



SAFETY DATA SHEET

PRODUCT NAME: SODIUM HEXAMETAPHOSPHATE

Issue Date: May 23

IDENTIFICATION

Product Name: Sodium Hexametaphosphate
Other Names: Polyphosphoric acids, sodium salts; Hexametaphosphate sodium salt; sodium hexameta; SHMP
Product Code: ZSHMPO
Uses: Dental polishing agent, detergent builder, water softening sequestrants, emulsifiers, food additives, in textile processing (laundering), leather tanning, and dyeing. Used for the "threshold treatment" of softening industrial water supplies.
Supplier: HamChem Hamilton Chemicals Ltd, 75 Ruffell Rd, Hamilton
Phone: 079744971 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

Specific Target Organ Toxicity (Repeated Exposure) – Category 2

Signal Word: Warning

Hazard Statements:

H373 – May cause damage to organs through prolonged and repeated exposure

Prevention

P260 - Do not breathe dust/fume/gas/mist/vapours/spray

Response

P314 – Get medical advice/attention if you feel unwell

Disposal

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

COMPOSITION & INFORMATION ON INGREDIENTS

Chemical Entity	CAS No.	Proportion (%)
Sodium polyphosphate of general (NaPO ₃) _n where n = 3 – 30	68915-31-1	> 98

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HamChem Ltd, 75 Ruffell Road, Hamilton, New Zealand. Phone: 07-974-4971 Email: info@hamchem.nz Web: www.hamchem.nz

FIRST AID MEASURES

Main symptoms caused by exposure: Symptoms may include vomiting, diarrhea, lethargy, fever, dizziness, spasms of the wrist, and severe body spasms and coma. Coughing and shortness of breath. Soreness and redness of the skin or eyes.

Swallowed: 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. Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. Seek medical advice.

Eye: If this product comes into contact with the eyes – wash out immediately with fresh running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from the eye, moving the eyelids by occasionally lifting the upper and lower lids. If pain persists or recurs, seek medical attention. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin: If skin contact occurs immediately remove all contaminated clothing, including footwear. Flush skin and hair with running water (and soap if available). Seek medical attention in event of irritation.

Inhaled: Remove to fresh air. Other measures are usually unnecessary. If symptoms persist, call a Doctor.

Notes to Physician: Treat symptomatically.

FIRE FIGHTING MEASURES

Extinguishing media: There is no restriction on the type of extinguisher which may be used. Use extinguishing media suitable for surrounding area.

Fire fighting: Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves for fire only. Prevent, by any means available, spillage from entering drains or water courses. Use fire fighting procedures suitable for surrounding area. DO NOT approach containers suspected to be hot. Cool fire expose 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: Non-combustible. Not considered a significant fire risk, however containers may burn.

Hazards from Combustion Products: Decomposition may produce toxic fumes of phosphorous oxides (PO_x). May emit poisonous and corrosive fumes.

Personal Protective Equipment: Fire-fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire-fighting clothing (includes firefighting helmet, coat, trousers, boots and gloves)

ACCIDENTAL RELEASE MEASURES

Minor spills: Environmental hazard – contain spillage. 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 labeled container for waste disposal.

Major spills: Environmental hazard – contain spillage. Moderate hazard. CAUTION: Advise personnel in area. Alert Emergency Services and tell them location and nature of hazard. Control personal contact by wearing protective clothing. Prevent, by any means available, spillage from entering drains or water courses. Recover product wherever possible. IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. IF WET:

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Vacuum/shovel up and place in labeled containers for disposal. ALWAYS: Wash area down with large amounts of water and prevent runoff into drains. If contamination of drains or waterways occurs, advise Emergency Services.

HANDLING & STORAGE

Procedure for handling: Operators should be trained in procedures for safe use of this material. 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 Packaging: Glass packaging. PET, Polyethylene or Polypropylene packaging. Check all packaging is clearly labelled and free from leaks.

Store incompatibility: Phosphates are incompatible with oxidizing and reducing agents. Phosphates are susceptible to formation of highly toxic and flammable phosphine gas in the presence of strong reducing agents such as hydrides. Partial oxidation of phosphates by oxidizing agents may result in the release of toxic phosphorus oxides.

Storage requirements: Store in an upright position. Keep containers well sealed in storage. Store in a cool, dry, well-ventilated area, out of direct sunlight. Observe manufacturers storage and handling recommendations.

EXPOSURE CONTROLS & PERSONAL PROTECTION**Exposure standards:**

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC
New Zealand WES 2022	Total dust		10 mg/m ³					
New Zealand WES 2022	Respirable dust		3 mg/m ³					

Material data: No exposure limits set for CAS number 68915-31-1 by WorkSafe New Zealand or Safe Work Australia.

Ventilation system: A system of local and/or general 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. Please refer to '*A simple guide to local exhaust ventilation*' found on the WorkSafe New Zealand website.

Personal respirators: For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type n95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

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Skin protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Refer to AS/NZS 2161.1:2000 Occupational Protective Gloves – Selection, Use & Maintenance. Dispose of contaminated gloves after use.

Eye protection: Use safety glasses with side shields, safety goggles or a full-face shield where splashing is possible. Refer to Personal Eye Protection Part 1: Eye and Face Protectors for Occupational Applications – AS/NZS 1337.1:2010

PHYSICAL & CHEMICAL PROPERTIES

Appearance: White or glassy granules, flakes or powdered hygroscopic solid.

Physical Properties: Sodium polyphosphates have the general formula $\text{Na}_{n+2} \text{P}_n \text{O}_{3n+1}$

Property	Value
State	Divided solid
Molecular Weight	Not applicable
Melting Range (°C)	>600
Boiling Range (°C)	Not available
Solubility in water (g/L, 25°C)	>500
pH (1% solution, 20°C)	5-7
Specific Gravity (water = 1)	Not applicable
Bulk Density (g/cm ³)	1.2 min.
Volatile Component (%vol)	Not applicable
Relative Vapour Density (air = 1)	Not applicable
Flash Point (°C)	Not applicable
Autoignition Temperature (°C)	Does not burn
Upper Explosive Limit (%)	Not available
Lower Explosive Limit (%)	Not available
Decomposition Temperature (°C)	Not available
Evaporation Rate:	Not applicable
Viscosity	Not applicable

STABILITY & REACTIVITY

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

Conditions to Avoid: Avoid excessive heat, direct sunlight, static discharges, moisture and temperature extremes. Product is hygroscopic, keep containers dry and tightly closed to avoid moisture absorption.

Incompatible Materials: Incompatible with strong oxidizing agents and reducing agents.

Hazardous Decomposition Products: Thermal decomposition can lead to release of oxides of phosphorous and oxides of sodium.

Hazardous Reactions: Hazardous polymerization will not occur.

TOXICOLOGICAL INFORMATION**ACUTE HEALTH EFFECTS**

Swallowed: Accidental ingestion of the material may be damaging to the health of the individual. As absorption of phosphates from the bowel is poor, poisoning this way is less likely. Effects can include vomiting, tiredness, fever, diarrhea, low blood pressure, slow pulse, cyanosis, spasms of the wrist, coma

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and severe body spasms. Inorganic polyphosphates are used extensively in domestic and industrial products. Experiments on rats showed kidney damage, growth retardation, and tetany due to low calcium.

Eye: There is some evidence to suggest that this material can cause eye irritation and damage to some persons.

Skin: There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons. Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systematic 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 is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified by EC Directives using animal models).

CHRONIC HEALTH EFFECTS

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. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Sodium phosphate dibasic can cause stones in the kidney, loss of mineral from the bones and loss of thyroid gland function. May sequester calcium phosphate deposits in the kidneys. Chronic ingestion or inhalation may induce systemic phosphorous poisoning. Liver damage, kidney damage, jaw/tooth abnormalities, blood disorders and cardiovascular effects can result.

Aggravation of Pre-Existing Conditions: Persons with pre-existing skin disorders or eye problems, jaw/tooth abnormalities, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.

TOXICITY AND IRRITATION

Toxicity: Acute Oral Toxicity, Rat, LD50: 6200 mg/kg; Acute Dermal Toxicity, Rabbit, LD50: >7940 mg/kg; Acute Inhalation Toxicity, Rat, LC50: >3.69 mg/L/4H

Irritation/Corrosion: Skin, Rabbit: No skin irritation – 24H; Eyes, Rabbit: Mild eye irritation.

Carcinogenic Effects: Not classified or listed by IARC, NTP, OSHA, and EU.

Mutagenic Effects: No data available

Reproductive or developmental Effects: No data available

Aspiration Hazard: Chronic exposure to high concentrations of powder may cause changes in lung function caused by fine particles (< 0.5 µm) which may penetrate the lung tissue.

Specific Target Organ Toxicity: Harmful to development. In long-term animal studies, inorganic polyphosphates produced growth inhibition, increased kidney weights, bone decalcification, and enlargement of the parathyroid gland, inorganic phosphate in the urine, focal necrosis of the kidney and alterations of muscle fibre size.

Sensitisation (respiratory/contact): Breathing in dust may result in respiratory irritation.

ECOLOGICAL INFORMATION

Ecotoxicity: Not expected to have adverse effects in the aquatic environment. Addition of phosphates to waterways may have a deleterious effect on water quality.

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Ecotoxicity Data: Fish, Rainbow Trout, 96h LC50: >100 mg/L; Crustacean, *Daphnia Magna*, 48h EC50: >485 mg/L; Algae 72 or 96h EC50: No data available.

Chronic: No data available

Persistence and Degradability: Hydrolyses in water to orthophosphate which may act as a plant nutrient and precipitate heavy metals.

Mobility: Soluble in water. Mobility in soil – no information available.

Bioaccumulation: No information available.

Products of Biodegradation: No information available.

Toxicity of the Products of Biodegradation: No information available.

DO NOT discharge into sewer or waterways. The addition of large quantities of phosphates to waterways accelerates algae and plant growth in natural waters resulting in reduction of the water quality and depleting the water body of oxygen.

DISPOSAL CONSIDERATIONS

Product: Recycle wherever possible. Special hazard may exist – specialist advice may be required. The product may be treated so that it is no longer hazardous by means other than dilution. This includes incineration at an approved site or burial in a landfill in such a manner that it will not lead to and adverse health effects to any person or exceed any TEL (tolerable exposure limit) set by the Authority for this substance. Treatment in a biological wastewater treatment system with prior approval and arrangement is also permissible providing that the substance is rendered non-hazardous and does not pose any adverse effects to human health or the environment. Alternatively consult an approved Waste Management company for disposal options. Do not dispose of with household rubbish.

Packaging: Packaging should be rendered incapable of containing any material. Puncture containers to prevent re-use and bury at an authorized landfill. Empty containers may be decontaminated. The residual contents of the package must be diluted to below the thresholds for the respective hazard and the diluted residue is less than 1% of the volume of the package. Alternatively, consult an approved Waste Management company for disposal options, or dispose of at an approved waste disposal facility. Observe all safeguards until containers are clean and destroyed. Where possible retain label warnings and SDS and observe all notices pertaining to the product. Must NOT be disposed of with household rubbish.

TRANSPORT INFORMATION

Not regulated for transport of Dangerous Goods.

REGULATORY INFORMATION

HSNO Classifications: 6.9B

EPA Approval #: HSR002503 – Additives, Process Chemicals & Raw Materials (Subsidiary Hazard) Group Standard 2020

OTHER INFORMATION

End of SDS.

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