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FUJI SILYSIA CHEMICAL LTD.
2-1846 KOZOJI-CHO, KASUGAI, AICHI, 487-0013 JAPAN

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SAFETY DATA SHEET

NO. SG-008-210-E

First edition：December 4, 2015

1. The Chemical Substance and Company Information

Names of chemical substance

Product name	ARTSORB
Grade	Sheet Type
Company's name	Fuji Silysia Chemical Ltd.
Address	2-1846 Kozoji-cho, Kasugai, Aichi, 487-0013 Japan
Telephone No.	+81-568-51-2511
Contact Department	Quality Assurance Department
Contact	Minoru Terajima
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Recommended use and restriction of use

Recommended use　Humidity regulating agents for artwork and cultural artifacts

Restriction of use

2. Hazards identification

GHS classification

Physicochemical hazards

	Flammable solids	out of classification
	Pyrophoric solids	out of classification
	Self-heating substances and mixtures	out of classification
	Substances and mixtures which, in contact with water, emitflammable gasses	out of classification
Health hazards	Acute toxicity -oral	out of
	Skin corrosive / irritation	out of
	Germ cell mutagenicity	cannot be
	Toxic to reproduction	category 2

Environmental hazards　The items without description are out of classification or cannot be classified.

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Label elements

Pictogram or symbol

Signal Word	Warning
Hazard statement	May have possibility of being harmful for reproduction and an unborn child.
Precautionary statement	【Precaution】 Get handling manual before use. Do not handle until all safety precaution have been read and understood. Use personal protection and ventilation to avoid exposure 【Correspondence】 If exposed or concerned: Get medical attention/advice if you feel unwell 【Storage】 Store locked up. 【Disposal】 Dispose of contents / container has to be carried out in accordance with local / regional/national/international regulation.

Country / area information

3. Composition / Information on Ingredients

Chemical substance or mixture		Mixture	
Chemical name or generic name		Amorphous silicon dioxide	Lithium chloride
Alias		Silica gel, Non-crystalline silica	
Chemical formula		$SiO_2 \cdot nH_2O$	LiCl
CAS registered No.		7631-86-9	7447-41-8
Official gazette No.	Chemical	(1)-548	(1)-231
	Labour	Existing	Existing
A purity or a range		93%	7%

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4. First Aid Measure

IF INHALED	Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
IF ON SKIN	Immediately wash skin with plenty of soap and water. Get medical advice/attention if you feel unwell.
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 with clean water well. Get medical advice/attention if you feel unwell.

5.Fire Fighting Measure

Extinguish media	This material is not combustible. Use extinguish agents appropriate for surrounding fire.
Special hazards	
Special fire extinguishing method	
Protection of a person to extinguish a fire	Wear respiratory protection or chemical protective clothing due to surrounding fires.

6. Accidental Release Measure

Instructions for the human body, Protective equipment and emergency step	Large spill : Isolate hazard area and deny entry to unnecessary personnel. Wear an appropriate protection and to avoid contact to eyes and skin or inhalation. (ref. " 8. Exposure Control/ Personal Protection ")
Instructions for the environment	Do not discharge it to environment.
Collection, neutralization	Vacuum spillage and into an empty container and dispose them later as an industrial waste.
Preventive measures against second disaster	Residue on the floor may cause slip, clean up diligently.

7. Handling and Storage

Handling

Technical measures	Do the equipment measures in the " 8.Exposure Control/ Personal Protection ", and wear the protection.

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Local / general ventilation	Do the local and general ventilation in the " 8.Exposure Control/Personal Protection ".
Safe handling instructions	Take precautionary measures against static discharge. Do not contact ,inhale or swallow. Perform ventilation for exhaust to keep the atmospheric concentration lower than exposure limit. Wash hands thoroughly after handling. Do not eat, drink and smoke when using this product.
Contact evasion	Refer to the " 10. Stability and reactivity ".

Storage

Technical Measures	Install lighting and ventilation to store and handle.
Composite hazard substance	Hydrogen fluoride Refer to the "10. Stability and reactivity ".
Storage condition	Store in a cool / well-ventilated place to protect from sunlight and rainwater.
Container and packaging materials	Store it in tightly closed container which is not breakable.

8. Exposure Control/ Personal Protection

Permissible concentration: No setting
(an exposure limit value/ a biological exposure index)

Japan Society of Occupational Health (2015)
The 3rd dust(Lime or other inorganic or organic)

Total dust	8 mg/m3
Inhalation-related dust	2 mg/m3

ACGIH(2013)		Particles(insoluble or poorly soluble)
	TLV-TWA	Respirable particles：3mg/m3 Inhalable particles： 10mg/m3 (Silica, amouphous withdrawn in2006)

Equipment measure	Install washing eyes device in a workplace to store this material or handle it. Install a ventilating device to keep an air pollutant less than permissible concentration when dust occurs by a process.

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Protective equipment

Protection for respiratory	Wear appropriate respiratory protection.
Protection for hands	Wear appropriate protective gloves if necessary.
Protection for eyes	Use personal eye protection .
Protection for skin and body	Use the appropriate protection suit/mask if necessary.
Hygienemeasure	Wash hands thoroughly after handling.

9. Physical and Chemical Properties

Physical State/Shape/Color	Solid, Bead, White
Odor :	Odorless
pH :	3 ～ 8 (5% slurry)
Boiling Point :	2230 ℃ (Silicon dioxide)
Flash point	Non-flammable
Vapor pressure	10mmHg (1732 ℃)
Pyrophoric temperature	Non-flammable
Explosion range	None
Specific gravity	True specific gravity 2.2.

10. Stability and Reactivity

Stability	Stable under ordinary conditions of use(ambient temperature).
Hazard reaction possibility	Silicon dioxide reacts with hydrogen fluoride. Dissolved in strong base.
Condition to avoid	Contact to composite hazard substance.
Composite hazard substance	Hydrogen fluoride, strong base
Hazard resolution substance	No information

11. Toxicological Information

Acute Toxicity

Oral	Silicon dioxide: Rat LD50 ＞5000, 15000, 20000 mg/kg IUCLID(2000) Mice LD50>5g/kg FAO/WHO Toxicological Evaluation of Food Additives Lithium chloride: Rat LD50 526-860mg/kg IUCLID(2000)
Dermal	Silicon dioxide : Rabbit LD50＞5000mg/kg IUCLID(2000) Lithium chloride: No data
Inhalation	Silicon dioxide: Rat LC50 0.139mg/l/4h IUCLID(2000)

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Skin corrosion / irritation	Silicon dioxide: Rabbit not irritating IUCLID(2000) Lithium chloride: Rabbit unrecoverable scabbing and irritating at 14 days test IUCLID(2000)
Serious eye damage / irritation	Silicon dioxide: Rabbit, not irritating SIDS Human slightly irritating IUCLID(2000) Lithium chloride: Rabbit moderately irritating. The irritating is most strong after applied 1hour and recovered in washing group after 7 days and in unwashing group after 16 days. IUCLID(2000)
Respiratory / skin sensitizer	Silicon dioxide: Over 10 years exposure, worker did not have any skin Sensitization SIDS
Germ cell mutagenicity	Silicon dioxide: Negative in rat lung germinal cells after long-term inhalation exposure(OECD SIDS). : Negative in vivo micronucleus test using bone marrow of mice (JJFC2003) Lithium chloride: Clastogenicity is not clearly indicated, because chromosomal aberration / micronucleus test is positive and chromosomal aberration test is negative. IUCLID(2000)
Carcinogenicity	Silicon dioxide: Amorphous silicon dioxide is IARC・group 3 (cannot classified for human). Both substances are not classified in the list of 1st or 2nd substances by Japan Society of Occupational Health.
Toxic to reproduction toxicity	Silicon dioxide: Rat, mice, hamster and rabbit No toxic influence to growth of embryos, fetuses through oral exposure (OECD SIDIS). Lithium chloride: No deformity for female rat in administration with drinking water test before mating during pregnancy period, but the corpus luteum decreases than reference group. In low-dose test which does not have bad influence on death and growth of mother; indicates death rate of child and whole litter increased. IUCLID(2000)

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Specific target organ systemic toxicity (single exposure)	Silicon dioxide: No data Lithium chloride: In acute oral administration test of mice, LD50 is 1165 mg/kg and the toxic symptom are spasmodic gait and stupor, muscle weakness and spasm with death. IUCLID(2000)
Specific target organ systemic toxicity (repeated exposure)	Silicon dioxide: No influence to lung tissue after recoverable inflammation observed in toxic test of repeated exposure for inhalation particles. In long term oral dosage, no pathological and histological observations reported. (OECD SIDIS) Lithium chloride: In 2 years repeated administration with drinking water test of rat, it was observed somnolence, lethargy, muscle tremor, debility with 106 mg/kg/day. In 57 weeks repeated oral administration test of dog (20, 50,100 mg/kg), it was histologically observed kidney lesion including distal convoluted tubule and collecting duct system lesion. IUCLID(2000)
Toxicity of respiratory by inhalation	No data

12. Environmental influence information

Hazardous to the aquatic environment-acute hazard	Silicon dioxide: No data Lithium chloride: Ptychocheilus lucius LC50 = 17 mg/L (96 hours) No data
Hazardous to the aquatic environment- chronic hazard	No data
Persistence/Decomposition	Silicon dioxide exists universally in the soil as inorganic ingredient. The silicon dioxide discharged into environment to be merged into the earth, soil and cannot be distinguished its behavior. Lithium chloride: No data

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Bioaccumulation	Silicon dioxide universally exists in water as silicic acid, and accumulated as useful ingredient for certain creatures such as Diatomaceae, Radiolana and Porifera for their skeletons, Poaceae for improving its durability. Lithium chloride: No data
Migration in the soil	The silicon dioxide discharged into environment to be merged into the earth, soil and cannot be distinguished its behavior. Lithium chloride: No data
Hazardous to the Ozone Layer	Not contains any substances listed by Montreal Protocol

13. Disposal Considerations

Leftover waste	The disposal of the leftover waste has to be carried out in accordance with the legal requirements.
A pollution container and packing	Clean a container and recycle it, or the appropriately disposal must be made according to official regulations. When an empty container is disposed, remove contents completely.

14. Transportation Information

International regulation

UN number :	Not applicable
UN name for transportation :	Not applicable
UN Classification :	Not applicable
Marine regulatory information	Non- hazardous chemical
Air regulatory information	Non-hazardous chemical
Land regulatory information	Non-hazardous chemical

Special safety measures	On the occasion of the transportation, load it to avoid direct rays of the sun, the damage of a container, corrosion and leaking, and be surely prevention of collapse of cargo. Do not pile the heavy goods up on the top.

15. Regulatory Information

Labour Law for Safety &Health of Japan

Classified as silica (Item No.312) to be informed its name as hazard material under the Law 57th article 2.

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Pollutant Release and Transfer Register Law	Not applicable
Poisonous and Deleterious Substances Control Law	Not applicable

16. Other Information

Export Control Act of Japan	Appendix 1 Item 16 Part 6 Group 28 Inorganic Chemical Products Applicable for "Catch-All" restriction

References

Chemical Handbook Basic
IUCLID Dataset (2000)
FAO/WHO Toxicological Evaluation of Certain Food Additives With a Review of General Principles and Specifications
OECD SIDS Profile for Initial Assessment Report
JJFC Vol.10(3) 2003
IARC "Agents Classified by the IARC Monographs" (October 2013)
Recommendation by Japan Society of Occupational Health(2015)
JIS Z 7252 :2014 JIS Z 7253 :2012
2013 TLVs and BELs(ACGIH)
NITE CHRIP Data Base
GHS Classification Guidance of Enterprises
by Ministry of Economy, Trade and Industry of Japan (Rev.ver1.1,2013)

A disaster example

No information available

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