



SAFETY DATA SHEET

PRODUCT NAME: SODIUM META SILICATE 5H₂O

Issue Date: October 22

IDENTIFICATION

Product Name: Sodium Metasilicate Pentahydrate
Other Names: Disodium Trioxosilicate; Pentahydrate granular sodium metasilicate; Disodium metasilicate, pentahydrate
Product Code: ZSMSIL
Uses: Laundry, dairy and metal cleaning, floor cleaning, base for detergent formulations, bleaching aid, de-inking paper.
Supplier: HamChem Hamilton Chemicals Ltd, 75 Ruffell Rd, Hamilton
Phone: 07 974 4971 Web: www.hamchem.nz Email: info@hamchem.nz

- In emergency dial 111, and then ask for Fire, Ambulance or Police as necessary.
- In case of poisoning phone National Poisons Centre – 0800 764 766

HAZARD IDENTIFICATION



GHS Classifications

Acute Toxicity (Oral) – Category 4
Skin Corrosion – Category 1C
Serious Eye Damage – Category 1

Signal Word: DANGER

Hazard Statements

H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage

Prevention

P264 – Wash hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P260 - Do not breathe dusts or mists
P280 - Wear protective gloves/clothing and eye/face protection

Response

P303+P361+P353 - IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water.
P363 – Wash contaminated clothing before reuse
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P310 – Immediately call a POISON CENTRE or Doctor
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 CENTRE or Doctor

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Storage

P405 - Store locked up.

Disposal

P501 - Dispose of contents/container to an approved waste facility in accordance with local regulations

COMPOSITION & INFORMATION ON INGREDIENTS

Chemical Entity

Sodium Metasilicate, pentahydrate

CAS No.

10213-79-3

Proportion (%)

>98%

FIRST AID MEASURES

SWALLOWED: For advice, contact a Poison Centre or a Doctor at once. Urgent hospital treatment is likely to be needed. If swallowed do NOT induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. Observe the patient carefully. Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. Transport to hospital or doctor without delay.

EYE: If this product comes in contact with the eyes: Immediately hold eyelids apart and flush the eye continuously with running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Continue flushing until advised to stop by the Poison Centre or a doctor, or for at least 15 minutes. Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN: If skin or hair contact occurs: Immediately flush body and clothes with large amounts of water, using safety shower if available. Quickly remove all contaminated clothing, including footwear. Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poison Centre. Transport to hospital, or doctor.

INHALED: If fumes or combustion products are inhaled remove from contaminated area. Lay patient down. Keep warm and rested. Transport to hospital, or doctor, without delay.

NOTES TO PHYSICIAN: For acute or short-term repeated exposures to highly alkaline materials: Respiratory stress is uncommon but present occasionally because of soft tissue edema. Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary. Oxygen is given as indicated. The presence of shock suggests perforation and mandates an intravenous line and fluid administration. Damage due to alkaline corrosives occurs by liquefaction necrosis whereby the saponification of fats and solubilization of proteins allow deep penetration into the tissue. Alkalis continue to cause damage after exposure.

FIRE FIGHTING MEASURES

Extinguishing media: Water spray or fog, foam, dry chemical powder or carbon dioxide.

Fire Fighting: Alert fire brigade and tell them location and nature of hazard. Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or water course. Use fire fighting procedures suitable for surrounding area. Do not approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire. Equipment should be thoroughly decontaminated after use.

Fire/Explosion Hazard: Noncombustible. Not considered a significant fire risk, however containers may burn. Decomposition may product toxic fumes of silicon dioxide, metal oxides. May emit corrosive fumes.

Fire Incompatibility: None known.

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Personal Protective Equipment: Breathing apparatus. Gas tight chemical resistant suit. Limit exposure duration to 1 BA set 30 minutes.

ACCIDENTAL RELEASE MEASURES

Minor Spills: Remove all ignition sources. Clean up all spills immediately. Avoid contact with skin and eyes. Control personal contact by using protective equipment. Use dry clean up procedures and avoid generating dust. Place in a suitable labelled container for waste disposal.

Major Spills: Clear area of personnel and move upwind. Alert Fire Brigade and tell them location and nature of hazard. Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or water course. Consider evacuation (or protect in place). Stop leak if safe to do so. Contain spill with sand, earth or vermiculite. Collect recoverable product into labelled containers for recycling. Neutralize/decontaminate residue. Collect solid residues and seal in labelled drums for disposal. Wash area and prevent runoff into drains. After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using. If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

- The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing life-threatening health effects is:

Sodium metasilicate, pentahydrate: 500 mg/m³

- Irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

Sodium metasilicate, pentahydrate: 100 mg/m³

- Other than mild, transient adverse effects without perceiving a clearly defined odor is:

Sodium metasilicate, pentahydrate: 15 mg/m³

-The threshold concentration below which most people experience no appreciable risk of health effects:

Sodium metasilicate, pentahydrate: 5 mg/m³

HANDLING & STORAGE

Procedure for Handling: Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Prevent concentration in hollows and sumps. DO NOT enter confined spaces until atmosphere has been checked. DO NOT allow material to contact humans, exposed food or food utensils. Avoid contact with incompatible materials. When handling, DO NOT eat, drink or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling. Work clothes should be laundered separately. Launder contaminated clothing before re-use. Use good occupational work practice. Observe manufacturer's storing and handling recommendations. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Suitable Container: Lined metal can, Lined metal pail/ can, Plastic pail poly-liner drum. Packing as recommended by manufacturer. Check all containers are clearly labelled and free from leaks.

Storage Incompatibility: Metals and their oxides or salts may react violently with chlorine trifluoride. Chlorine trifluoride is a hypergolic oxidiser. It ignites on contact (without external source of heat or ignition) with recognized fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition. The state of subdivision may affect the results. In presence of moisture, the material is corrosive to aluminum, zinc and tin producing highly flammable hydrogen gas.

Storage Requirements: For storage, no aluminum, light alloy, galvanized steel and glass receptacles or pipes should be used. On contact with aluminum or light alloys hydrogen gas may be evolved. Steel, stainless steel and alkali stable plastic materials are generally appropriate.

Avoid oxidising agents, acids, acid chlorides, acid anhydrides. Avoid strong acids. Avoid contact with copper, aluminum, and their alloys. Observe manufacturer's storing and handling recommendations.

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EXPOSURE CONTROLS & PERSONAL PROTECTION

Exposure standards: No WES value set by Worksafe NZ. The following is recommended by the manufacturer; Sodium Meta Silicate (Pentahydrate) – TWA 2.0mg/m³

Engineering controls: A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.

Personal protective equipment: RESPIRATOR: Wear an effective particle mask/respirator with P2 filter if dusts are formed and engineering controls are inadequate (AS/NZS 1715/1716). EYES: Wear basket eye glasses or face shield (AS1336/1337). HANDS: Wear alkali-resistant gloves (AS/NZS 2161). CLOTHING: Acid-resistant coveralls and safety footwear (AS/NZS 3765/2210).

PHYSICAL & CHEMICAL PROPERTIES

Appearance:	White powder/granules, Hygroscopic
Odour:	Odourless
Molecular Weight:	212.14
Specific Gravity:	1.75
Solubility in water:	>200g/L (20°C)
Volatile Component:	Nil @ 38 °C
Flash point:	N/A
Flammability limits:	N/A
Boiling point:	N/A
Melting point:	72.2°C
pH:	12.5 (1% solution)

STABILITY & REACTIVITY

Stability: Product is stable under normal conditions of use, storage and temperature.

Hazardous decomposition products: Reacts with aluminium and other light metals to generate hydrogen. Acids decompose the product and silicic acid precipitates. When involved in a fire, this product may generate corrosive sodium oxide vapours.

Hazardous polymerization: Will not occur.

Incompatibles: Incompatible with oxidizing agents, acids, aluminium, other light metals and their alloys, tin, zinc, glass and sources of ignition.

Conditions to avoid: Avoid excessive heat, dusty conditions, direct sunlight, moisture, carbon dioxide and high temperatures.

TOXICOLOGICAL INFORMATION

POTENTIAL ACUTE HEALTH EFFECTS

Swallowed: Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.

Eye: The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating. If applied to the eyes, this material causes severe eye damage. Alkaline salts may be intensely irritating to the eyes and precautions should be taken to ensure direct eye contact is avoided.

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Skin: The material can produce chemical burns following direct contact with the skin. The material may cause mild but significant inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering. Skin contact is not thought to produce harmful health effects (as classified under EC Directives using animal models). Systemic harm, however, has been identified following exposure of animals by at least one other route and the material may still produce health damage following entry through wounds, lesions or abrasions. Good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

Inhaled: The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled. The material is not thought to produce adverse health effects following inhalation (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

Chronic Health Effects: Soluble silicates do not exhibit sensitising potential. In vitro, soluble silicates do not induce gene mutations in bacteria; sodium silicate is negative in an E. coli reverse mutation assay and sodium metasilicate exerted no mutagenic activity in B. subtilis and S. typhimurium. In a study performed in accordance with OECD TG 473, an aqueous sodium silicate solution (36% active ingredient, R 3.3) induced no chromosomal aberrations in Chinese hamster V79 cells. In vivo, sodium metasilicate did not induce chromosomal aberrations in bone marrow cells of mice in a study performed similarly to OECD TG 475. From the available evidence genotoxic potential for soluble silicates cannot be demonstrated. No indications of teratogenic effects for silicates have been reported. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung. Prime symptom is breathlessness; lung shadows show on X-ray.

Toxicity: Oral (rat) LD₅₀: 1280 mg/kg

Irritation: Skin (human): 250 mg/24h SEVERE Skin (rabbit): 250 mg/24h SEVERE

ECOLOGICAL INFORMATION

Rat LD₅₀ 1280 mg/kg (as a 10% aqueous solution) REFERENCE SOURCE: (Clayton & Clayton, 1993).

Soluble silicates are wholly inorganic and once diluted have no significant environmental impact. They are saturated with respect to oxygen and as such do not possess a chemical oxygen demand (COD) or a biological oxygen demand (BOD). Depending on pH values soluble silicates in effluent and surface waters are rapidly dispersed and neutralized, by reaction with naturally occurred dissolved polyvalent metals (e.g. CAa, Mg, Al, Fe) forming insoluble silicates or amorphous silica.

Persistence & degradability: In an aqueous solution of pH ≤ 9 the silicate is mineralized and precipitated. The maximum concentration of soluble silicates at this pH is 120mg/L.

DISPOSAL CONSIDERATIONS

Recycle wherever possible. Recycle containers wherever possible, or dispose of to an authorized landfill. Containers may still present a chemical hazard/danger when empty. Otherwise: if container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and dispose of to authorized waste disposal. Contact appropriate Waste Management company for guidance and disposal options in your area. Where possible, retain label warnings and SDS and observe all notices pertaining to the product.

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TRANSPORT INFORMATION

UN Number:	3253
Proper Shipping name:	DISODIUM TRIOXOSILICATE
Dangerous Goods Class:	8
Packing group:	III
Hazchem Code:	2X

REGULATORY INFORMATION

HSNO Classifications: 6.1D, 8.2C, 8.3A

EPA Approval Code: HSR002491 – Additives, Process Chemicals and Raw Materials (Corrosive) Group Standard 2020

OTHER INFORMATION

End of SDS.