

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

GHS product identifier : ZEOFILL

Recommended use of the chemical and restrictions on use

: Dehydration, purification, separation of gas and liquid, catalyst, ion exchange, porous carrier, soil improvement, water treatment, gas adsorption

Supplier's detail

Name of manufacturer : Shin Tohoku Chemical Industry Co., Ltd.

Address : 1-4-10, Kamisugi, Aoba-ku, Sendai-shi, Miyagi, 980-0011 Japan

Name of section : Production Headquarters

Phone number : +<81> 22-225-2724

Emergency phone number : Shin Tohoku Chemical Industry Co., Ltd.

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2. HAZARDS IDENTIFICATION

[GHS CLASSIFICATION]

Physical hazards	Flammable solids	: Classification not possible
Health Hazards	Acute toxicity (Oral)	: Category 5
	Acute toxicity (Dermal)	: Category 5
	Acute toxicity (Inhalation: Dust)	: Classification not possible
	Skin corrosion/irritation	: Classification not possible
	Serious eye damage/eye irritation	: Category 2
	Respiratory sensitization	: Classification not possible
	Skin sensitization	: Classification not possible
	Germ cell mutagenicity	: Category 2
	Carcinogenicity	: Category 1A
	Reproductive toxicity	: Classification not possible
	Specific target organ toxicity (Single exposure)	: Classification not possible
	Specific target organ toxicity (Repeated exposure)	: Category 1 (Respiratory system, Kidneys, Immune system)
	Aspiration hazard	: Classification not possible
Environmental Hazards	Hazardous to the aquatic environment (Acute hazard)	: Not classified
	Hazardous to the aquatic environment (Long-term hazard)	: Classification not possible
	Hazardous to the ozone Layer	: Classification not possible

[GHS LABEL ELEMENTS]

Symbols



Signal word	: Danger
Hazard statements	<ul style="list-style-type: none"> ▪ May be harmful if swallowed ▪ May be harmful in contact with skin ▪ Causes serious eye irritation ▪ Suspected of causing genetic defects ▪ May cause cancer ▪ Causes damage to organs (Respiratory system, Kidneys, Immune system) through prolonged or repeated exposure
Precautionary statements	
[Prevention]	<ul style="list-style-type: none"> ▪ Wash hands and eyes thoroughly after handling. ▪ Wear protective gloves/protective clothing/eye protection/face protection. ▪ Obtain special instructions before use. ▪ Do not handle until all safety precautions have been read and understood. ▪ Do not breathe dust/fume/gas/mist/vapours/spray. ▪ Do not eat, drink or smoke when using this product.
[Response]	<ul style="list-style-type: none"> ▪ Call a POISON CENTER or doctor/physician 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 exposed or concerned: Get medical advice/attention. ▪ Get Medical advice/attention if you feel unwell.
[Storage]	<ul style="list-style-type: none"> ▪ Store locked up.
[Disposal]	<ul style="list-style-type: none"> ▪ Dispose of contents/containers in accordance with the rules of the country/province/municipality.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture	: Substance (Natural mineral)		
Chemical name or common name	: Mordenite type zeolite (Natural mineral)		
Composition	: This material contains minerals such as quartz as a main component of mordenite type zeolite.		
Ingredients	Composition(%)	Chemical formula	CAS No.
Mordenite type zeolite	80-90	$(\text{Na}_2, \text{Ca}, \text{K}_2)_4[\text{Al}_8\text{Si}_{40}\text{O}_{96}] \cdot 28\text{H}_2\text{O}$	1318-02-1
Quartz (crystalline silica)	10-20	SiO_2	14808-60-7

4. FIRST-AID MEASURES

Inhalation	<ul style="list-style-type: none"> ▪ Get medical advice/attention if necessary. ▪ When inhaled dust which is generated at processing the product, remove victim to fresh air and keep at rest, cover body with a blanket etc. to keep him/her warm.
Skin contact	<ul style="list-style-type: none"> ▪ Wash away affected portion with running water, then wash adequately with soap. ▪ If you feel skin abnormality such as itching or pain, etc., get medical attention.

Eye contact	<ul style="list-style-type: none"> • If dust in eyes, never rub your eyes and rinse away cautiously with water for at least 15 minutes. • When washing eyes, open eyelids well with fingers and move the eyes around to reach water to every corner of the eyes. • If you feel your eyes abnormality, consult an ophthalmologist.
Ingestion	<ul style="list-style-type: none"> • Rinse out mouth with water, get medical advice/attention.
Most important symptoms and effects, both acute and delayed	<ul style="list-style-type: none"> • May be harmful if swallowed • May be harmful in contact with skin • Causes serious eye irritation • Suspected of causing genetic defects • May cause cancer • Causes damage to organs (Respiratory system, Kidneys, Immune system) through prolonged or repeated exposure
Protection for first aider	<ul style="list-style-type: none"> • No data available
Indication of any immediate medical attention and special treatment needed	<ul style="list-style-type: none"> • No data available

5. FIRE-FIGHTING MEASURES

This product is not combustible. If the containers/packing etc. catch fire, extinguish the fire in the usual measures.

Suitable extinguishing media • Dry chemical powder ,Carbon dioxide, Dry sand, Foam, Water spray

Unsuitable extinguishing media

- Nothing special

Specific hazards arising from the chemical

- Toxic gases (Metal fumes, etc.) may be generated upon combustion.

Specific extinguishing methods

- Use normal extinguishing media (Chemical powder, carbon dioxide, or water) for an early stage of fire.
- For large fire, in order to extinguish a fire at once, cut off the air using foam.
- In case of fire in the surrounding areas, cool equipment by water spraying.
- If possible, move containers to safe areas.
- Be careful not to cause environmental pollution by the outflow of fire extinguishing and/or dilution water.

Special protective equipment for firefighters

- Firefighters should wear proper protective equipment such as self-contained breathing apparatus. Extinguish fire from windward.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

- Rope off the spilled area to prohibit the entrance of unauthorized personnel.
- Wear proper protective equipment during recovery operation.
- Do not collect spillage at the leeward.
- Avoid breathing dust, avoid attach to eyes and skin.

Environmental precautions ▪ Prevent dust from scattering into the atmosphere, and do not dispose of it into soil, sewers, rivers or drains etc.

Methods and material for containment and cleaning up

- In case of small amount of spills, sweep up spills together carefully with a broom not to scatter.
- In case of large amount of spills, cover the surface of spills with a sheet to prevent dust from scattering, then use a dust collector to collect it, or sprinkle water and collect sludge by shovels, etc.
- The waste shall be disposed of in accordance with “13.DISPOSAL CONSIDERATIONS”.

7. HANDLING AND STORAGE

Precautions for safe handling

- Keep formation of air borne dust to a minimum.
- Avoid inhalation of dust and contact with skin as much as possible.
- If dust is generated when processing the product, work in the room where local exhaust equipment was installed.
- If there is a risk of exposure, wear appropriate protective equipment.
- Enforce gargle, hand washing and face washing after handling.
- Avoid prolonged handling and repeated exposure as much as possible.
- If you feel abnormality or abnormality has occurred in the body, take measures according to section 4 “FIRST-AID MEASURES”, and then be sure to consult a physician.

Conditions for safe storage, including any incompatibilities

Safe storage conditions

- Avoid wetting and high humidity, store in a dry and well-ventilated location.
- Keep away from incompatible materials. (Refer to section 10)

Safe packaging materials

- There is no limitation on the material, but use materials that have as little moisture permeability as possible.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Appropriate engineering controls

- Install eye washer and shower near work area.
- Keep good ventilation in the work area, install a dust collector or local exhaust system as necessary.

Occupational Exposure Limits

ACGIH-TLV ¹⁾

- (TWA) 1 mg/m³ (Aluminum metal and insoluble compound, Respirable fraction)
- (TWA) 0.025 mg/m³ (Silica, crystalline- α -quartz, Respirable fraction)
- (TWA) 10 mg/m³ (Particles, Insoluble or poorly soluble, not otherwise specified, Inhalable particles)
- (TWA) 3 mg/m³ (Particles, Insoluble or poorly soluble, not otherwise specified, Respirable particles)

Note) (TWA): Time-Weighted Average (8 hours)

Individual protection measures, such as personal protective equipment

- Respiratory protection : Dust mask, air-supplied respirator
- Hands protection : Protective gloves (Made of rubber)
- Eye protection : Protective glasses with the side shield or face protection.
- Skin and body protection : Protective clothing, protective boots and apron

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

- Appearance : Crushed particles to powder
- Colour : White to light yellow
- Odour : Odourless
- Odour threshold : No data available
- pH : Purified water \pm 0.6 (Mixing with purified water)
- Melting/Freezing point : $>1250^{\circ}\text{C}$
- Initial boiling point and boiling range : Not applicable (Due to high melting inorganic inert substances)
- Flash point : Not Flammable
- Evaporation rate (n-BuAc = 1) : No data available
- Flammability (solid, gas) : Not flammable
- Upper/lower flammability or explosive limits : No data available
- Vapour pressure : No data available
- Vapour density : No data available
- Relative density : 0.6 ± 0.1 (Apparent density)
2.1 (True density)
- Solubility : Insoluble
- Partition coefficient: n-octanol/water (log value) : No data available
- Auto-ignition temperature : Not Flammable
- Decomposition temperature : No data available
- Viscosity : No data available

10. STABILITY AND REACTIVITY

- Reactivity : Stable under normal handling condition.
- Chemical stability : Stable under normal handling condition.
- Possibility of hazardous reactions : No hazardous reactions happen under normal handling condition.
- Conditions to avoid : Humidity, water
- Incompatible materials : No data available
- Hazardous decomposition products : Toxic gases (Metal fumes, etc.) may be generated on combustion.

11. TOXICOLOGICAL INFORMATION

There are no data available on the mixture itself. Data of ingredients are as follows.

Acute toxicity

[Oral]

Mordenite type zeolite Rat LD₅₀ >2000 mg/kg ²⁾

[Dermal]

Mordenite type zeolite Rabbit LD₅₀ >2000 mg/kg ²⁾

[Inhalation]

Mordenite type zeolite Rat LC₅₀ >14 ml/L ²⁾

Note) LD₅₀: Lethal Dose, 50% kill

LC₅₀: Lethal Concentration, 50% kill

Skin corrosion/irritation

Mordenite type zeolite Showed no irritation in skin irritation tests of rabbits. ²⁾

Serious eye damage/eye irritation

Mordenite type zeolite Showed moderate irritation in eye irritation tests of rabbits. ²⁾

Respiratory sensitization

No ingredients data available

Skin sensitization

No ingredients data available

Germ cell mutagenicity

Quartz (crystalline silica) Showed positive in in vivo somatic cell mutagenicity studies of rat. ²⁾

Carcinogenicity

Mordenite type zeolite IARC: Group 3 (Unclassifiable as to Carcinogenicity in Humans) ¹⁾

Quartz (crystalline silica) IARC: Group 1 (The agent is carcinogenic to humans) ¹⁾

JSOH: Group 1 (Carcinogenic to humans) ³⁾

ACGIH: A2 (Suspected human carcinogen) ¹⁾

NTP: K (Known to be carcinogens) ¹⁾

Reproductive toxicity

No ingredients data available

Specific target organ toxicity (Single exposure)

No ingredients data available

Specific target organ toxicity (Repeated exposure)

Mordenite type zeolite Causes damage to organs (Respiratory organ) through prolonged or repeated exposure. ²⁾

Quartz (crystalline silica) Causes damage to organs (Respiratory system, Kidneys, Immune system) through prolonged or repeated exposure. ²⁾

Aspiration hazard

No ingredients data available

12. ECOLOGICAL INFORMATION

Eco-toxicity

Mordenite type zeolite Pimephales promelas NOEC (21d) 175 mg/l ²⁾

Daphnia magna EC₅₀ (72h) 377 mg/l ²⁾

Daphnia magna NOEC (21d) 200 mg/l ²⁾

Hazard is lower than GHS hazard category. ²⁾

Hazardous to the aquatic environment (Long-term hazard) is lower than GHS hazard category. ²⁾

Quartz (crystalline silica)

Hazard is lower than GHS hazard category. ²⁾

Note) EC₅₀: Median Effect Concentration

NOEC: No Observed Effect Concentration

Persistency and Biodegradability

No data available

Bioaccumulation potential No data available

Mobility in soil No data available

Other adverse effects

Hazardous to the ozone Layer

No data available

13. DISPOSAL CONSIDERATIONS

Residual waste

- Entrust residual wastes as industrial wastes to a certificated special authority.
- Take care not to scatter dust in the air.
- Follow all relevant laws, regulations and municipality instructions.

Contaminated containers and packaging

- In case of disposing of empty containers, remove the contents completely.
- Perform a proper disposal of in accordance with the relevant laws, regulations and standards.

14. TRANSPORT INFORMATION

UN Number : Not applicable

UN proper shipping name : Not applicable

Transport hazard class : Not applicable

Packing group : Not applicable

Marine pollutants : No

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

: Not applicable

Special safety measures applicable to transport or conveyance

- Load containers carefully to avoid damaging containers, leaking product.
- Prevent load collapse surely.
- Do not stack heavy load high.
- Avoid wetting.
- When loading and unloading cargoes, put the parking brake on, shut down the engine, and put car stops under tires.
- Handle in accordance with the description of "7 HANDLING AND STORAGE."
- Observe strictly transportation related laws and regulations.

15. REGULATORY INFORMATION

GHS classification and labeling : In accordance with UN GHS fourth revised edition.

The product and its ingredients are not regulated by international agreements such as Montreal Protocol, Stockholm Convention, Rotterdam Convention and Basel Convention.

Regulatory information with regard to this product in your country or region should be examined by your own responsibility.

16. OTHER INFORMATION INCLUDING INFORMATION ON PREPARATION AND REVISION OF THE SDS

Update history:

Issued date; Sep.18.2018 (1st edition)

References:

- 1) 2017 Threshold Limit Values for Chemical Substances in the Work Environment (ACGIH)
- 2) GHS Classification Data Base (National Institute of Technology and Evaluation, Japan)
- 3) Recommendation of Occupational Exposure Limits; Journal of Japan Society for Occupational Health 2017 vol.58

Abbreviations and acronyms:

ACGIH	American Conference of Government Industrial Hygienists
TLV	Threshold Limit Values
IARC	International Agency for Research Cancer
JSOH	Japan Society for Occupational Health
NTP	United States National Toxicology Program
IBC	International Bulk Chemical

Disclaimer:

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The information contained herein is given in good faith in accordance with the data in a variety of technical publications. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions.

In addition, the information listed here is made based on the latest information by our investigation at the time of creation, but please understand that revision is possible by amendment of laws, regulations or the announcement of new toxicity test results.