



SAFETY DATA SHEET

This SDS is prepared pursuant to the provision of Article 41 of the Korean Industrial Safety and Health Law. Revision date: 13-Aug-2015

According to Korean Industrial Safety and Health Act, a Safety Data Sheet (SDS) must be provided for hazardous substances or mixtures. This product does not meet the classification criteria of the Korean Regulation. Therefore the requirements for content in each section do not apply

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product name: ThermalWrap™ TW600
Synonyms: None
Product code: TW600
Recommended use: Various, Insulating material, Industrial Products, Absorbant
Restrictions on use: Not Applicable.

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2. HAZARDS IDENTIFICATION

Classification

Korea Classification: Not hazardous according to Korea GHS criteria from the Industrial Safety and Health Act

Label Elements:

Pictogram:
None

Signal Word:
None

Hazard statements:
None

Precautionary statements:
None

Hazards not otherwise classified (HNOC)

Do not expose to temperatures above 125°C. Hazardous products of combustion can include carbon monoxide, carbon dioxide and formaldehyde. Organic products of decomposition.

Principle Routes of Exposure: Skin Contact, Eye contact, Inhalation

Eye Contact: May cause mechanical irritation. Avoid contact with eyes.

Skin Contact: May cause mechanical irritation and skin drying. Avoid contact with skin. No cases of sensitization in humans have been reported.

Inhalation: Dust may be irritating to respiratory tract. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated. See also Section 8.

Ingestion: Adverse health effects are not expected. See Section 11.

Carcinogenicity: Does not contain any substances greater than 0.1% listed by IARC (International Agency for Research on Cancer), NTP (National Toxicology Program), OSHA (Occupational Safety and Health Administration), ACGIH (American Conference for Governmental Industrial Hygienists) or EU (European Union). See also Section 11.

Target Organ Effects: Skin, Lungs, See Section 11

Medical Conditions Aggravated by Exposure: Asthma, Respiratory disorder, Skin disorders

Potential Environmental Effects: None known. See Section 12.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: None.

Chemical name	CAS No	weight-%	Korean GHS Classification
Silica, [(trimethylsilyl)oxy]-modified	102262-30-6	45-85	-
Copolyolefin bicomponent fiber	-	15-55	-

Other Information:

The hyphen (-) means "not applicable"

4. FIRST AID MEASURES

FIRST AID MEASURES

Skin Contact	Wash thoroughly with soap and water. Seek medical attention if symptoms develop.
Eye contact	Flush eyes immediately with large amounts of water for 15 minutes. Seek medical attention if symptoms develop.
Inhalation	If cough, shortness of breath or other breathing problems occur, move to fresh air. Seek medical attention if symptoms persist. If necessary, restore normal breathing through standard first aid measures.
Ingestion	Do not induce vomiting. If conscious, give several glasses of water. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in Section 2 and/or in Section 11.

Indication of any immediate medical attention and special treatment needed

Note to physicians: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Carbon dioxide (CO₂). Foam. Dry chemical. Water.

Unsuitable Extinguishing Media:

None.

Specific hazards arising from the chemical:

May release formaldehyde when heated to high temperatures in the presence of air. Formaldehyde is a known skin and lung sensitizer and is regulated as a carcinogen.

Polyesters can burn if exposed to flame, releasing toxic and/or flammable fumes and vapors.

Hazardous combustion products:

Carbon monoxide (CO). Carbon dioxide (CO₂). Formaldehyde. Organic products of decomposition.

Protective equipment and precautions for firefighters:

In the event of fire, wear self-contained breathing apparatus. Wear suitable protective equipment.

Risk of Dust Explosion:

Not Applicable Will not cause dust explosion

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions: Avoid dust formation. Ensure adequate ventilation. Use personal protective equipment. See also Section 8.

For emergency responders: Use personal protection recommended in Section 8.

Environmental Precautions:

Environmental Precautions: Contain spilled product on land, if possible. Local authorities should be advised if significant spillages cannot be contained.

Methods and material for containment and cleaning up

Methods for containment: Prevent further leakage or spillage if safe to do so.

Methods for cleaning up: Clean up promptly by vacuum. Use of a vacuum with high efficiency particulate air (HEPA) filtration is recommended. Do not create a dust cloud by using a brush or compressed air. Dry sweeping is not recommended. See Section 13.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling: Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated. Do not create a dust cloud by using a brush or compressed air.

General hygiene considerations: Handle in accordance with good industrial hygiene and safety practice

Conditions for safe storage, including any incompatibilities

Storage Conditions: Keep in properly labeled containers. Keep containers tightly closed in a dry and well-ventilated place. Store at ambient conditions.

Incompatible materials: None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure guidelines: There are no exposure limits identified for this product. Exposure limits for components or similar components are stated below. The table below is a summary. Please see the specific legislation for complete information.

Amorphous Silica, The regulatory exposure limits are found under the general silica, CAS RN 7631-86-9:	Australia:	2 mg/m ³ , TWA, Respirable
	Austria MAK	4 mg/m ³ , TWA, Inhalable fraction
	Finland:	5 mg/m ³
	Germany TRGS 900:	4 mg/m ³ , TWA, Inhalable fraction
	India:	10 mg/m ³ , TWA
	Ireland:	2.4 mg/m ³ , TWA, Respirable dust
	Norway:	1.5 mg/m ³ , TWA, Respirable dust
	Switzerland:	4 mg/m ³ , TWA
	UK WEL:	6 mg/m ³ , TWA, Inhalable fraction 2.4 mg/m ³ , TWA, Respirable fraction
	US OSHA PEL:	6mg/m ³ (54 FR2701)

Dust, or Particulates Not Otherwise Specified:	Belgium:	10 mg/m ³ , TWA, Inhalable 3 mg/m ³ TWA, Respirable
	China:	8 mg/m ³ , TWA 10 mg/m ³ , STEL
	France:	10 mg/m ³ , TWA Inhalable dust 5 mg/m ³ , TWA Respirable dust
	Italy:	10 mg/m ³ , TWA, Inhalable 3 mg/m ³ , TWA, Respirable
	Malaysia:	10 mg/m ³ , TWA, Inhalable 3 mg/m ³ , TWA, Respirable
	Spain:	10 mg/m ³ , VLA, Inhalable 3 mg/m ³ , VLA, Respirable
	US ACGIH - PNOS:	10 mg/m ³ , TWA, Inhalable 3 mg/m ³ , TWA, Respirable
	US OSHA - PEL:	15 mg/m ³ , TWA, Total dust 5 mg/m ³ , TWA, Respirable

NOTE:

In its facilities globally, Cabot Corporation manages silica to the Germany TRGS 900 occupational exposure limit of 4 mg/m³, TWA, Inhalable fraction

MAK: Maximale Arbeitsplatzkonzentration (Maximum Workplace Concentration)

PEL: Permissible Exposure Limit

PNOS: Particulate Not Otherwise Specified

STEL: Short Term Exposure Limit

TRGS: Technische Regeln für Gefahrstoffe (Technical Rule for Hazardous Materials)

TWA: Time Weighted Average

US ACGIH: United States American Conference of Governmental Industrial Hygienists

US OSHA: United States Occupational Safety and Health Administration

VLA: Valore Limite Ambientale (Environmental Limit Value)

WEL: Workplace Exposure Limit

Engineering Controls: Ensure adequate ventilation to maintain exposures below occupational limits. Provide appropriate local exhaust ventilation at machinery and at places where dust can be generated.

Personal protective equipment [PPE]

Respiratory Protection: Approved respirator may be necessary if local exhaust ventilation is not adequate.

Hand Protection: Wear protective gloves to prevent skin drying. Use protective barrier cream before handling the product. Wash hands and other exposed skin with mild soap and water.

Eye/face Protection: Wear eye/face protection. Wear safety glasses with side shields (or goggles).

Skin and Body Protection: Wear suitable protective clothing. Wash clothing daily. Work clothing should not be allowed out of the workplace.

Other: Handle in accordance with good industrial hygiene and safety practice. Emergency eyewash and safety shower should be located nearby.

Environmental exposure controls: In accordance with all local legislation and permit requirements as applicable for dusts.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid	Odor:	None
Appearance:	Flexible blanket	Odor threshold:	No information available
Color:	White		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH:		No information available
Melting point/freezing point:	1700	Fiber core melts at about 256°C and the sheaths at various temperatures from 110°C to 150°C (copolyolefin bicomponent fiber)
Boiling point / boiling range:		Not Applicable
Evaporation Rate:		Not Applicable
Vapor pressure:		Not Applicable
Vapor Density:		Not Applicable
Density:	50 - 100 kg/m ³	No information available
Bulk Density:		Not Applicable
Specific Gravity at 20°C:		No information available
Water solubility:		No information available
Solubility(ies):		No information available
Partition Coefficient (n-octanol/water):		Not Applicable
Decomposition temperature:	125 °C	
Viscosity:		Not Applicable
Kinematic viscosity:		Not Applicable
Dynamic viscosity:		Not Applicable
Oxidizing Properties:		No oxidizing properties
Softening point:		No information available
VOC content (%):		Negligible
% Volatile (by Volume):		No information available
% Volatile (by Weight):		No information available
Surface Tension:		Not Applicable
Explosive properties:		Non-explosible
Flash Point:		Not Applicable
Flammability (solid, gas):		No information available
Flammability Limit in Air:		
Explosion Limits in Air - Upper (g/m ³):		Not Applicable
Explosion Limits in Air - Lower (g/m ³):		Not Applicable
Autoignition Temperature:		No information available
Minimum Ignition Temperature:		No information available
Minimum Ignition Energy:		No information available
Ignition Energy:		No information available

Maximum Absolute Explosion Pressure:	Not Applicable
Maximum Rate of Pressure Rise:	Not Applicable
Burn Velocity:	No information available
Kst Value:	Not Applicable
Dust Explosion Classification:	Not Applicable

End point is listed "not applicable" due to the inherent properties of the substance
"No information available" indicates testing has not been performed

10. STABILITY AND REACTIVITY

Reactivity:	Not reactive.
Stability:	Stable under recommended handling and storage conditions.
Possibility of hazardous reactions:	None under normal processing.
Hazardous polymerization:	Hazardous polymerization does not occur.
Conditions to avoid:	Polyesters can burn if exposed to flame, releasing toxic and/or flammable fumes and vapors. Fiber core melts at about 256°C and the sheaths melt at various temperatures from 110°C to 150°C (copolyolefin bicomponent fiber). Heating above 300°C leads to decomposition of Aerogel surface treatment. Decomposition vapor should be ventilated. May release formaldehyde when heated to high temperatures in the presence of air. Formaldehyde is a known skin and lung sensitizer and is regulated as a carcinogen.
Incompatible materials:	None known.
Explosion data	See also Section 9.
Sensitivity to Mechanical Impact:	None.
Sensitivity to Static Discharge:	This material will not create nor support conditions that would result in a dust explosion or fire. Take precautionary measures against static discharges. Avoid dust formation. All metal parts of the mixing and processing equipment must be earthed/grounded. Ensure all equipment is electrically earthed/grounded before beginning transfer operations.
Hazardous decomposition products:	Carbon monoxide (CO). Carbon dioxide (CO ₂). Formaldehyde. Organic products of decomposition.

11. TOXICOLOGICAL INFORMATION

Product, as formulated, has not been tested. Information given is based on data on the components and the toxicology of similar products: Synthetic Amorphous Silica, Treated Synthetic Amorphous Silica.

Acute toxicity

Oral LD50:	LD50/oral/rat = > 5000 mg/kg No deaths occurred and no signs of toxicity were seen during the observation periods after single oral administration of the substance (OECD 423)
Inhalation LC50:	Due to the product's physical characteristics, no suitable testing procedure is available

Dermal LD50:	No data are available on the product itself. Synthetic Amorphous Silica. LD50/dermal/rabbit = > 2000 mg/kg. Very slight transient erythema in one animal. No signs of systemic or organ toxicity (OECD 402).
Skin corrosion/irritation:	Primary irritation index = 0.0 @ 24 hr. Not classified as an irritant (OECD 404).
Serious eye damage/eye irritation:	Not classified as an irritant in rabbit studies (OECD 405). High dust concentrations may cause mechanical irritation.
Sensitization:	Non-sensitizing. A delayed contact hypersensitivity study in guinea pigs utilizing the Buehler technique was performed.
STOT - single exposure:	Specific target organ toxicity is not expected after single oral, single inhalation, or single dermal exposure.
Mutagenicity:	Not mutagenic in Ames test. Negative in the chromosome aberration test in Chinese hamster ovary (CHO) cells.
Carcinogenicity:	No data are available on the product itself. Synthetic Amorphous Silica. No evidence of carcinogenicity was observed in multiple animal species following repeated oral or inhalation exposure to amorphous silica. Similarly, epidemiology studies show no evidence of carcinogenicity in workers who manufacture amorphous silica.
STOT - repeated exposure:	No data are available on the product itself. Treated Synthetic Amorphous Silica: Repeated dose toxicity: oral (rat), 28-d, diet, no significant treatment-related adverse effects at the doses tested. Derived No Adverse Effects Level (NOAEL) in the range of 1000 mg/kg/d. Synthetic Amorphous Silica: Repeated dose toxicity: oral (rat), 2 weeks to 6 months, no significant treatment-related adverse effects at doses of up to 8% silica in the diet. Repeated dose toxicity: inhalation (rat), 13 weeks, Lowest Observed Effect Level (LOEL) = 1.3 mg/m ³ based on mild reversible effects in the lungs. Repeated dose toxicity: inhalation (rat), 90 days, LOEL = 1 mg/m ³ based on reversible effects in the lungs and effects in the nasal cavity. Based on available data, a STOT-RE classification is not warranted.
Aspiration Hazard:	Based on industrial experience and available data, no aspiration hazard is expected.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity: No data are available on the product itself
Aquatic toxicity is unlikely due to low solubility

Synthetic Amorphous Silica
Fish (Brachydanio rerio) LC50 (96 h): > 10,000 mg/l; (Method: OECD 203)
No acute toxicity to Daphnia with EL and EL₅₀ ranging from >1000 to 10,000 mg/L (OECD 202)

ENVIRONMENTAL FATE

Persistence and degradability The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulation Not expected due to physicochemical properties of the substance.

Mobility: Not expected to migrate.

Other adverse effects: No information available.

13. DISPOSAL CONSIDERATIONS

Disclaimer: Information in this section pertains to the product as shipped in its intended composition as described in Section 3 of this MSDS. Contamination or processing may change waste characteristics and requirements. Regulations may also apply to empty containers, liners or rinsate. State/provincial and local regulations may be different from federal regulations. The person generating waste must determine its proper classification

Unused and Uncontaminated Product: Product, as supplied, should be disposed of in accordance with the regulations issued by the appropriate federal, state and local authorities. Same consideration should be given to containers and packaging.

14. TRANSPORT INFORMATION

DOT

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

ICAO (air)

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

IATA

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

IMDG

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

RID

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

ADR

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

15. REGULATORY INFORMATION

National Regulations

Industrial Safety and Health Law	Not Applicable
Toxic Chemicals Control Law	Not Applicable
Dangerous Material Safety Control	Not Applicable

International Inventories

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory	Complies
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List	Complies
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances	Complies
ENCS - Japan Existing and New Chemical Substances	Complies
IECSC - China Inventory of Existing Chemical Substances	Complies
KECL - Korean Existing and Evaluated Chemical Substances	Complies
PICCS - Philippines Inventory of Chemicals and Chemical Substances	Complies
AICS - Australian Inventory of Chemical Substances	Complies
NZIoC - New Zealand Inventory of Chemicals	Complies
TCSI - Taiwan Chemical Substance Inventory	Complies

16. OTHER INFORMATION

Pharmaceutical Use:
Not permitted

Food Additive Use:
Not permitted

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End of Safety Data Sheet