

Sodium pyrophosphate tetrabasic

sc-236921



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key: **EXTREME** **HIGH** **MODERATE** **LOW**

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Sodium pyrophosphate tetrabasic

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY

ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS

Na₄P₂O₇, "diphosphoric acid, tetrasodium salt", "pyrophosphoric acid, tetrasodium salt", "sodium diphosphate", "anhydrous tetrasodium pyrophosphate", Phosphotex, pyrophosphate, "sodium pyrophosphate", "tetrasodium diphosphate", "tetrasodium pyrophosphate, anhydrous", "pyrophosphate de sodium", "pyrophosphate tetrasodique", TSPP, "Victor TSPP", TECH00006017, AR00000499, FG00004873, UL00000500, "Ikon Tetra Sodium Pyrophosphate"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

| | Min | Max |
|---------------|-----|-----|
| Flammability: | 0 | |
| Toxicity: | 2 | |
| Body Contact: | 2 | |
| Reactivity: | 1 | |
| Chronic: | 2 | |

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Irritating to eyes, respiratory system and skin.
May cause long-term adverse effects in the aquatic environment.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- Accidental ingestion of the material may be damaging to the health of the individual.
- Ingestion of large amounts of tetrasodium pyrophosphate may cause diarrhoea, nausea, vomiting, cramps and abdominal pain. The pyrophosphate is hydrolysed to the orthophosphate in the gut and because of this it may produce acidosis and hypocalcaemia.
- Use as a food additive indicates good tolerance of small amounts, but excessive amounts or overuse may bring irritant and / or harmful effects.
- 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 and severe body spasms.

EYE

- This material can cause eye irritation and damage in some persons.
- Direct contact of tetrasodium pyrophosphate, with the eye, causes severe irritation and corneal injury in rabbits.
- Alkaline salts may be intensely irritating to the eyes and precautions should be taken to ensure direct eye contact is avoided.

SKIN

- This material can cause inflammation of the skin on contact in some persons.
- The material may accentuate any pre-existing dermatitis condition.
- Skin contact is not thought to have harmful health effects, however the material may still produce health damage following entry through wounds, lesions or abrasions.
- Open cuts, abraded or irritated skin should not be exposed to this material.
- 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.

CHRONIC HEALTH EFFECTS

- Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
- 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.
Sodium phosphate dibasic can cause stones in the kidney, loss of mineral from the bones and loss of thyroid gland function.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

| NAME | CAS RN | % |
|--|-----------|-----|
| tetrasodium pyrophosphate | 7722-88-5 | >97 |
| hydrolyses in water to produce sodium phosphate | 7632-05-5 | |

Section 4 - FIRST AID MEASURES

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.

EYE

■ If this product comes in contact with the eyes: · Wash out immediately with fresh 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.

SKIN

■ If skin contact occurs: · Immediately remove all contaminated clothing, including footwear · Flush skin and hair with running water (and soap if available).

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN

- Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

| | |
|-----------------------------|----------------|
| Vapour Pressure (mmHG): | Negligible |
| Upper Explosive Limit (%): | Not applicable |
| Specific Gravity (water=1): | 2.45 |
| Lower Explosive Limit (%): | Not applicable |

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 Emergency Responders and tell them location and nature of hazard.
· Wear breathing apparatus plus protective gloves for fire only.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

· Non combustible.
· Not considered to be a significant fire risk, however containers may burn.
Decomposition may produce toxic fumes of: phosphorus oxides (POx), metal oxides.
May emit poisonous fumes.
May emit corrosive fumes.
Decomposes on heating and produces toxic fumes of sodium oxide (Na₂O).

FIRE INCOMPATIBILITY

- None known.

PERSONAL PROTECTION

Glasses:
Chemical goggles.
Gloves:
Respirator:
Particulate

Section 6 - 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

■ Moderate hazard.
· CAUTION: Advise personnel in area.
· Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

· Avoid all personal contact, including inhalation.
· Wear protective clothing when risk of exposure occurs.

RECOMMENDED STORAGE METHODS

■ Glass container.
DO NOT use aluminum or galvanized containers.
· Polyethylene or polypropylene container.
· Check all containers are clearly labelled and free from leaks.

STORAGE REQUIREMENTS

· Store in original containers.
· Keep containers securely sealed.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

| Source | Material | TWA ppm | TWA mg/m ³ | STEL ppm | STEL mg/m ³ | Peak ppm | Peak mg/m ³ | TWA F/CC | Notes |
|---|--|---------|-----------------------|----------|------------------------|----------|------------------------|----------|-------|
| US - Minnesota Permissible Exposure Limits (PELs) | tetrasodium pyrophosphate (Tetrasodium pyrophosphate) | | 5 | | | | | | |
| Canada - Ontario Occupational Exposure Limits | tetrasodium pyrophosphate (Tetrasodium pyrophosphate) | | 5 | | | | | | |
| US NIOSH Recommended Exposure Limits (RELs) | tetrasodium pyrophosphate (Tetrasodium pyrophosphate) | | 5 | | | | | | |
| US - California Permissible Exposure Limits for Chemical Contaminants | tetrasodium pyrophosphate (Tetrasodium pyrophosphate) | | 5 | | | | | | |
| US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants | tetrasodium pyrophosphate (Tetrasodium pyrophosphate) | | 5 | | | | | | |
| US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants | tetrasodium pyrophosphate (Tetrasodium pyrophosphate) | | 5 | | | | | | |
| US - Hawaii Air Contaminant Limits | tetrasodium pyrophosphate (Tetrasodium pyro-phosphate) | | 5 | | | | | | |
| Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits | tetrasodium pyrophosphate (Tetrasodium pyrophosphate) | | 5 | | 10 | | | | |
| US - Washington Permissible exposure limits of air contaminants | tetrasodium pyrophosphate (Tetrasodium pyrophosphate) | | 5 | | 10 | | | | |
| US - Alaska Limits for Air Contaminants | tetrasodium pyrophosphate (Tetrasodium pyrophosphate) | | 5 | | | | | | |
| Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English) | tetrasodium pyrophosphate (Tetrasodium pyrophosphate) | | 5 | | | | | | |
| Canada - Northwest Territories Occupational Exposure Limits (English) | tetrasodium pyrophosphate (Tetrasodium pyrophosphate) | | 5 | | 10 | | | | |
| US - Michigan Exposure Limits for Air Contaminants | tetrasodium pyrophosphate (Tetrasodium pyrophosphate) | | 5 | | | | | | |

| | | | |
|---|--|----|---|
| US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants | sodium phosphate (Particulates not otherwise regulated (PNOR)(f)- Respirable fraction) | 5 | |
| Canada - Prince Edward Island Occupational Exposure Limits | sodium phosphate (Particles (Insoluble or Poorly Soluble) [NOS] Inhalable particles) | 10 | See Appendix B current TLV/BEI Book |

ENDOELTABLE

PERSONAL PROTECTION



RESPIRATOR

Particulate

Consult your EHS staff for recommendations

EYE

- Safety glasses with side shields.
- Chemical goggles.

HANDS/FEET

■ Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.

· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.

· Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

· Neoprene gloves.

Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.

- polychloroprene
- nitrile rubber
- butyl rubber
- fluorocautchouc
- polyvinyl chloride

Gloves should be examined for wear and/ or degradation constantly.

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

ENGINEERING CONTROLS

· Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.

· If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.

| | | | |
|--------------------|----------------|------------------|----------------|
| State | Divided solid | Molecular Weight | 265.9 |
| Melting Range (°F) | 1828.4 approx. | Viscosity | Not Applicable |

| | | | |
|---------------------------|-----------------|--------------------------------|-----------------|
| Boiling Range (°F) | Not applicable. | Solubility in water (g/L) | Reacts |
| Flash Point (°F) | Not applicable | pH (1% solution) | 10.2 |
| Decomposition Temp (°F) | Not available. | pH (as supplied) | Not applicable |
| Autoignition Temp (°F) | Not applicable | Vapour Pressure (mmHG) | Negligible |
| Upper Explosive Limit (%) | Not applicable | Specific Gravity (water=1) | 2.45 |
| Lower Explosive Limit (%) | Not applicable | Relative Vapor Density (air=1) | Not applicable. |
| Volatile Component (%vol) | Negligible | Evaporation Rate | Not applicable |

APPEARANCE

White free-flowing powder or granules (anhydrous), or colourless, transparent crystals (decahydrate); mixes with water (6.7 g/100 ml @ 25 C). Hydrolyses to orthophosphate in aqueous solution. Insoluble in ethyl alcohol.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

STORAGE INCOMPATIBILITY

- Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride.
- These trifluorides are hypergolic oxidisers. They ignites on contact (without external source of heat or ignition) with recognised 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.
- 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.

Food grade materials must be protected from all possible contaminants.

Segregate from alcohol, water.

Avoid storage with strong acids, aluminium, iron and other reactive metals.

Contact with water will hydrolyse this material to the orthophosphate form.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

TETRASODIUM PYROPHOSPHATE

TOXICITY AND IRRITATION

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TETRASODIUM PYROPHOSPHATE:

| TOXICITY | IRRITATION |
|----------|------------|
|----------|------------|

Oral (rat) LD50: 4000 mg/kg Nil Reported

■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

| TOXICITY | IRRITATION |
|----------|------------|
|----------|------------|

SODIUM PHOSPHATE:

Oral (rat) LD50: 17000 mg/kg

Skin
(rabbit):
500
mg/24h
- Mild

Eye (rabbit): 500 mg/24h - Mild

■ The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

for sodium phosphate, dibasic

Section 12 - ECOLOGICAL INFORMATION

May cause long-term adverse effects in the aquatic environment.

Ecotoxicity

| Ingredient | Persistence: Water/Soil | Persistence: Air | Bioaccumulation | Mobility |
|---------------------------|-------------------------|------------------|-----------------|----------|
| tetrasodium pyrophosphate | HIGH | | LOW | HIGH |

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

! Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult Waste Management Authority for disposal.

Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

Section 15 - REGULATORY INFORMATION

tetrasodium pyrophosphate (CAS: 7722-88-5,13472-36-1) is found on the following regulatory lists;

"Canada - Northwest Territories Occupational Exposure Limits (English)", "Canada - Ontario Occupational Exposure Limits", "Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)", "Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits", "Canada Domestic Substances List (DSL)", "Canada Ingredient Disclosure List (SOR/88-64)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "OECD Representative List of High Production Volume (HPV) Chemicals", "US - Alaska Limits for Air Contaminants", "US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List", "US - California Permissible Exposure Limits for Chemical Contaminants", "US - Connecticut Hazardous Air Pollutants", "US - Hawaii Air Contaminant Limits", "US - Michigan Exposure Limits for Air Contaminants", "US - Minnesota Hazardous Substance List", "US - Minnesota Permissible Exposure Limits (PELs)", "US - New Jersey Right to Know Hazardous Substances", "US - Pennsylvania - Hazardous Substance List", "US - Rhode Island Hazardous Substance List", "US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants", "US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants", "US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants", "US - Washington Permissible exposure limits of air contaminants", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US FDA Direct Food Substances Generally Recognized as Safe", "US FDA Indirect Food Additives: Adhesives and Components of Coatings - Substances for Use as Components of Coatings - Acrylate ester copolymer coating", "US Food Additive Database", "US NIOSH Recommended Exposure Limits (RELs)", "US Toxic Substances Control Act (TSCA) - Inventory"

Regulations for ingredients

sodium phosphate (CAS: 7632-05-5) is found on the following regulatory lists;

"Canada Domestic Substances List (DSL)", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US FDA Direct Food Substances Generally Recognized as Safe", "US Toxic Substances Control Act (TSCA) - Inventory"

Section 16 - OTHER INFORMATION

Ingredients with multiple CAS Nos

Ingredient Name CAS tetrasodium pyrophosphate 7722-88-5, 13472-36-1

Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. For additional technical information please call our toxicology department on +800 CHEMCALL.

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

This document is copyright. Apart from any fair dealing for the purposes of private study, research, review or criticism, as permitted under the Copyright Act, no part may be reproduced by any process without written permission from CHEMWATCH. TEL (+61 3) 9572 4700.

Issue Date: Sep-1-2009

Print Date:Jan-27-2011