

KRM

Version 1.0 Revision Date: 10/07/2015 SDS Number: 298485-00001 Date of last issue: -
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SECTION 1. IDENTIFICATION

Product name : KRM

Manufacturer or supplier's details

Company name of supplier : Shikoku Chemicals Corporation

Address : 8-537-1, Doki-cho Higashi
Marugame-shi, Kagawa 763-8504

Telephone : +81-877-22-4111

Emergency telephone : CHEMTREC (24h) : +1-800-424-9300 (available from US and
Canada)
or +1-703-527-3887

E-mail address : shikokumsds@shikoku.co.jp

Recommended use of the chemical and restrictions on use

Recommended use : Coatings

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

Combustible dust

Eye irritation : Category 2A

Skin sensitization : Category 1

Carcinogenicity (Inhalation) : Category 1A

Specific target organ
systemic toxicity - repeated
exposure (Inhalation) : Category 1 (Lungs)

GHS label elements

Hazard pictograms :



Signal Word : Danger

Hazard Statements : May form combustible dust concentrations in air.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H350i May cause cancer by inhalation.
H372 Causes damage to organs (Lungs) through prolonged or
repeated exposure if inhaled.

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Precautionary Statements : **Prevention:**
 P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
 P264 Wash skin thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P272 Contaminated work clothing must not be allowed out of the workplace.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
 P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
 P337 + P313 If eye irritation persists: Get medical advice/ attention.
 P363 Wash contaminated clothing before reuse.
Storage:
 P405 Store locked up.
Disposal:
 P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

Contact with dust can cause mechanical irritation or drying of the skin.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous ingredients

Chemical name	CAS-No.	Concentration (% w/w)
Calcium carbonate	471-34-1	>= 30 - < 50
Quartz	14808-60-7	>= 10 - < 20
Aluminium silicate	12141-46-7	>= 10 - < 20
Silica gel, precipitated, crystalline free	112926-00-8	>= 5 - < 10
Kieselguhr, soda ash flux-calcined	68855-54-9	>= 1 - < 5
Aluminium sulphate	10043-01-3	>= 1 - < 5
Adipohydrazide	1071-93-8	>= 0.1 - < 1
Titanium dioxide	13463-67-7	>= 0.1 - < 1

SECTION 4. FIRST AID MEASURES

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.

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When symptoms persist or in all cases of doubt seek medical advice.

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

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

In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
If easy to do, remove contact lens, if worn.
Get medical attention.

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 : May cause an allergic skin reaction.
Causes serious eye irritation.
May cause cancer by inhalation.
Causes damage to organs through prolonged or repeated exposure if inhaled.
Contact with dust can cause mechanical irritation or drying of the skin.

Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists.

Notes to physician : Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical

Unsuitable extinguishing media : High volume water jet

Specific hazards during fire fighting : Do not use a solid water stream as it may scatter and spread fire.
Exposure to combustion products may be a hazard to health.

Hazardous combustion products : Silicon oxides
Carbon oxides
Metal oxides
Sulfur oxides

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.

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Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.

Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
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 : Sweep up or vacuum up spillage and collect in suitable container for disposal.
Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).
Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration.
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.
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SECTION 7. HANDLING AND STORAGE

- Technical measures : Static electricity may accumulate and ignite suspended dust causing an explosion.
Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.
- Local/Total ventilation : Use with local exhaust ventilation.
- Advice on safe handling : Do not get on skin or clothing.
Do not breathe dust.
Do not swallow.
Do not get in eyes.
Handle in accordance with good industrial hygiene and safety practice.
Keep container tightly closed.
Minimize dust generation and accumulation.
Keep container closed when not in use.
Keep away from heat and sources of ignition.
Take care to prevent spills, waste and minimize release to the

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environment.

Conditions for safe storage : Keep in properly labeled containers.
Store locked up.
Keep tightly closed.
Store in accordance with the particular national regulations.

Materials to avoid : Do not store with the following product types:
Strong oxidizing agents
Organic peroxides
Explosives
Gases

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Ingredients with workplace control parameters**

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Calcium carbonate	471-34-1	TWA (Respirable)	5 mg/m ³ (Calcium carbonate)	NIOSH REL
		TWA (total)	10 mg/m ³ (Calcium carbonate)	NIOSH REL
Quartz	14808-60-7	TWA (total dust)	30 mg/m ³ / %SiO ₂ +2	OSHA Z-3
		TWA (respirable)	10 mg/m ³ / %SiO ₂ +2	OSHA Z-3
		TWA (respirable)	250 mppcf / %SiO ₂ +5	OSHA Z-3
		TWA (Respirable fraction)	0.025 mg/m ³ (Silica)	ACGIH
		TWA (Respirable dust)	0.05 mg/m ³ (Silica)	NIOSH REL
Aluminium silicate	12141-46-7	TWA (Respirable fraction)	1 mg/m ³ (Aluminum)	ACGIH
Silica gel, precipitated, crystalline free	112926-00-8	TWA (Dust)	20 Million particles per cubic foot (Silica)	OSHA Z-3
		TWA (Dust)	80 mg/m ³ / %SiO ₂ (Silica)	OSHA Z-3
		TWA	6 mg/m ³ (Silica)	NIOSH REL
Kieselguhr, soda ash flux- calcined	68855-54-9	TWA (Dust)	20 Million particles per cubic	OSHA Z-3

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			foot (Silica)	
		TWA (Dust)	80 mg/m ³ / %SiO ₂ (Silica)	OSHA Z-3
		TWA	6 mg/m ³ (Silica)	NIOSH REL
Aluminium sulphate	10043-01-3	TWA	2 mg/m ³ (Aluminum)	NIOSH REL
Titanium dioxide	13463-67-7	TWA (total dust)	15 mg/m ³	OSHA Z-1
		TWA	10 mg/m ³ (Titanium dioxide)	ACGIH

Hazardous components without workplace control parameters

Ingredients	CAS-No.
Adipohydrazide	1071-93-8

Engineering measures : Minimize workplace exposure concentrations.
Apply measures to prevent dust explosions.
Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).
Use with local exhaust ventilation.
Dust formation may be relevant in the processing of this product. In addition to substance-specific OELs, general limitations of concentrations of particulates in the air at workplaces have to be considered in workplace risk assessment. Relevant limits include: OSHA PEL for Particulates Not Otherwise Regulated of 15 mg/m³ - total dust, 5 mg/m³ - respirable fraction; and ACGIH TWA for Particles (insoluble or poorly soluble) Not Otherwise Specified of 3 mg/m³ - respirable particles, 10 mg/m³ - inhalable particles.

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection
Material : Impervious gloves

Remarks : Choose gloves to protect hands against chemicals depending

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on the concentration specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

- Eye protection : Wear the following personal protective equipment:
Safety goggles
- Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).
- 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.
-

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : powder
- Color : No data available
- Odor : No data available
- Odor Threshold : No data available
- pH : No data available
- Melting point/freezing point : No data available
- Initial boiling point and boiling range : No data available
- Flash point : Not applicable
- Evaporation rate : Not applicable
- Flammability (solid, gas) : Not classified as a flammability hazard
- Upper explosion limit : No data available
- Lower explosion limit : No data available
- Vapor pressure : Not applicable
- Relative vapor density : Not applicable
- Relative density : No data available

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Solubility(ies)
Water solubility : No data available

Partition coefficient: n-octanol/water : Not applicable

Autoignition 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.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Dust can form an explosive mixture in air.
Can react with strong oxidizing agents.

Conditions to avoid : None known.

Incompatible materials : Oxidizing agents

Hazardous decomposition products : No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure**

Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity : Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

Ingredients:**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

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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

Quartz:

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

Aluminium silicate:

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

Acute inhalation toxicity : LC50 (Rat): 50 mg/l
 Exposure time: 4 h
 Test atmosphere: dust/mist
 Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
 Method: OECD Test Guideline 402
 Assessment: The substance or mixture has no acute dermal toxicity
 Remarks: Based on data from similar materials

Silica gel, precipitated, crystalline free:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
 Method: OECD Test Guideline 401
 Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 0.69 mg/l
 Exposure time: 4 h
 Test atmosphere: dust/mist
 Remarks: Based on data from similar materials

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

Kieselguhr, soda ash flux-calcined:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
 Method: OECD Test Guideline 401
 Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 2.6 mg/l
 Exposure time: 4 h
 Test atmosphere: dust/mist
 Method: OECD Test Guideline 403

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Assessment: The substance or mixture has no acute inhalation toxicity

Aluminium sulphate:

Acute oral toxicity : LD50 (Rat): > 2,000 - < 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

Adipohydrazide:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 423
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 5.3 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

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.

Ingredients:**Calcium carbonate:**

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

Aluminium silicate:

Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation
Remarks: Based on data from similar materials

Silica gel, precipitated, crystalline free:

Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation
Remarks: Based on data from similar materials

Kieselguhr, soda ash flux-calcined:

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Species: human skin
Method: OECD Test Guideline 431
Result: No skin irritation

Aluminium sulphate:

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

Adipohydrazide:

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

Titanium dioxide:

Species: Rabbit
Result: No skin irritation

Serious eye damage/eye irritation

Causes serious eye irritation.

Ingredients:**Calcium carbonate:**

Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405

Aluminium silicate:

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

Silica gel, precipitated, crystalline free:

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

Kieselguhr, soda ash flux-calcined:

Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405

Aluminium sulphate:

Species: Rabbit
Result: Irreversible effects on the eye
Method: OECD Test Guideline 405

Adipohydrazide:

Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405

Titanium dioxide:

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Species: Rabbit
Result: No eye irritation

Respiratory or skin sensitization

Skin sensitization: May cause an allergic skin reaction.
Respiratory sensitization: Not classified based on available information.

Ingredients:**Calcium carbonate:**

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

Aluminium silicate:

Test Type: Local lymph node assay (LLNA)
Routes of exposure: Skin contact
Species: Mouse
Method: OECD Test Guideline 429
Result: negative
Remarks: Based on data from similar materials

Kieselguhr, soda ash flux-calcined:

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

Aluminium sulphate:

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

Adipohydrazide:

Test Type: Local lymph node assay (LLNA)
Routes of exposure: Skin contact
Species: Mouse
Method: OECD Test Guideline 429
Result: positive

Assessment: Probability or evidence of skin sensitization in humans

Titanium dioxide:

Test Type: Local lymph node assay (LLNA)
Routes of exposure: Skin contact
Species: Mouse
Result: negative

Germ cell mutagenicity

Not classified based on available information.

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Ingredients:**Calcium carbonate:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Aluminium silicate:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative
Remarks: Based on data from similar materials

Silica gel, precipitated, crystalline free:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Rodent dominant lethal test (germ cell) (in vivo)
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Kieselguhr, soda ash flux-calcined:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Aluminium sulphate:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
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
Remarks: Based on data from similar materials

Adipohydrazide:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

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

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Carcinogenicity

May cause cancer by inhalation.

Ingredients:**Quartz:**

Species: Humans

Application Route: inhalation (dust/mist/fume)

Result: positive

Remarks: IARC (International Agency for Research on Cancer)

Carcinogenicity - Assessment : Positive evidence from human epidemiological studies (inhalation)

Silica gel, precipitated, crystalline free:

Species: Rat

Application Route: Ingestion

Exposure time: 103 weeks

Result: negative

Remarks: Based on data from similar materials

Kieselguhr, soda ash flux-calcined:

Species: Humans

Application Route: inhalation (dust/mist/fume)

Result: positive

Remarks: IARC (International Agency for Research on Cancer)

Titanium dioxide:

Species: Rat

Application Route: inhalation (dust/mist/fume)

Exposure time: 2 Years

Method: OECD Test Guideline 453

Result: positive

Remarks: The mechanism or mode of action may not be relevant in humans.

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

IARC

Group 1: Carcinogenic to humans

Quartz

14808-60-7

Group 2B: Possibly carcinogenic to humans

Titanium dioxide

13463-67-7

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

Known to be human carcinogen

Quartz

14808-60-7

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Reproductive toxicity

Not classified based on available information.

Ingredients:**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 fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative

Aluminium silicate:

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

Silica gel, precipitated, crystalline free:

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

Aluminium sulphate:

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
Remarks: Based on data from similar materials

Effects on fetal development : 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
Remarks: Based on data from similar materials

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

Causes damage to organs (Lungs) through prolonged or repeated exposure if inhaled.

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Ingredients:**Quartz:**

Routes of exposure: inhalation (dust/mist/fume)

Target Organs: Lungs

Assessment: Shown to produce significant health effects in animals at concentrations of 0.02 mg/l/6h/d or less.

Aluminium sulphate:

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

Repeated dose toxicity**Ingredients:****Calcium carbonate:**

Species: Rat

NOAEL: 1,000 mg/kg

Application Route: Ingestion

Exposure time: 28 Days

Method: OECD Test Guideline 422

Quartz:

Species: Humans

LOAEL: 0.053 mg/m³

Application Route: Inhalation

Aluminium silicate:

Species: Rat

NOAEL: >= 1,000 mg/kg

Application Route: Ingestion

Exposure time: 28 Days

Remarks: Based on data from similar materials

Silica gel, precipitated, crystalline free:

Species: Rat

NOAEL: > 4,500 mg/kg

Application Route: Ingestion

Exposure time: 90 Days

Remarks: Based on data from similar materials

Aluminium sulphate:

Species: Rat

NOAEL: 18 mg/kg

LOAEL: 90 mg/kg

Application Route: Ingestion

Exposure time: 28 - 53

Method: OECD Test Guideline 422

Remarks: Based on data from similar materials

Titanium dioxide:

Species: Rat

NOAEL: 24,000 mg/kg

Application Route: Ingestion

Exposure time: 28 Days

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Species: Rat
 NOAEL: 10 mg/m³
 Application Route: inhalation (dust/mist/fume)
 Exposure time: 2 yr

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Ingredients:****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	:	NOEC (Desmodesmus subspicatus (green algae)): 14 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to bacteria	:	EC50: > 1,000 mg/l Exposure time: 3 h Method: OECD Test Guideline 209

Quartz:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): > 100 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)): > 100 mg/l Exposure time: 48 h Remarks: Based on data from similar materials

Aluminium silicate:

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: Based on data from similar materials
Toxicity to algae	:	EC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
Toxicity to bacteria	:	EC50: > 1,000 mg/l Exposure time: 3 h Method: OECD Test Guideline 209

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Remarks: Based on data from similar materials

Silica gel, precipitated, crystalline free:

Toxicity to fish : LL50 (Danio rerio (zebra fish)): > 10,000 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): > 1,000 mg/l
Exposure time: 24 h
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

Toxicity to algae : EL50 (Scenedesmus subspicatus): > 10,000 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

Kieselguhr, soda ash flux-calcined:

Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae : EL50 (Desmodesmus subspicatus (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

NOELR (Desmodesmus subspicatus (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

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

Aluminium sulphate:

Ecotoxicology Assessment

Acute aquatic toxicity : No toxicity at the limit of solubility.

Chronic aquatic toxicity : No toxicity at the limit of solubility.

Adipohydrazide:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 106 mg/l
Exposure time: 48 h
Method: Directive 67/548/EEC, Annex V, C.2.

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Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 8.7 mg/l
 Exposure time: 72 h
 Method: OECD Test Guideline 201

EC10 (Pseudokirchneriella subcapitata (green algae)): 0.17 mg/l
 Exposure time: 72 h
 Method: OECD Test Guideline 201

Toxicity to bacteria : EC10: 110 mg/l
 Exposure time: 3 h

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

Persistence and degradability**Ingredients:****Adipohydrazide:**

Biodegradability : Result: Not readily biodegradable.
 Biodegradation: 61 %
 Exposure time: 28 d
 Method: OECD Test Guideline 301F

Bioaccumulative potential**Ingredients:****Adipohydrazide:**

Partition coefficient: n-octanol/water : log Pow: -2.7

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

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Waste from residues : Dispose of in accordance with local regulations.

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.

SECTION 14. TRANSPORT INFORMATION**International Regulation****UNRTDG**

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

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

Not applicable for product as supplied.

Domestic regulation**49 CFR**

Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION**EPCRA - Emergency Planning and Community Right-to-Know****CERCLA Reportable Quantity**

Ingredients	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Methyl 1H-benzoimidazol-2-ylcarbamate	10605-21-7	10	*
Aluminium sulphate	10043-01-3	5000	*
Disodium hydrogenorthophosphate	7558-79-4	5000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations**Pennsylvania Right To Know**

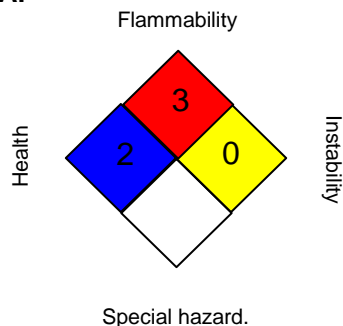
Calcium carbonate	471-34-1	30 - 50 %
Quartz	14808-60-7	10 - 20 %
Aluminium silicate	12141-46-7	10 - 20 %
Silica gel, precipitated, crystalline free	112926-00-8	5 - 10 %
Vinylacetate copolymer with ethene	24937-78-8	1 - 5 %
Kieselguhr, soda ash flux-calcined	68855-54-9	1 - 5 %
Aluminium sulphate	10043-01-3	1 - 5 %
Disodium hydrogenorthophosphate	7558-79-4	0.1 - 1 %

New Jersey Right To Know

Calcium carbonate	471-34-1	30 - 50 %
Quartz	14808-60-7	10 - 20 %
Aluminium silicate	12141-46-7	10 - 20 %
Silica gel, precipitated, crystalline free	112926-00-8	5 - 10 %
Vinylacetate copolymer with ethene	24937-78-8	1 - 5 %
Aluminium sulphate	10043-01-3	1 - 5 %

California Prop. 65 WARNING! This product contains a chemical known in the State of California to cause cancer.

Quartz	14808-60-7
Titanium dioxide	13463-67-7

SECTION 16. OTHER INFORMATION**Further information****NFPA:****HMIS III:**

HEALTH	2*
FLAMMABILITY	3
PHYSICAL HAZARD	0

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL : USA. NIOSH Recommended Exposure Limits

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OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-3	:	USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
ACGIH / TWA	:	8-hour, time-weighted average
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
OSHA Z-1 / TWA	:	8-hour time weighted average
OSHA Z-3 / TWA	:	8-hour time weighted average

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; 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; HMIS - Hazardous Materials Identification System; 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; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; 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

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

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

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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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