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MSDS NO: AA00258-0000000015

## 1. Product and Company Identification


- A. Product name : Sodium Meta Silicate (Penta Hydrate)
- B. Relevant identified uses of the substance or mixture and uses advised against
- ☐ Recommended Use : 13.Metal surface treatment products 32. Washing and cleaning products 48.Others (For cement, Inert fire protection, refractory, fabric, wood processing)
  - ☐ Usage Limits : No data available
- C. Details of the supplier of the safety data sheet
- ☐ Company : Youngjin co. ltd.
  - ☐ Address : 38, Ojeong-ro, Ojeong-gu, Bucheon-si, Gyeonggi, Korea
  - ☐ Department : Quality Control Department
  - ☐ Telephone : 82-32-674-4221

## 2. Hazards Identification

- A. Hazards Identification Classification
- Acute Toxicity : dermal toxicity classification 4
  - Skin corrosive or irritative substance : classification 1
  - Severe eye damage or Eye irritative substance : classification 1
- B. Warning marks
- ☐ Pictorial symbol



- ☐ Signal word: Danger
- ☐ Hazardous expression
  - H302 Hazardous if swallowed.
  - H314 Causes severe burn to skin and damage to eyes
  - H318 Causes severe damage to eyes.
- ☐ Precaution expression
  - P260 Do not breathe dust/fume/gas/mist/vapours/spray.

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P264 Wash thoroughly after handling

P270 While using this product, do not eat, drink, and smoke.

P280 Wear protective gloves/protective clothing/ eye protection/face protection.

○ Respond

P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER or doctor/physician.

P363 Wash contaminated clothing before reuse.

○ Storage

P405 : Store locked up.

○ Disposal

P501 Dispose of container in conformity with relevant regulations.

C. NFPA Rating (0-4 level): Health=3, Fire=0, Reactivity=0

### 3. Composition, Information on Ingredients

Chemical Name	Idiomatic name	Percent (%)	CAS No.
Sodium Meta Silicate (Penta Hydrate)	Sodium Meta Silicate (Penta Hydrate)	100%	10213-79-3


### 4. First Aid Measures

A. Eye Contact

- Take emergency medical service.
- Rinse cautiously with water for several minutes. If possible, remove contact lenses. Continue rinsing.

B. Skin Contact

- Prevent spread of contaminated area if skin contact is slight.

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- Take emergency medical service.
- Wash contaminated clothing before reuse.
- In case of hot substance, soak or wash out exposed part with cold water to remove heat.
- Remove contaminated clothing and shoes, and isolate contaminated area.
- If on skin (or hair), take off immediately all contaminated clothing. Rinse skin with water/shower.

#### C. Inhalation

- Consult medical personnel immediately.

#### D. Ingestion

- If the person ingested or inhaled the material, do not mouth-to-mouth resuscitation and use proper medical respiratory equipment.
- If swallowed and uncomfortable, consult medical personnel.
- If swallowed, wash mouth out and do not induce vomiting.

#### E. Other medical notices.

- Let medical personnel recognize the material and take protective measure.
- Symptoms by Inhalation or contact may be delayed.

### 5. Explosion / Fire Fighting Measures

#### A. Appropriate (and inappropriate) Extinguishing Media


- Use alcohol foam, carbon dioxide or water spray.
- If extinguishing by smothering, use dry sand or earth.

#### B. Specific Hazards in Presence of Chemical Substances

- If boiled, container may explode.
- Toxicity: Inhalation, ingestion, skin contact can cause severe injuries and death.
- Nonflammable, but material can decompose and generate corrosive and toxic fume if boiled.
- Contact with molten material can cause severe skin and eye burn.
- Contact with metal causes inflammable hydrogen gas partly.
- As oxidizer, the material may ignite inflammable materials partly.
- While burning, thermal decomposition or combustion can generate irritative and highly hazardous gas.

#### C. Precaution and Protective equipments for Fire Fighting

- Rescuer should use appropriate protective equipment.
- Dig a ditch to dispose fire fighting water and keep material not dispersed.

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- Keep water out of container.
- If not dangerous, move container from fire area.
- Keep proper distance while extinguishing.
- Fire involving Tanks; After extinguish, cool down container with water spray for considerable time
- Fire involving Tanks; Step back immediately if pressure relief device makes loud sound or tank discolors.
- Fire involving Tanks; Extinguish fire in maximum range or use unmanned fire apparatus in case of tank fires.
- Fire involving Tanks; Do not approach tank in flames.

## 6. Accidental Release Measures

### A. Require measures and protection to protect human body

- Remove all ignition sources.
- Clear spilth immediately, follow precaution of Personal Protection section.
- Keep water out of container.
- If not dangerous, stop any leakage.
- Do not touch broken container or leaked material without appropriate protective clothing.
- Take notice of material and condition to avoid.

### B. Required measures to protect environment

- leaked material is corrosive and toxic, and can cause contamination.
- Prevent of inflow into waterway, drain, basement, or closed space.


### C. Purification or removal method

- Absorb spilth with inactive material(e.g. dry sand or earth), put into chemical waste container.
- Absorb spilt liquid and wash out contaminated area with detergent and water.

## 7. Handling & Storage

### A. Safe handling

- Do not inhale steam generated from heated material.
- Open cap carefully.
- Work in reference to Engineering Controls and Personal Protection
- Follow all precautions of MSDS/LABEL though container is emptied. Product residues can rest.
- While using this product, do not eat, drink, and smoke.

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- Prevent long term or continuous skin contact.
- Do not enter storage area without appropriate ventilation.
- Wash thoroughly after handling.
- Use carefully taking notice of Handling & Storage.
- Pay attention to Conditions and Materials to Avoid.
- Use only in well ventilated place.

#### B. Safe Storage

- Drain the water out from an empty drum and close properly and put it back to drum regulator or place appropriately.
- Keep away from food and beverage.
- Store in locked storage.
- Pay attention to Conditions and Materials to Avoid.

### 8. Exposure Controls & Personal Protection

#### A. Chemical Exposure Limits, Biological Exposure Limit

- Korean Regulation : No data available
- ACGIH Regulation : No data available
- Biological Exposure Limit : No data available

#### B. Engineering Controls


- Install local exhaust ventilation, use process isolation or other ways to comply tolerable standard.
- Facilities storing or using this material should be equipped with eyewash facilities and safety showers.

#### C. Personal Protective Equipment

- Respiratory Protection
  - Use respiratory protective equipment that is appropriate to exposed material's physical & chemical properties and authorized by Korean Occupational Safety and Health Act.
- Eyes Protection : Wear dust-proof safety goggles.
- Hands Protection : Wear appropriate chemical-resistant gloves.
- Body Protection : Wear appropriate chemical-resistant apron and boots.

### 9. Physical & Chemical Properties


#### A. Appearance: White Solid Crystal.

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- B. Odor: None.
- C. Odor Threshold : None
- D. PH: 1% solution pH 12.4~13
- E. Melting point/Freezing point: 72°C / No data available
- F. Initial Boiling point and Boiling point range: Boiling Point 115.5°C
- G. Flash point: No data available.
- H. Evaporation Rate: No data available.
- I. Flammability (solid, gas): nonflammable
- J. Low & Upper limit of Flammable or Explosion Range: N/A.
- K. Vapor Pressure: N/A
- L. Solubility: (1) Solubility in water : 28.3(20°C)  
 (2) Solubility : diluted Sodium Hydroxide  
 (3) Insolubility : Alcohol, acids.
- M. Vapor Density: N/A
- N. Specific Gravity: 1.75(Water=1)
- O. n-Octanol/water partition coefficient: 0.35(20°C)
- P. Auto-ignition Temp.: No data available.
- Q. Decomposition Temp.: No data available.
- R. Viscosity: No data available
- S. Molecular Formular / Molecular Weight :  $\text{Na}_2\text{SiO}_3 \cdot 5\text{H}_2\text{O}$  / 212.15

## 10. Stability & Reactivity

- A. Chemical stability and Possibility of hazardous reactions
- If boiled, container may explode
  - Contact with metal causes inflammable hydrogen gas partly.
  - Material is nonflammable and does not burn itself, but can decompose and generate corrosive and toxic fume if boiled.
  - As oxidizer, the material may ignite inflammable materials partly.
  - Toxicity: Inhalation, ingestion, skin contact can cause severe injuries and death.
  - Contact with molten substance may cause severe burn to skin and eyes.
  - Fire causes irritative, corrosive, toxic gas from material.
- B. Conditions to Avoid : Heat.
- C. Materials to Avoid : Inflammable materials, reductive materials, metals.
- D. Hazardous Decomposition Products

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- While burning, thermal decomposition or combustion can generate irritative and highly poisonous gas.
- Corrosive and toxic fume.

## 11. Toxicological Information


### A. Information about possible exposure route :

- Irritation(severe in some cases), difficulty in breathing, burn, nausea, vomit, stomachache, renal deviant stimulus(severe in some cases), and combustio bullosa.

### B. Health effect

- Acute oral toxicity:
  - ORAL : LD50 1280mg/Kg Rat
  - SKIN : No data available.
  - Inhalation : No data available.
- Skin corrosivity or irritation : corrosive on skin tissue.
- Severe eye damage or irritation : corrosive on eye tissue.
- Respiratory sensitization : No data available
- Skin sensitization : No data available.
- Carcinogenesis
  - Occupation Safety and Helath Act : No data available
  - Ministry of Employment and Labor : No data available
  - IARC : No data available
  - OSHA : No data available
  - ACGIH : No data available
  - NTP : No data available
  - EU : No data available
  - CLP : No data available
- Gamete Mutagenicity : No data available
- Reproductive toxicity : No data available
- Specific target organ toxicity (single exposure) : No data available.
- Specific target organ toxicity (repeated exposure) : No data available.
- Aspiration Hazard : No data available

## 12. Ecological Information

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A. Aquatic & Eco-toxicity:

- Fish : LC50 6.7 mg/l 96hr Others
- Crustacean : EC50 5.8 mg/l 48hr Daphnia pulex
- Algae : EC50 14.7mg/l 24hr Scenedesmus subspicatus

B. Residue property and degradability

- Residue property : log Kow 0.35 (20°C)
- Degradability : No data available

C. Bioaccumulative potential

- Bioaccumulation : No data available
- Biodegradation : No data available

D. Movement in soil : No data available.

E. Other hazardous effect : No data available.

### 13. Disposal Considerations

A. Disposal method

- Dispose container/contents according to Waste Control Act(if specified).

B. Disposal Considerations

- Consider precautions in Waste Control Act(if specified).

### 14. Transport information

A. UN Number : 3253

B. UN proper shipping name : Disodium Trioxo Silicate

C. UN hazardous ranking : 8

D. Un package group : 3

E. Marine pollutant : No data available

F. Special precautions:


- In case of fire : F-A
- in case of leakage : S-B

### 15. Regulatory Information

A. Regulation by Occupation Safety and Health Act : N/A

B. The Chemicals Control Act : N/A



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C. Dangerous Material Safety Management Regulation : N/A

D. Waste Control Act : Designated waste

E. Other regulation by Korea and foreign acts

- Korean Regulation

Persistent organic pollutants control acts : N/A

- Foreign Regulation

U.S.A management information(OSHA Regulation) : N/A

U.S.A management information(CERCLA Regulation) : N/A

U.S.A management information(EPCRA 302 Regulation) : N/A

U.S.A management information(EPCRA 304 Regulation) : N/A

U.S.A management information(EPCRA 313 Regulation) : N/A

U.S.A management information(Rotterdam Protocol) : N/A

U.S.A management information(Stockholm Protocol) : N/A

U.S.A management information(Montreal Protocol) : N/A

EU classification information(Classification) : N/A

EU classification information(Risk Phases) : N/A

EU classification information(Safety Phrases) : N/A

## 16. Other Information

A. Data Source : Korean Occupation Safety and Health Act.

B. Date of establishment : June, 3, 1996.

C. Revision Number and recent revision date : Rev. No.7 / May, 12, 2023.

D. Others : None.

Changes (2023. 5. 12.)

2. Hazards Identification P301+P312, P405

8. Exposure Controls & Personal Protection; Install face washing facilities and safety showers