SAFETY DATA SHEET

1. Identification of the substance or mixture and of the supplier

A. GHS product identifier : KONASIL (FUMED SILICA)
(K-90, K-90D, K-150, K-150D, K-200, K-200D, K-200U, K-300, K-300D, K-400)

B. Recommended use of the chemical and restrictions on use

Recommended use : Filtration agent, Abrasive agent, Ceramic, Enamel, ferrosilicon, mold, decoloring agent, petroleum product

Restrictions on use : Use for recommended use only

C. Manufacturer

Company name : OCI Company Ltd.

Address :

Plant(Gunsan Factory) : 82, Oehang-ro, Gunsan-si, Jeollabuk-do, Republic of Korea

Emergency phone number :

Precision Production Team : +82-63-460-6221
Quality Management Team : +82-63-460-6152

Respondent : Production Team - FS Production Department Manager

Fax : Not available

D. Supplier

Company name : OCI Company Ltd.

Address :

Plant(Gunsan Factory) : 82, Oehang-ro, Gunsan-si, Jeollabuk-do, Republic of Korea

Emergency phone number :

Precision Production Team : +82-63-460-6221
Quality Management Team : +82-63-460-6152

Respondent : Quality Management Team – Manager

Fax : Not available

2. Hazards identification

A. GHS classification of the substance/mixture : Not classified according to OSHA 29 CFR 1910.1200

B. GHS label elements, including precautionary statements

Pictogram and symbol : Not applicable

Signal word : Not applicable

Hazard statements : Not applicable

Precautionary statements

Precaution : Not applicable

Treatment : Not applicable

Storage : Not applicable

Disposal : Not applicable

C. Other hazard information not included in hazard classification (NFPA)

Health : 0

Flammability : 1

Reactivity : Not available

3. Composition/information on ingredients

Chemical Name	Common Name(Synonyms)	CAS number	EC number	Content (%)
Synthetic Amorphous Silicon Dioxide, Crystalline-Free	Fumed Silica, Silic anhydride, Dioxosilane, Cristobalite, Quartz, Infusorial earth, Sand	112945-52-5	601-216-3	100

* Fumed silica(SiO_2) (CAS No. 112945-52-5) is one of the Silica (SiO_2) (CAS No. 7631-86-9) series, and these are same chemical substances. So, regulatory information of Fumed silica(CAS No. 112945-52-5) is found under the Silica(CAS No. 7631-86-9)

4. First aid measures

A. Eye contact :

- In case of contact with substance, immediately flush eyes with running water at least 20 minutes.
- Get medical treatment immediately.

B. Skin contact :

- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- If you feel unwell, get medical attention or treatment.
- Remove contaminated clothes and shoes and isolate contaminated area.
- In case of minor contact, prevent the spread of contaminated area.

C. Inhalation :

- If exposed to excessive levels of dusts or fumes, remove it using fresh air and get medical attention if other symptoms occurred.
- If victim is not breathing, give artificial respiration (resuscitation).
- Administer oxygen if breathing is difficult.

D. Ingestion :

- If you feel unwell, get medical advice or treatment.

E. Indication of immediate medical attention and notes for physician :

- Ensure that medical personnel are aware of the substance and take protective measures.

5. Fire fighting measures

A. Suitable (and unsuitable) extinguishing media :

- Suitable extinguishing media :

- alcohol foam, CO_2, water spray, dry sand, soil
- Use dry sand or earth to smother fire.

- Unsuitable extinguishing media : Not available

B. Specific hazards arising from the chemical :

- It may produce irritant, corrosive and toxic gases in fire.
- Containers may explode when heated.

C. Special protective equipment and precautions for fire-fighters :

- Keep a safe distance away from the area to extinguish the fire.
- Be careful that it can be molten and transported.
- Dike fire-control water for later disposal and do not let the substance scattered.
- Move containers from a fire area to other place if you can do it without risk

In case of fire in tank

- Use unmanned fire extinguisher or keep maximum distance from fire when extinguishing the fire
- Withdraw immediately if rising sound from pressure relief devices or discoloration of tank occur.
- Cool containers with quantities of water until well after fire is out.
- Always stay away from tanks engulfed in fire.
- In case of large fire, use unmanned fire extinguisher or if it is impossible, stay away from fire and let it burn

6. Accidental release measures

A. Personal precautions, protective equipment and emergency procedures :

- Do not inhale dust, fume, mist, vapor and spray
- Clean up spills immediately and following precautions in Protective Equipment section.
- Stop leaking if you can do it without risk.
- Do not touch damaged containers or spilled substance unless wearing appropriate protective clothing.
- Cover with plastic sheet to prevent spreading.
- Be aware of the substance and conditions to avoid.

B. Environmental precautions and protective procedures :

- Prevent inflow into waterways, sewers, basement, and sealed spaces.

C. The methods of purification and removal :

- Absorb spills with inert material (dry sand or soil), then place in a chemical waste container.
- Absorb the liquid and scrub the area with detergent and water

7. Handling and storage

A. Precautions for safe handling :

- Because of product residues in container, follow all MSDS/label precautions even after container is emptied
- Do not inhale dust, fume, mist, vapor and spray.
- Be aware of the substance and conditions to avoid.
- Work with reference to engineering controls and personal protective equipment section.
- Loosen closure carefully before opening.
- Use only outdoors or in a well-ventilated area.

B. Conditions for safe storage :

- Completely drain and properly block the empty drum and return it to the drum reconditioner immediately or place it properly.
- Keep container tightly closed and store in a well-ventilated place.

8. Exposure controls/personal protection

A. Occupational Exposure limits

Regulatory information of Fumed silica(CAS No. 112945-52-5) is found under the Silica(CAS No. 7631-86-9)

ACGIH regulation : Not available

Biological exposure index : Not available

OSHA regulation :

OSHA PEL : 20 mppcf (80 mg/m^3(%SiO_2)) (Amorphous, including natural diatomaceous earth)

NIOSH regulation :

TWA = 6 mg/m^3 (Silica, amorphous, CASRN. 7631-86-9)

EU regulation : Not available

Other : Not available

B. Appropriate engineering controls

- If user operations generate dust, fume, or mist, use ventilation to keep exposure to airborne contaminants below the recommended exposure limit.

C. Personal protective equipment

Respiratory protection :

- Wear suitable mask or mask suggested by the national health and safety administration.

Eye protection :

- Wear appropriate goggles to protect eyes.
- An eye wash unit and safety shower station should be available nearby work place.

Hand protection :

- Wear appropriate chemical resistant gloves.

Body protection :

- Wear appropriate chemical resistant protective clothing.

9. Physical and chemical properties

A. Appearance

Description : Solid powder (infinitesimal)

Color : White

B. Odor : Odourless

C. Odor threshold : Not available

D. pH : 4 ~ 9

E. Melting point/freezing point : 1,610 ~ 1,710 ℃ (2,930 ~ 3,110 ℉)

F. Initial boiling point and boiling range : 2,230 ℃ (4,046 ℉)

G. Flash point : Not available

H. Evaporation rate : Not available

I. Flammability (solid, gas) : Non-oxidizing

J. Upper/lower flammability or explosive limits : Not available

K. Vapor pressure : 13.3 hPa (at 1,732 ℃)

L. Solubility (ies) : about 15 ~ 68 ㎎/L (at 20 ℃, pH 5.5 ~ 6.6)

M. Vapor density : Not available

N. Specific gravity : 2.2 g/cm^3 (at 20 ℃)

O. Partition coefficient: n-octanol/water : Log Kow = 0.53

P. Auto ignition temperature : Not available

Q. Decomposition temperature : Not available

R. Viscosity : Not available

S. Molecular weight : 60.09

10. Stability and reactivity

A. Chemical stability and Possibility of hazardous reactions :

- Stable at room temperature phase pressure.
- Can explode if containers heated.
- Fire may produce irritant, corrosive, or toxic gases.
- Vapor inhalation may cause dizziness or suffocation without indication.

B. Possible hazardous reactions: Not available

C. Conditions to avoid :

- All of ignition sources (heat, spark, flame, etc.).
- Avoid dust formation.

D. Incompatible materials :

- Magnesium, strong oxidant, strong base, chlorine trioxide, metal oxide

E. Hazardous decomposition products :

- Irritant or toxic gases.

11. Toxicological information

A. Information on the likely routes of exposure :

- If exposed large amounts of substance by inhalation, it may cause pneumoconiosis.
- Stimulation of the stomach can cause nausea, vomiting, and diarrhea.
- Can be exposed by skin or eye contact.

B. Information of Health Hazardous

Acute toxicity

Oral : Not classified

- Rat - LD_{50} > 3,100 mg/kg

Dermal : Not available

Inhalation : Not available

Skin corrosion/ irritation : Not classified

- In the skin irritation test, irritation was not observed.

Serious eye damage/ irritation : Not available

Respiratory sensitization : Not available

Skin sensitization : Not classified

- There is no sensitization to human.

Carcinogenicity : Not classified

IARC : Group 3 (No carcinogenicity in humans) (Silica, amorphous)

NTP : Known (Silica, Crystalline (Respirable size))

Mutagenicity : Not classified

- In vitro and In vivo test, there are no mutation and genotoxicity.

Reproductive toxicity : Not classified

- In the reproductive/developmental test with rat and mouse, teratogenicity and developmental effects are not appeared.

Specific target organ toxicity (single exposure) : Not available

Specific target organ toxicity (repeat exposure) : Not classified

- After two years of prolonged administration, evidence of reversible effects on the substance could not be explained, with only a slight increase in tissue weight or a delay in growth at high doses at times.

Aspiration Hazard : Not available

12. Ecological information

A. Ecological toxicity

- Acute toxicity : Not classified

- Chronic toxicity : Not available

Fish : Not available

crustacean :

- 48 hr - EC_{50} (*Daphnia magna*) > 10,000 mg/L

Algae : Not available

B. Persistence and degradability

Persistence :

- Log Kow = 0.53 (estimated), low persistency

Degradability : Not available

C. Bioaccumulative potential

Bioaccumulation :

- BCF = 3.162 (estimated), bioaccumulation is expected to be low

Biodegradation : Not available

D. Mobility in soil :

- Koc = 2.881 (estimated), no potency of mobility to soil

E. Other hazardous effect : Not available

F. Hazardous to the ozone layer : Not applicable

13. Disposal considerations

A. Disposal method :

- Waste must be disposed of in accordance with federal, state and local environmental control regulations.

B. Disposal precaution :

- Dispose the waste in accordance with waste treatment management regulation.

14. Transport information

A. UN Number : Not applicable

B. UN Proper shipping name : Not applicable

C. Transport Hazard class : Not applicable

- IATA (International Air Transport Association) : Not applicable

D. Packing group : Not applicable

E. Environmental hazards : Not applicable

F. Special precautions

in case of fire : Not applicable

in case of leakage : Not applicable

15. Regulatory information

① U.S.A Regulatory information

A. U.S.A management information (OSHA Regulation) : Not regulated

B. U.S.A management information (CERCLA Regulation) : Not regulated

C. U.S.A management information (EPCRA 302 Regulation) : Not regulated

D. U.S.A management information (EPCRA 304 Regulation) : Not regulated

E. U.S.A management information (EPCRA 313 Regulation) : Not regulated

F. U.S.A management information (TSCA 8(b) Inventory) : Listed on TSCA 8(b) (The material is in compliance with TSCA under CAS Number 7631-86-9 (silica, amorphous))

G. U.S.A management information (TSCA 12(b) Export Notification) : Not listed on TSCA 12(b)

② Foreign Regulatory Information

Registration inventory of Silica (CAS No. 7631-86-9)

Fumed silica (CAS No. 112945-52-5) has a different CAS Number from Silica (CAS No. 7631-86-9) due to particle size and treatment method, but inventory can be shared as it is the same chemical substance

U.S.A : on **TSCA** (The Toxic Substances Control Act)
China : on **IECSC** (Inventory of Existing Chemical Substances in China)
Canada : on **DSL** (Supplement to Canada Gazette, Part 1)
Australia : on **AIIC** (Australian Inventory of Industrial Chemicals)
Republic of Korea : on **KECL** (Korean Government Gazette Notice)
Japan : on **ENCS** (Existing and New chemical Substance)
Philippine : on **PICCS** (Philippines Inventory of Chemicals and Chemical Substances)
Taiwan : on **TCSI** (Taiwan Government Gazette)
New Zealand : on **NZIOC** (New Zealand Inventory of Chemicals)
Mexico : on **INSQ** (National Inventory of Chemical Substances in Mexico)
EU : on **EINECS** (Annex to Official Journal of the European Communities)
Vietnam : on **NCI** (National Existing Chemical Inventory)

External information

Substance of Rotterdam Convention : Not regulated
Substance of Stockholm Convention : Not regulated
Substance of Montreal Protocol : Not regulated

16. Other information

A. Information source and references :

- Korean MSDS provided by OCI corporation., Ltd.
- TOMES-LOLI® ; http://www.rightanswerknowledge.com/loginRA.asp
- EU CLP; https://echa.europa.eu/information-on-chemicals/cl-inventory-database
- American Conference of Governmental Industrial Hygienists TLVs and BEIs.
- National Toxicology Program; http://ntp.niehs.nih.gov/results/dbsearch/
- IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; http://monographs.iarc.fr

B. Issuing date : 05.FEB.2021

C. Revision number and date

revision number : Rev. 00
date of the latest revision : 26.May.2021

D. Others :

•This SDS is authored in pursuant to the U.S. OSHA 29 CFR 1910.1200.
•The content is based on the latest information and knowledge that we currently possess.

•This SDS was authored to aid buyer, processor or any other third person who handles the chemical of subject in the SDS; additionally, it does not warrant suitability of the chemical for special purposes or the commercial use of statements that approves the use of it in combination with other chemicals as well as technical or legal liabilities.
•The content of the SDS may vary depending on the country or the region and may not coincide with the actual regulations. Therefore, the buyer or the processor of the chemical is responsible for observing responsible government's or the region's regulations.