

## Safety Data Sheet

### 1. Product and company identification

Product name : Silicon dioxide  
Name of manufacturer : KANTO CHEMICAL CO., INC.  
Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, Japan  
Name of section : Reagent division, catalog and products information section  
Telephone number : +81-3-6214-1090  
Facsimile number : +81-3-3241-1047  
Mail address : BC32@gms.kanto.co.jp  
SDS No. : 37484

### 2. Summary of danger and Hazard

#### GHS classification

##### Physical and chemical hazard

Flammable solids : Out of category  
Pyrophoric solids : Out of category  
Self-heating substances and mixtures : Out of category  
Substances and mixtures which, in contact with water, emit flammable gases : Out of category

##### Human health hazard

Acute toxicity(oral) : Out of category  
Acute toxicity(dermal) : Out of category  
Skin corrosion/irritation : Out of category  
Serious eye damage/eye irritation : Category 2B  
Specific target organ systemic toxicity(single exposure) : Category 3 (respiratory tract irritation)

##### Environmental hazard

Hazardous to the aquatic environment-acute hazard : Out of category

#### Pictogram or symbol



Signal word : Warning  
Hazard statement : Causes eye irritation  
May cause respiratory irritation

#### Cautions

Safety measurements : Avoid breathing dust, mist, and vapor.

- Use only in a well-ventilated area.
- First-aid measures : If inhaled : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical treatment if you feel unwell.
- If in eyes : Rinse cautiously with water for several minutes. Get medical treatment.
- If on skin : Remove contaminated clothing and the substance. Get medical treatment, if you feel unwell.
- Wash hands thoroughly after handling.
- Storage : Tightly container closed and store in a well-ventilated area.  
Store locked up.
- Disposal : Dispose of contents and containers appropriately in accordance with related regulations.

3. Composition/Information on ingredients

- Substance/Mixture : Substance
- Chemical name or commercial name : Silicon dioxide (amorphous)
- Ingredients and composition : Silicon dioxide (amorphous) min. 95%
- Chemical formula : SiO<sub>2</sub>
- CAS No. : 7631-86-9
- TSCA Inventory : Registered
- EINECS No. : 2315454

4. First aid measures

- Inhalation : Remove the victim to fresh air, and make him blow his nose and gargle.
- Skin contact : Wash the affected areas under running water.
- Eye contact : Wash the affected areas under running water.
- Ingestion : Give the victim water immediately.

5. Fire fighting measures

- Extinguishing media : This product is noncombustible.
- Prohibited extinguishing media : None
- Particular fire fighting : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.
- Protection for firefighters : Firefighters should wear protective equipment.

6. Accidental release measures

- Cautions for personnel : Wear proper protective equipment and avoid contact with skin and inhalation of dust. Conduct operations from upwind and evacuate people downwind.
- Cautions for environment : Do not wash away into drains.
- Removal measure : Sweep up the chemical and place in a chemical waste container.

## 7. Cautions of handling and storage

### Handling

Engineering measures : If necessary, wear proper protective equipment to avoid contact with skin or inhalation of dust.

### Cautions for safety handling

: Avoid formation of dust and aerosols.

### Storage

#### Adequate storage condition

: Store the bottle tightly closed in a cool, dark place because the substance is hygroscopic.

#### Safety adequate container materials

: Glass, polyethylene, polypropylene

## 8. Exposure control/Personal protection

Engineering measures : Install a local ventilation system in case of dusty condition.

### Control parameters

ACGIH(2015) : Not established

### Protective equipment

#### Respiration protective equipment

: If necessary, wear dust mask

#### Hands protective equipment

: Impervious protective gloves

#### Eyes protective equipment

: Safety goggles

## 9. Physical and chemical properties

Appearance : Powder

Color : White

Odor : Odorless

Boiling point : 2230°C

Melting point : 1710°C

Flash point : Noncombustible

Density : 2.2g/cm<sup>3</sup> (20°C)

### Solubility

Solubility in solvents : Water ; Insoluble

## 10. Stability and reactivity

Stability : Stable under normal conditions.

Reactivity : Stable substance.

Incompatible conditions : Oxidizing substances

## 11. Toxicological information

Acute toxicity : Oral : Out of category

Dermal : Out of category

Inhalation(vapor) : Not possible to classify because of insufficient data.

Inhalation(dust, mist) : Not possible to classify because of insufficient data.

rat oral LD50>5000mg/kg

rabbit skin LD50>2000mg/kg

Skin corrosion/irritation : Out of category

In skin irritation tests in rabbits (OECD TG 404), following exposure to precipitated silica, no irritation was observed, and in a test in which precipitated silica was applied to rabbits for 24 hours, no irritation was observed. In another test, in which silica gel was applied to rabbits for 24 hours, no skin irritation was observed. Thus, it was classified as out of category.

Serious eye damage/eye irritation

: Causes eye irritation(category 2B)

In eye irritation tests with powdered silica gel in rabbits, mild and reversible conjunctival redness was observed. In addition, there are multiple test reports in which precipitated silica was applied to rabbits, showing that no eye irritation was observed, and that mild and reversible conjunctival irritation was noted. In conclusion, the product was classified as category 2B.

Respiratory sensitization or Skin sensitization

: Respiratory sensitization : Not possible to classify because of insufficient data.

Skin sensitization : Not possible to classify because of insufficient data.

Mutagenicity

: Not possible to classify because of insufficient data.

As for in vivo, there are negative data on all of dominant lethal studies, gene mutation examination, and chromosome aberration tests in rats exposed by ingestion or inhalation. As for in vitro, there are negative data on reverse mutation test in bacteria, gene mutation examination and chromosome aberration tests in cultured mammalian cells, and equivocal results on micronucleus examinations in cultured mammalian cells.

Carcinogenic effects

: Not possible to classify because of insufficient data

IARC classifies silica gel as group 3 (not classifiable as to its carcinogenicity to humans).

Effects on the reproductive system

: Not possible to classify because of insufficient data.

Specific target organ systemic toxicity single exposure

: May cause respiratory irritation(category 3)

Since silica gel causes respiratory tract irritation, it was classified as category 3 (respiratory tract irritation).

Specific target organ systemic toxicity repeated exposure

: Not possible to classify because of insufficient data.

Human studies have shown that in workers exposed to dust of the substance for 8.5 years on average, no adverse effects on pulmonary function and chest X-ray were noted. Animal studies have shown that in inhalation tests in which rats, guinea pigs, and rabbits were exposed to 126 mg/m<sup>3</sup> of the substance for 1 year (rats) and 2 years (guinea pigs and rabbits), no signs of pulmonary fibrosis were observed, and only macrophage accumulation and slight increase in reticular fibers were observed. In a 21-month feeding administration study in mice and in a 24-month feeding administration study in rats, no toxic effects were observed. In inhalation tests in which monkeys, rats, and guinea pigs were exposed to 15 mg/m<sup>3</sup> of the substance for 12-18 months, increased monocytic cells and increased reticular fibers in the lung were noted.

As mentioned above, no adverse effects were seen in humans. Regarding experimental animals, only slight effects by inhalation route and no effects by oral route were seen. Thus, the classification was not possible.

Aspiration hazard : Not possible to classify because of insufficient data.

12. Ecological information

Ecotoxicity

Fish toxicity

: Acute aquatic toxicity : Out of category

Chronic aquatic toxicity : Not possible to classify because of insufficient data.

Zebrafish LC50=10000mg/L/96H

Persistence and degradability

: Non-biodegradability

Bioaccumulative potential : Not available

13. Disposal consideration

Residual disposal

: Bury in a landfill site approved for the disposal of chemical and hazardous wastes. Or entrust approved waste disposal companies with the disposal.

Containers

: In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

UN class

: It is not regulated under UN regulations.

15. Regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information

References

Dangerous Properties of Industrial Materials, 6th ed. N. I. Sax Van Nostrand Reinhold Company (1984)

Handbook of 16817 Chemical Products, The Chemical Daily Co. (2017)

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully. The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements. The information herein is only provision of information, and it does not represent a guarantee the properties of the product. The Safety Data Sheet (SDS) is prepared based on JIS Z7253, and it has the same required elements on the Material Safety Data Sheet (MSDS) which is prepared based on JIS Z7250:2010.