SAFETY DATA SHEET
XIAMETER(R) EA-4100 ADHESIVE

Version	Revision Date:	SDS Number:	Date of last issue: 2016/09/21
3.1	2016/11/10	1955624-00007	Date of first issue: 2015/04/08

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : XIAMETER(R) EA-4100 ADHESIVE

Product code : 000000000004133296

Recommended use of the chemical and restrictions on use

Recommended use : Adhesive, binding agents

Manufacturer or supplier's details

Company : Dow Corning Korea Ltd.

Address : 24 Gwanghyewon Sandan-Gil, Gwanghyewon-Myeon, Jincheon-Gun, Chungcheongbuk-Do, Korea

Telephone : 043-539-1114

Emergency telephone number : 043-539-1129

2. HAZARDS IDENTIFICATION

GHS Classification

This material is not classified as hazardous under the Article 39 Paragraph 1 of the Industrial Safety and Health Act (ISHA). It is not regulated for the MSDS creation and labeling by the provision of Article 41 Paragraph 1 of the ISHA.

GHS label elements

This material is not classified as hazardous under the Article 39 Paragraph 1 of the Industrial Safety and Health Act (ISHA). It is not regulated for the MSDS creation and labeling by the provision of Article 41 Paragraph 1 of the ISHA.

Precautionary statements :

Prevention:

P264 Wash the contact area thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.

Disposal:

P501 Dispose of contents and container according to wastes control act.

Other hazards which do not result in classification

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Chemical nature : Silicone

Components

Chemical name	Common	CAS-No.	Concentration (%

	Name		w/w)
Calcium carbonate	Carbonic acid calcium salt (1:1)	471-34-1	>= 20 - < 30
Aluminum hydroxide	Aluminum oxide trihydrate	21645-51-2	>= 20 - < 30
Hydrozincite	No data available	12122-17-7	>= 1 - < 10
Diisopropoxy di(ethoxyacetoacetyl) titanate	Titanium, bis[ethyl 3-(oxo-.kappa.O)butanoato-.kappa.O']bis(2-propanolato)-	27858-32-8	>= 1 - < 10
Methyltrimethoxysilane	Silane, trimethoxymethyl-	1185-55-3	>= 0.1 - < 1
Titanium dioxide	Titanium(IV) oxide	13463-67-7	>= 0.1 - < 1
Dimethyl siloxane, trimethoxysilyl-terminated	No data available	Not Assigned	>= 30 - < 40
Dimethyl siloxane, trimethoxysiloxy-terminated	Siloxanes and Silicones, di-Me, [(trimethoxysilyl)oxy]-terminated	142982-20-5	>= 10 - < 20
Dimethyl Siloxane, Dimethylvinylsiloxy-terminated	Polydimethylsiloxane, vinyl end blocked	68083-19-2	>= 1 - < 10
Methylvinyl siloxane, hydroxy-terminated	Siloxanes and Silicones, Me vinyl, hydroxy-terminated	68083-20-5	>= 1 - < 10

4. FIRST AID MEASURES

In case of eye contact : Flush eyes with water as a precaution.
Get medical attention if irritation develops and persists.

In case of skin contact : Wash with water and soap as a precaution.
Get medical attention if symptoms occur.

If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention if symptoms occur.
Rinse mouth thoroughly with water.

Most important symptoms and effects, both acute and delayed	:	None known.
Protection of first-aiders	:	No special precautions are necessary for first aid responders.
Notes to physician	:	Treat symptomatically and supportively.

5. FIREFIGHTING MEASURES

Suitable and unsuitable extinguishing media

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	None known.
Specific hazards during fire-fighting	:	Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	Carbon oxides Silicon oxides Formaldehyde Metal oxides
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Follow safe handling advice and personal protective equipment recommendations.
Environmental precautions	:	Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.

Clean up remaining materials from spill with suitable absorbent.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

7. HANDLING AND STORAGE

Technical measures	:	See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
Local/Total ventilation	:	Use only with adequate ventilation.
Advice on safe handling	:	Avoid prolonged or repeated contact with skin. Handle in accordance with good industrial hygiene and safety practice. Keep away from water. Protect from moisture. Take care to prevent spills, waste and minimize release to the environment.
Conditions for safe storage	:	Keep in properly labelled containers. Store in accordance with the particular national regulations.
Materials to avoid	:	Do not store with the following product types: Strong oxidizing agents

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Calcium carbonate	471-34-1	TWA	10 mg/m3 (Calcium carbonate)	KR OEL
Aluminum hydroxide	21645-51-2	TWA (Respirable fraction)	1 mg/m3 (Aluminium)	ACGIH
Methyltrimethoxysilane	1185-55-3	TWA	7.5 ppm	DCC OEL
Titanium dioxide	13463-67-7	TWA	10 mg/m3	KR OEL
	Further information: Limited evidence of carcinogenicity in humans or animals, which is not sufficiently convincing to place the substance in Category 1			
		TWA	10 mg/m3 (Titanium dioxide)	ACGIH

These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.

Calcium carbonate

Titanium dioxide

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Methanol	67-56-1	STEL	250 ppm	KR OEL
	Further information: Substances designated by 'Skin' may be absorbed into the bloodstream through the skin, mucous membrane and eye and contribute to the overall effect. (Skin notation does not apply to the skin irritant)			
		TWA	200 ppm	KR OEL
	Further information: Substances designated by 'Skin' may be absorbed into the bloodstream through the skin, mucous membrane and eye and contribute to the overall effect. (Skin notation does not apply to the skin irritant)			
		TWA	200 ppm	ACGIH
		STEL	250 ppm	ACGIH
Propan-2-ol	67-63-0	TWA	200 ppm	KR OEL
		STEL	400 ppm	KR OEL
		TWA	200 ppm	ACGIH
		STEL	400 ppm	ACGIH

Engineering measures : Processing may form hazardous compounds (see section 10).
Ensure adequate ventilation, especially in confined areas.
Minimize workplace exposure concentrations.

Personal protective equipment

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Filter type : Self-contained breathing apparatus

Eye protection : Wear the following personal protective equipment:
Safety glasses

Hand protection

Remarks : For prolonged or repeated contact use protective gloves.
Wash hands before breaks and at the end of workday.

Skin and body protection : Skin should be washed after contact.

Hygiene measures : Ensure that eye flushing systems and safety showers are located close to the working place.
When using do not eat, drink or smoke.
Wash contaminated clothing before re-use.
These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	paste
Colour	:	white
Odour	:	slight
Odour Threshold	:	No data available
pH	:	Not applicable
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	Not applicable
Flash point	:	82 °C Method: Seta closed cup
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Not classified as a flammability hazard
Self-ignition	:	The substance or mixture is not classified as pyrophoric. The substance or mixture is not classified as self heating.

Upper/Lower explosion limit

Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapour pressure	:	Not applicable
Solubility(ies) Water solubility	:	No data available
Relative vapour density	:	No data available
Relative density	:	1.4
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity Viscosity, dynamic	:	Not applicable
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

Molecular weight	:	No data available

10. STABILITY AND REACTIVITY

Chemical stability and possibility of hazardous reactions	:	Not classified as a reactivity hazard. Stable under normal conditions. Use at elevated temperatures may form highly hazardous compounds. Can react with strong oxidizing agents. Methyl alcohol is formed upon contact with water or humid air. Hazardous decomposition products will be formed upon contact with water or humid air. Hazardous decomposition products will be formed at elevated temperatures.
Conditions to avoid	:	Exposure to moisture
Incompatible materials	:	Oxidizing agents Water

Hazardous decomposition products

Thermal decomposition	:	Formaldehyde
Contact with water or humid air	:	Methanol Propan-2-ol

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	:	Skin contact Ingestion Eye contact

Health hazard information

Acute toxicity

Not classified based on available information.

Components:

Calcium carbonate:

Acute oral toxicity	:	LD50 (Rat): > 2,000 mg/kg Method: OECD Test Guideline 420 Assessment: The substance or mixture has no acute oral toxicity
Acute inhalation toxicity	:	LC50 (Rat): > 3 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	:	LD50 (Rabbit): > 2,000 mg/kg Method: OECD Test Guideline 402

Assessment: The substance or mixture has no acute dermal toxicity

Aluminum hydroxide:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 2.3 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Hydrozincite:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 5,410 mg/m3
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Based on data from similar materials

Diisopropoxy di(ethoxyacetoacetyl) titanate:

Acute oral toxicity : LD50 (Rat): 23,020 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 173 mg/l
Exposure time: 6 h
Test atmosphere: vapour
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): 12,870 mg/kg
Remarks: Based on data from similar materials

Methyltrimethoxysilane:

Acute oral toxicity : LD50 (Rat): 12.3 ml/kg
Assessment: The substance or mixture has no acute oral toxicity
Remarks: Information taken from reference works and the literature.

Acute inhalation toxicity : LC50 (Rat): > 42.1 mg/l
Exposure time: 6 h
Test atmosphere: vapour
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: On basis of test data.

Acute dermal toxicity : LD50 (Rabbit): > 9,500 mg/kg
Assessment: The substance or mixture has no acute dermal

toxicity
Remarks: On basis of test data.

Titanium dioxide:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 6.82 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Skin corrosion/irritation

Not classified based on available information.

Components:

Calcium carbonate:

Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Aluminum hydroxide:

Species: Rabbit
Result: No skin irritation

Hydrozincite:

Species: Rabbit
Result: No skin irritation
Remarks: Based on data from similar materials

Diisopropoxy di(ethoxyacetoacetyl) titanate:

Species: Rabbit
Result: No skin irritation

Methyltrimethoxysilane:

Species: Rabbit
Result: No skin irritation
Remarks: On basis of test data.

Titanium dioxide:

Species: Rabbit
Result: No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Components:

Calcium carbonate:

Species: Rabbit

Result: No eye irritation
Method: OECD Test Guideline 405

Aluminum hydroxide:

Species: Rabbit
Result: No eye irritation

Hydrozincite:

Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405
Remarks: Based on data from similar materials

Diisopropoxy di(ethoxyacetoacetyl) titanate:

Species: Rabbit
Result: Irritation to eyes, reversing within 21 days

Methyltrimethoxysilane:

Species: Rabbit
Result: No eye irritation
Remarks: On basis of test data.

Titanium dioxide:

Species: Rabbit
Result: No eye irritation

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:

Calcium carbonate:

Test Type: Local lymph node assay (LLNA)
Exposure routes: Skin contact
Species: Mouse
Method: OECD Test Guideline 429
Result: negative

Aluminum hydroxide:

Test Type: Maximisation Test
Exposure routes: Skin contact
Species: Guinea pig
Result: negative

Hydrozincite:

Test Type: Maximisation Test

Exposure routes: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative
Remarks: Based on data from similar materials

Diisopropoxy di(ethoxyacetoacetyl) titanate:

Exposure routes: Skin contact
Species: Guinea pig
Result: negative

Methyltrimethoxysilane:

Assessment: Probability or evidence of low to moderate skin sensitisation rate in humans

Test Type: Buehler Test
Species: Guinea pig
Result: positive
Remarks: On basis of test data.

Titanium dioxide:

Test Type: Local lymph node assay (LLNA)
Exposure routes: Skin contact
Species: Mouse
Result: negative

Carcinogenicity

Not classified based on available information.

Components:

Titanium dioxide:

Species: Rat
Application Route: inhalation (dust/mist/fume)
Exposure time: 24 Months
Method: OECD Test Guideline 453
Result: positive
Remarks: The mechanism or mode of action may not be relevant in humans.
These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.

Carcinogenicity - Assessment	:	Limited evidence of carcinogenicity in inhalation studies with animals.

Germ cell mutagenicity

Not classified based on available information.

Components:

Calcium carbonate:

Genotoxicity in vitro	:	Test Type: In vitro mammalian cell gene mutation test Result: negative

Aluminum hydroxide:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 474
Result: negative

Hydrozincite:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative
Remarks: Based on data from similar materials

Diisopropoxy di(ethoxyacetoacetyl) titanate:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Methyltrimethoxysilane:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative
Remarks: On basis of test data.

: Test Type: Mutagenicity (in vitro mammalian cytogenetic test)
Result: positive
Remarks: On basis of test data.

: Test Type: Chromosome aberration test in vitro
Result: positive
Remarks: On basis of test data.

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Ingestion
Result: negative
Remarks: On basis of test data.

Germ cell mutagenicity- Assessment : Animal testing did not show any mutagenic effects.

Titanium dioxide:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse
Result: negative

Reproductive toxicity

Not classified based on available information.

Components:

Calcium carbonate:

Effects on fertility	:	Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test Species: Rat Application Route: Ingestion Method: OECD Test Guideline 422 Result: negative
Effects on foetal development	:	Test Type: Reproduction/Developmental toxicity screening test Species: Rat Application Route: Ingestion Method: OECD Test Guideline 422 Result: negative

Aluminum hydroxide:

Effects on fertility	:	Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test Species: Rat Application Route: Ingestion Method: OECD Test Guideline 422 Result: negative
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rat Application Route: Ingestion Result: negative

Hydrozincite:

Effects on fertility	:	Test Type: Two-generation reproduction toxicity study Species: Rat Application Route: Ingestion Result: negative Remarks: Based on data from similar materials

Diisopropoxy di(ethoxyacetoacetyl) titanate:

Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rabbit Application Route: Ingestion Result: negative Remarks: Based on data from similar materials

Methyltrimethoxysilane:

Effects on fertility	:	Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test Species: Rat, male and female Application Route: Ingestion Symptoms: No effects on fertility

Remarks: On basis of test data.

Effects on foetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat, male and female
Application Route: Ingestion
Symptoms: No effects on foetal development
Remarks: On basis of test data.

Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

STOT - single exposure

Not classified based on available information.

Components:

Diisopropoxy di(ethoxyacetoacetyl) titanate:

Assessment: May cause drowsiness or dizziness.

STOT - repeated exposure

Not classified based on available information.

Components:

Methyltrimethoxysilane:

Exposure routes: inhalation (vapour)
Assessment: No significant health effects observed in animals at concentrations of 1 mg/l/6h/d or less.

Exposure routes: Ingestion
Assessment: No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

Repeated dose toxicity

Components:

Calcium carbonate:

Species: Rat
NOAEL: 1,000 mg/kg
Application Route: Ingestion
Exposure time: 6 Weeks
Method: OECD Test Guideline 422

Aluminum hydroxide:

Species: Rat
NOAEL: 302 mg/kg
Application Route: Ingestion
Exposure time: 28 Days

Hydrozincite:

Species: Mouse
NOAEL: 458 mg/kg

Application Route: Ingestion
Exposure time: 13 Weeks
Method: OECD Test Guideline 408
Remarks: Based on data from similar materials

Diisopropoxy di(ethoxyacetoacetyl) titanate:

Species: Rat
NOAEL: 86.7 mg/l
Application Route: inhalation (vapour)
Exposure time: 13 Weeks
Remarks: Based on data from similar materials

Methyltrimethoxysilane:

Species: Rat
Application Route: inhalation (vapour)
Remarks: On basis of test data.

Species: Rat
Application Route: Ingestion
Remarks: On basis of test data.

Titanium dioxide:

Species: Rat
NOAEL: 24,000 mg/kg
Application Route: Ingestion
Exposure time: 28 Days

Species: Rat
NOAEL: 10 mg/m3
Application Route: inhalation (dust/mist/fume)
Exposure time: 2 yr
Remarks: These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.

Aspiration toxicity

Not classified based on available information.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Ecotoxicology Assessment

Acute aquatic toxicity	:	This product has no known ecotoxicological effects.
Chronic aquatic toxicity	:	This product has no known ecotoxicological effects.

Components:

Calcium carbonate:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae	:	ErC50 (Desmodesmus subspicatus (green algae)): > 14 mg/l Exposure time: 72 h Method: OECD Test Guideline 201

Aluminum hydroxide:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): > 218.64 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae	:	EC50 (Selenastrum capricornutum (green algae)): > 100 mg/l Exposure time: 72 h

Hydrozincite:

Toxicity to fish	:	LC50 (Oncorhynchus kisutch (coho salmon)): 727 - 1,810 mg/l Exposure time: 96 h Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 6.9 - 16.2 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: Based on data from similar materials
Toxicity to algae	:	EC50 (Selenastrum capricornutum (green algae)): 136 µg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials NOEC (Selenastrum capricornutum (green algae)): 24 µg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
M-Factor (Acute aquatic toxicity)	:	1
Toxicity to fish (Chronic toxicity)	:	NOEC (Oncorhynchus mykiss (rainbow trout)): 199 µg/l Exposure time: 30 d Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chron-	:	NOEC (Daphnia magna (Water flea)): 37 µg/l Exposure time: 21 d

ic toxicity) Method: OECD Test Guideline 211
Remarks: Based on data from similar materials

M-Factor (Chronic aquatic toxicity) : 1

Diisopropoxy di(ethoxyacetoacetyl) titanate:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 11,130 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): > 500 mg/l
Exposure time: 72 h
Remarks: Based on data from similar materials

Methyltrimethoxysilane:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 110 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia sp. (water flea)): > 122 mg/l
Exposure time: 48 h

Toxicity to algae : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 120 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50: > 100 mg/l
Method: OECD Test Guideline 209

Titanium dioxide:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h

Toxicity to algae : EC50 (Skeletonema costatum (marine diatom)): > 10,000 mg/l
Exposure time: 72 h

Toxicity to microorganisms : EC50: > 1,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Persistence and degradability

Components:

Diisopropoxy di(ethoxyacetoacetyl) titanate:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 66 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Remarks: Based on data from similar materials

Bioaccumulative potential

Components:

Diisopropoxy di(ethoxyacetoacetyl) titanate:

Partition coefficient: n-octanol/water : log Pow: 0.05

Methyltrimethoxysilane:

Partition coefficient: n-octanol/water : log Pow: -2.36

Mobility in soil

No data available

Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of contents and container according to wastes control act.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
If not otherwise specified: Dispose of as unused product.

Disposal precautions

Dispose of contents and container according to wastes control act.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG
Not regulated as a dangerous good

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

UN number	:	Not applicable
Proper shipping name	:	Not applicable
Class	:	Not applicable
Subsidiary risk	:	Not applicable
Packing group	:	Not applicable
Labels	:	Not applicable
EmS Code	:	Not applicable
Marine pollutant	:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

Refer to section 15 for specific national regulation.

Special precautions for user

Not applicable

15. REGULATORY INFORMATION

National regulatory information

Regulation under the Occupational Safety and Health Act

Harmful Substances Prohibited from Manufacturing

Not applicable

Harmful Substances Required Permission for Manufacture

Not applicable

Harmful Agents to be kept below Occupational Exposure Limits

Chemical name	CAS-No.
Calcium carbonate	471-34-1
Titanium dioxide	13463-67-7

Harmful Agents Required to be kept below Permission Levels

Not applicable

Hazardous substances requiring management

Chemical name	CAS-No.	Threshold limits (%)
Aluminum and compounds	21645-51-2	>= 1 %
Zinc and compounds	12122-17-7	>= 1 %

Controlled Substances Subject to Environment Monitoring

Not applicable

Controlled Substances Subject to Health Examination

Chemical name	CAS-No.	Threshold limits (%)
Aluminum and compounds	21645-51-2	>= 1 %

Act on the Registration and Evaluation, etc. of Chemical Substances, Chemicals Control Act

Toxic Chemicals

Not applicable

Restricted Chemicals

Not applicable

Prohibited Chemicals

Not applicable

Toxic Release Inventory

Chemical name	CAS-No.	Group	Threshold limits (%)
Aluminium and its compounds	21645-51-2	Group II	>= 1 %
Zinc and its compounds	12122-17-7	Group II	>= 1 %

Accident Precaution Chemicals

Not applicable

Dangerous Substances Safety Management Act

Not Applicable to Dangerous Materials

Wastes Control Act

Industrial waste
Follow article 13 of the act to dispose the product waste

Other requirements in domestic and other countries

The components of this product are reported in the following inventories:

IECSC	:	All ingredients listed or exempt.
KECI	:	All ingredients listed, exempt or notified.
REACH	:	For purchases from Dow Corning EU legal entities, all ingredients are currently pre/registered or exempt under REACH. Please refer to section 1 for recommended uses. For purchases from non-EU Dow Corning legal entities with the intention to export into EEA please contact your DC representative/local office.
TCSI	:	All ingredients listed or exempt.

16. OTHER INFORMATION

Further information

Sources of key data used to compile the Safety Data Sheet	:	Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/
Issuing date	:	2015/04/08

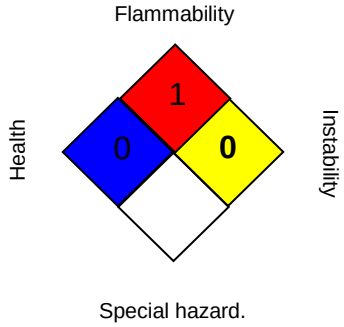
Revision number and date

Number of Revision	:	3.1
Revision Date	:	2016/11/10
Other information	:	none

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Date format	:	yyyy/mm/dd

NFPA:



Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
DCC OEL	:	Dow Corning Guide
KR OEL	:	Harmful Agents to be kept below Occupational Exposure Limits
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
DCC OEL / TWA	:	Time weighted average
KR OEL / TWA	:	Time Weighted Average
KR OEL / STEL	:	Short Term Exposure Limit

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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