye/face protection.

9. Physical and Chemical Properties
Information on basic physical and chemical properties
Physical state: Crystals or crystalline powder
Color: White
Odor: Practically odorless
Melting point/Freezing point: (sublimation point) 315℃
Boiling point or initial boiling point data is not available.
Boiling range data is not available.
Flammability (gases, liquids and solids) data is not available.
Lower and upper explosion limit/flammability limit data is not available.
Flash point data is not available.
Auto-ignition temperature data is not available.
Decomposition temperature data is not available.
pH data is not available.
Kinematic viscosity data is not available.
Solubility:
Solubility in water: 40 g/100 ml (20℃)
n-Octanol/water partition coefficient data is not available.
Vapor pressure: 1.65 kPa (70℃)
Density and/or relative density: 3.95 g/cm3 (15℃)
Relative vapor density (Air=1) data is not available.
Particle characteristics data is not available.

10. Stability and Reactivity
Reactivity
Not available.
Chemical stability
Hygroscopic (absorbs moisture from the air).
Possibility of hazardous reactions
Decomposes on heating. This produces toxic fumes. The solution in water is a medium strong

acid (selenic acid). Attacks many metals in the presence of water. (ICSC 0946)

Conditions to avoid

Contact with fire source.

Incompatible materials

Not available.

Hazardous decomposition products

Selenium oxides

---

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[GHS Cat. Japan, base data]

(Selenium(IV) dioxide)

rat LD50=67.5mg/kg (cal.) (ATSDR, 2003)

Irritant properties

Skin corrosion/irritation data is not available.

Serious eye damage/irritation

[GHS Cat. Japan, base data]

(Selenium(IV) dioxide)

human eyes irritation (PATTY 6th, 2012 et al)

Allergenic and sensitizing effects data is not available.

Mutagenic effects data is not available.

Carcinogenic effects data is not available.

Reproductive toxicity data is not available.

STOT

STOT-single exposure

[cat.1]

[GHS Cat. Japan, base data]

(Selenium(IV) dioxide)

central nervous system; respiratory system; heart; blood system; kidney (HSDB, 2014; ATSDR, 2003)

STOT-repeated exposure

[cat.1]

[GHS Cat. Japan, base data]

(Selenium(IV) dioxide)

nervous system; respiratory system (EHC 58, 1986; NITE Initial Risk Assessment Report, 2008)

[cat.2]

[GHS Cat. Japan, base data]

(Selenium(IV) dioxide)

liver (EHC 58, 1986)

Aspiration hazard data is not available.

Information on other hazards

May cause lung disorders by massive inhalation of powdered substance.

-e.g. fibrosis of lung tissue, cough, sputum, breath shortness, dyspnea, decline of lung function, interstitial lung disease, pneumothorax

12. Ecological Information

Ecotoxicity

Aquatic toxicity

Very toxic to aquatic life with long lasting effects

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

(Selenium(IV) dioxide)

Algae (Scenedesmus) EC50=0.1mg/L/72hr (Aquire, 2003)

Water solubility

(Selenium(IV) dioxide)

40 g/100 ml (20℃) (ICSC, 2000)

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.

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.

14. Transport Information

UN No. or ID No.: 3283

UN Proper Shipping Name :

SELENIUM COMPOUND, N.O.S.

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 No.: 3283

Proper Shipping Name :

SELENIUM COMPOUND, N.O.S.

Class or division : 6.1

Packing group : III

Special provisions No.: 223; 274

IATA Dangerous Goods Regulations

UN No.: 3283

Proper Shipping Name :

SELENIUM COMPOUND, N.O.S.

Class or division : 6.1

Hazard labels : Toxic

Packing group : III

Special provisions No.: A3; A5

Environmental hazards

MARPOL Annex III - Prevention of pollution by harmful substances
Marine pollutants (yes/no) : yes
MARPOL Annex V - Prevention of pollution by garbage discharge
Specific target organ toxicity - repeated exposure: cat.1
Selenium(IV) dioxide
Hazardous to the aquatic environment - acute hazard: cat.1
Selenium(IV) dioxide
Hazardous to the aquatic environment - long-term hazard: cat.1, 2
Selenium(IV) dioxide

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture
Chemicals listed in TSCA Inventory
Selenium(IV) dioxide
Other regulatory information
Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information

GHS classification and labelling
Acute Tox. 3: H301 Toxic if swallowed
Eye Irrit. 2: H319 Causes serious eye irritation
STOT SE 1: H370 Causes damage to organs
STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure
STOT RE 2: H373 May cause damage to organs through prolonged or repeated exposure
Aquatic Chronic 1: H410 Very toxic to aquatic life with long lasting effects
Reference Book
Globally Harmonized System of classification and labelling of chemicals, UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)
IATA Dangerous Goods Regulations (62nd Edition) 2021
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2021 TLVs and BEIs. (ACGIH)
Supplier's data/information
General Disclaimer
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.
The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.
The GHS classification data given here is based on current Japan official data (NITE published in 2020).