

# Material Safety Data Sheet

GHS product identifier

SK microworks PET Film

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

A. GHS product identifier	SK microworks PET Film
B. Recommended use of the chemical and restrictions on use	
Recommended use	Processing film(optical/industrial, etc.)
Restrictions on use	Use for recommended use only.
C. Supplier identifier	
Company name	SK microworks CO.,LTD.
Address	84, Jangan-ro 309beon-gil, Jangan-gu, Suwon-si, Gyeonggi-do, Korea
Emergency phone number	+82-70-7467-6355

## 2. Hazards identification

A. GHS classification of the substance/mixture	Not classified
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	Not available
Reactivity	Not available

## 3. Composition/information on ingredient

Chemical Name	Common Name(Synonyms)	CAS number	Content (%)
Polyethylene terephthalate	Poly(oxy-1,2-ethanedioylcarbonyl-1,4-phenylenecarbonyl)	25038-59-9	99.5 ~ 100
Silicon oxide	SILICA, OHS83144;	7631-86-9	< 0.5

## 4. First aid measures

A. Eye contact	In case of contact with substance, immediately flush eyes with running water at least 20 minutes. Get immediate medical advice/attention.
B. Skin contact	In case of contact with substance, immediately flush skin with running water at least 20 minutes. Remove and isolate contaminated clothing and shoes. Wash contaminated clothing and shoes before reuse.

C. Inhalation	<p>Get immediate medical advice/attention.</p> <p>Specific medical treatment is urgent.</p> <p>Move victim to fresh air.</p> <p>Give artificial respiration if victim is not breathing.</p> <p>Administer oxygen if breathing is difficult.</p>
D. Ingestion	<p>Do not let him/her eat anything, if unconscious.</p> <p>Get immediate medical advice/attention.</p>
E. Indication of immediate medical attention and notes for physician	<p>Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.</p> <p>Do not administer adrenaline preparations.</p>

## 5. Fire fighting measures

### A. Suitable (and unsuitable) extinguishing media

Suitable (and unsuitable) extinguishing media	<p>Small Fire: dry sand, dry chemical, alcohol-resistant foam, water spray, regular foam, CO<sub>2</sub> (suitable extinguishing media)</p> <p>Large Fire: water spray/fog, regular foam (suitable extinguishing media)</p> <p>high pressure water streams (unsuitable extinguishing media)</p>
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### B. Specific hazards arising from the chemical

Specific hazards arising from the chemical	<p>May be ignited by heat, sparks or flames.</p> <p>Containers may explode when heated.</p> <p>Some of these materials may burn, but none ignite readily.</p> <p>Fire may produce irritating and/or toxic gases.</p> <p>Inhalation of material may be harmful.</p> <p>Some liquids produce vapors that may cause dizziness or suffocation.</p>
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### C. Special protective equipment and precautions for fire-fighters

Runoff from fire control or dilution water may cause pollution.
Contact may cause burns to skin and eyes.
Evacuate area and fight fire from a safe distance.
Notice that substance may be transported in a molten form.
Dike fire-control water for later disposal; do not scatter the material.
Move containers from fire area if you can do it without risk.
Rescuers should put on appropriate protective gear.
Fire involving Tanks; Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
Fire involving Tanks; Cool containers with flooding quantities of water until well after fire is out.
Fire involving Tanks; Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
Fire involving Tanks; Always stay away from tanks engulfed in fire.
Fire involving Tanks; For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

## 6. Accidental release measures

### A. Personal precautions, protective equipment and emergency procedures

ELIMINATE all ignition sources.
Stop leak if you can do it without risk.
Please note that materials and conditions to avoid.
Ventilate the area.
Do not touch or walk through spilled material.
Prevent dust cloud.
Do not enter into the place without the appropriate protective equipment such as air-purifying or supplied-air respirator, until the air condition is recovered properly (oxygen concentration ; 18 ~ 23.5%).

- B. Environmental precautions and protective procedures
- C. The methods of purification and removal

Prevent entry into waterways, sewers, basements or confined areas.

Small Spill; Flush area with flooding quantities of water.

Small Spill; Take up with sand or other non-combustible absorbent material and place into containers for later disposal.

Large Spill; Dike far ahead of liquid spill for later disposal.

With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

Powder Spill; Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.

## 7. Handling and storage

- A. Precautions for safe handling

Please note that materials and conditions to avoid.

Wash thoroughly after handling.

Please work with reference to engineering controls and personal protective equipment.

Be careful to high temperature.

Be cautious not to be spilled, since spill can cause asphyxiation in the enclosed place by lowering the oxygen concentration in the air.

Make sure of the oxygen concentration before entering into the place, since there is risk of consciousness loss or death that caused by a deficiency of oxygen at high

Be cautious not to be spilled, since spill causes a risk of serious suffocation in an enclosed place.

Be cautious not to be spilled, since spill causes the quick reach to a harmful concentration level of this gas in the air.

Keep it at 20 °C or less, since this substance reaches to harmful concentration level throughout the slow evaporation with over 20 °C.

Although evaporation hardly occurs at 20 °C, do not sprinkle or spray, since such behavior causes the quick reach to harmful concentration level of airborne particles.(especially in case of powder)

Make sure of the oxygen concentration before entering into the place.

Do not spray or sprinkle, since such behavior accelerates evaporation.

- B. Conditions for safe storage

Store in a closed container.

Store in cool and dry place.

Please note that materials and conditions to avoid.

## 8. Exposure controls/personal protection

- A. Occupational Exposure limits

Korea regulation

Not regulated

ACGIH regulation

Not regulated

Biological exposure index

Not available

OSHA regulation

Silicon oxide : TWA = 20 mppcf (80 mg/m<sup>3</sup>/%SiO<sub>2</sub>)

NIOSHA regulation

Silicon oxide : TWA = 6 mg/m<sup>3</sup>

- B. Appropriate engineering controls

Provide local exhaust ventilation system or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

- C. Personal protective equipment

Respiratory protection

Wear a adequate respiratory protection equipment with certificate by considering physicochemical properties of exposed material.

Eye protection

Wear facepiece with goggles to protect.

An eye wash unit and safety shower station should be available nearby work place.

Hand protection

Wear chemical resistant gloves.

Wear the insulating gloves.

Body protection

Wear appropriate protective chemical resistant clothing

## 9. Physical and chemical properties

- A. Appearance

Description	Solid, film
Color	Not available
B. Odor	Not available
C. Odor threshold	Not available
D. pH	Not available
E. Melting point/freezing point	Not available
F. Initial boiling point and boiling range	Not available
G. Flash point	Not available
H. Evaporation rate	Not available
I. Flammability (solid, gas)	Not available
J. Upper/lower flammability or explosive limits	Not available
K. Vapor pressure	Not available
L. Solubility (ies)	Not available
M. Vapor density	Not available
N. Specific gravity	Not available
O. Partition coefficient: n-octanol/water	Not available
P. Auto ignition temperature	Not available
Q. Decomposition temperature	Not available
R. Viscosity	Not available
S. Molecular weight	Not available

## 10. Stability and reactivity

A. Chemical stability and Possibility of hazardous	Stable under normal temperatures and pressures.  Containers may explode when heated. Some of these materials may burn, but none ignite readily. Fire may produce irritating and/or toxic gases. Can decompose at high temperatures forming toxic gases.
B. Conditions to avoid	ignition sources (heat, sparks or flames)
C. Incompatible materials	combustibles, reducing agents irritating and/or toxic gases
4. Hazardous decomposition products	corrosive and/or toxic fume irritating, corrosive and/or toxic gases

## 11. Toxicological information

A. Information on the likely routes of exposure	Even short-term exposure may cause irritation. It can be absorbed into the body by inhalation. It can be absorbed into the body by inhalation and the digestive organs. It can be absorbed into the body through skin and the digestive organs and by inhalation of aerosol. It can be absorbed into the body by inhalation of vapor. It can be absorbed into the body by inhalation, skin and the digestive organs.
B. Information of Health Hazardous	
Acute toxicity	
Oral	
Polyethylene terephthalate	LD50 > 3200 mg/kg Rat
Silicon oxide	LD50 3160 mg/kg Rat
Dermal	
Polyethylene terephthalate	LD50 > 1000 mg/kg Guinea pig
Silicon oxide	LD50 > 2000 mg/kg Rabbit

Inhalation	
Silicon oxide	Dust, LC50> 2.2 mg/ℓ 1 hr Rat
Skin Corrosion/ Irritation	
Silicon oxide	Rabbit, mild irritation
Serious Eye Damage/ Irritation	Not available
Respiratory sensitization	Not available
Skin Sensitization	
Silicon oxide	No Skin sensitization
Carcinogenicity	
Occupational Safety and Health Regulation	Not available
Korea regulation	Not available
IARC	Not available
Silicon oxide	3
OSHA	Not available
ACGIH	Not available
NTP	Not available
EU CLP	Not available
Mutagenicity	Not available
Reproductive toxicity	Not available
Specific target organ toxicity (single exposure)	Not available
Specific target organ toxicity (repeat exposure)	
Silicon oxide	Increase of red blood cell, white blood cell or neutrophil white blood cell. Lung is swelled and a mediastinal lymphatic gland is enlarged. Lung weight and collagen content in the lungs are increased.
Aspiration Hazard	Not available

## 12. Ecological information

### A. Ecological toxicity

#### Fish

    Silicon oxide LC50 5000 mg/ℓ 96 hr

#### Crustacean

    Silicon oxide LC50 7600 mg/ℓ 48 hr

#### Algae

    Silicon oxide EC50 440 mg/ℓ 72 hr

### B. Persistence and degradability

#### Persistence

    Silicon oxide log Kow 0.53

#### Degradability

Not available

### C. Bioaccumulative potential

#### Bioaccumulation

    Silicon oxide BCF 3.162

#### Biodegradation

Not available

### D. Mobility in soil

Not available

### E. Other hazardous effect

Not available

## 13. Disposal considerations

### A. Disposal method

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

B. Disposal precaution Consider the required attentions 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
D. Packing group	Not applicable
E. Marine pollutant	Not available
F. Special precautions	
in case of fire	Not applicable
in case of leakage	Not applicable

#### 15. Regulatory information

A. KOREA Regulatory information	
Occupational Safety and Health Regulation	Not regulated
Chemical Control Act	Not regulated
Dangerous Material Safety Management Regulation	
Silicon oxide	Non-dangerous goods
Wastes Control Act	Not regulated
Persistent Organic Pollutants Acts	Not regulated
B. Foreign Regulatory Information	
EU classification(classification)	Not regulated
EU classification(risk phrases)	Not applicable
EU classification(safety phrases)	Not applicable
EU SVHC list	Not regulated
EU Authorisation List	Not regulated
EU Restriction list	Not regulated
U.S.A management information (OSHA Regulation)	
U.S.A management information (CERCLA Regulation)	Not regulated
U.S.A management information (EPCRA 302 Regulation)	Not regulated
U.S.A management information (EPCRA 304 Regulation)	Not regulated
U.S.A management information (EPCRA 312 Regulation)	Not regulated
Substance of Roterdame Protocol	Not regulated
Substance of Stockholme Protocol	Not regulated
Substance of Montreal Protocol	Not regulated

#### 16. Other information

A. Information source and references

TOMES; HAZARDTEXT(Oral)

(IUCLID)(Skin)

(IUCLID)(Inhalation)

(IUCLID)(Skin corrosion/ irritation)

(SIDS)(Skin sensitization)

IUCLID(Specific target organ toxicity (repeat exposure))

IUCLID(Fish)

IUCLID(Crustacean)

IUCLID(Algae)

Directive 67/548/EEC(Skin corrosion/ irritation)

Directive 67/548/EEC(Skin sensitization)

TOMES-LOLI@; <http://www.rightanswerknowledge.com/loginRA.asp>

B. Issuing date Sep. 07, 2016

C. Revision number and date

revision number Rev.(03)

date of the latest revision Jan. 10, 2018

D. Others

- This SDS is authored in pursuant to the Article 41 of the Occupational Safety and Health Act and 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