



## MATERIAL SAFETY DATA SHEET

<b>PREPARATION DATE:</b> January, 2000	<b>REVIEW DATE:</b> February, 2000.
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### I. SUPPLIER /DISTRIBUTION INFORMATION

SUPPLIER/DISTRIBUTION	EMERGENCY TELEPHONE:
Tri- Chem Industries	Chemtrec
<b>ADDRESS</b>	1-800-424-9300
PO Box 2056 Coppell, TX, 75019	

### II. CHEMICAL IDENTIFICATION

**CHEMICAL NAME:** Tetrasodium Pyrophosphate  
**SYNONYMS :** ---  
**CAS REGISTRY NUMBER:** --  
**UN/NA NUMBER(S):** ---  
**RTECS NUMBER(S):** ---  
**EU EINECS/ELINCS NUMBER:**---  
**CHEMICAL FAMILY:** Inorganic phosphate salt / condensed phosphate / tripolyphosphate / inorganic sodium compound / sodium salt

### III. DESCRIPTION

**APPEARANCE AND ODOR:** Fine white powder or white granules. Odorless. The anhydrous form is hygroscopic (absorbs moisture from the air)  
**ODOR THRESHOLD:** Odorless  
**WARNING PROPERTIES:** POOR - No odor warning properties.  
**COMPOSITION/PURITY:** Commercial products may contain up to 10% tetrasodium pyrophosphate and up to 5% sodium trimetaphosphate. Other impurities may include sodium orthophosphate and long- chain sodium polyphosphates.  
**USES AND OCCURRENCES:**  
 water softening agent; emulsifier and dispersing agent; sequestering, peptizing and deflocculating agent; additive for processed meat, tuna and poultry, livestock feed and paper coatings; production of concentrated milk products, such as evaporated milk and milk powder; ingredient of cleansers in drilling fluids; hydrogen peroxide solution stabilizer. Used in clay processing, textile processing, paper pulping, rubber and paint manufacture and ore flotation.(5,16,17)

**IV. HAZARD IDENTIFICATION****\*\* EMERGENCY OVERVIEW \*\*****\*\* POTENTIAL HEALTH EFFECTS \*\*****EFFECTS OF SHORT-TERM (ACUTE) EXPOSURE :****INHALATION:**

Dust or mists from solutions can probably cause irritation of the nose and throat. High concentrations may cause coughing and choking. There is no human or animal information available.

**SKIN CONTACT:**

Not irritating to the skin, based on animal and human information. More concentrated solutions may be slightly irritating. Application of a 50% solution for 4 hours caused negligible irritation on the intact and abraded skin of 5/6 human volunteers.(1) No effects are expected if it is promptly rinsed off skin.

**EYE CONTACT:**

Dust or mist from solutions may cause eye irritation and pain, based on its moderate alkalinity.(2) There is no human or animal information available.

**INGESTION:**

Is low in oral toxicity, based on animal lethality studies. In small amounts, it is used as a food additive. Ingestion of very large amounts may cause nausea, vomiting, cramps, abdominal pain, diarrhea and severe inflammation of the stomach and intestinal tract. Ingestion is not a typical route of occupational exposure.

**EFFECTS OF LONG-TERM (CHRONIC) EXPOSURE:****SKIN:**

Not irritating to the skin, based on animal and human information. More concentrated solutions may be slightly irritating. Application of a 50% solution for 4 hours caused negligible irritation on the intact and abraded skin of 5/6 human volunteers.(1) No effects are expected if it is promptly rinsed off skin.

**INHALATION:**

In general, long-term exposures to high concentrations of dust may cause increased mucous flow in the nose and respiratory system airways.

This condition usually disappears after exposure stops. Controversy exists as to the role exposure to dust has in the development of chronic bronchitis (inflammation of the air passages into the lungs).

Other factors such as smoking and general air pollution are more important, but dust exposure may also contribute.

**CARCINOGENICITY:**

Is not carcinogenic in one animal study. There is no human information available.

**TERATOGENICITY AND EMBRYOTOXICITY:**

Is not teratogenic or embryotoxic based on ingestion studies using four different species of animals. There is no human information available.

**REPRODUCTIVE TOXICITY:**

There is no human or animal information available.



**MUTAGENICITY :**

There is no human information available. Was not mutagenic in three mammalian (in vivo) test systems or in in vitro tests using bacteria, yeast or mammalian cells.

**TOXICOLOGICALLY SYNERGISTIC MATERIALS:**

There is no information available.

**POTENTIAL FOR ACCUMULATION:**

Is not expected to accumulate. Phosphates are normally found in the body and are readily absorbed from the gastrointestinal tract, metabolized and excreted, mainly in the urine. Probably breaks down to orthophosphate in the body.

**V. FIRST AID MEASURES**

**INHALATION :**

If symptoms are experienced, remove source of contamination or have victim move to fresh air. If symptoms persist, obtain medical advice immediately.

**SKIN CONTACT:**

As quickly as possible, flush with lukewarm, gently flowing water for at least 5 minutes, or until the chemical is removed. If irritation persists, obtain medical advice immediately. Completely decontaminate clothing, shoes and leather goods before re-use.

**EYE CONTACT:**

Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 5 minutes, or until the chemical is removed, while holding the eyelid(s) open. If irritation persists, repeat flushing. Obtain medical advice immediately.

**INGESTION :**

If irritation or discomfort occur, obtain medical advice immediately.

**FIRST AID COMMENTS:**

All first aid procedures should be periodically reviewed by a doctor familiar with the material and its conditions of use in the workplace.

**VI. FIRE FIGHTING MEASURES**

**FLASH POINT:**

Not combustible (will not burn).

**LOWER FLAMMABLE (EXPLOSIVE) LIMIT (LFL/LEL):**

Not applicable

**UPPER FLAMMABLE (EXPLOSIVE) LIMIT (UFL/UEL) :**

Not applicable

**AUTOIGNITION (IGNITION) TEMPERATURE :**

Not applicable



**EXPLOSION DATA - SENSITIVITY TO MECHANICAL IMPACT:**

Not sensitive. Stable compound.

**EXPLOSION DATA - SENSITIVITY TO STATIC CHARGE:** Not sensitive.

**COMBUSTION AND THERMAL DECOMPOSITION PRODUCTS:** Phosphorus oxides

**FIRE HAZARD COMMENTS:**

Does not burn.

**EXTINGUISHING MEDIA:**

This material does not burn. Extinguish fire using appropriate extinguishing media for the surrounding fire.

**FIRE FIGHTING INSTRUCTIONS:**

Not applicable

**\*\* NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) HAZARD INDEX \*\***

**NFPA - HEALTH** : 0 -

**NFPA - FLAMMABILITY** : 0 -

**NFPA - REACTIVITY** : 0 - Normally stable under fire conditions, and not reactive with water.

**VII. ACCIDENTAL RELEASED MEASURE**

**PRECAUTIONS:**

Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. Wear adequate personal protective equipment. Notify government occupational health and safety and environmental authorities.

**CLEAN-UP :**

Do not touch spilled material. Prevent material from entering sewers or waterways. Contain spills of monosodic phosphate solutions with earth, sand, or absorbent material which does not react with spilled material.

**SMALL SPILLS:**

Soak up spill with absorbent material which does not react with spilled chemical. Put material in suitable, covered, labelled containers. Flush area with water.

**LARGE SPILLS:**

Shovel or sweep up dry material; avoid generating dust. Place in clean, dry, labelled containers and cover. Flush area with water.

**VIII. HANDLING AND STORAGE**

**HANDLING:**

Avoid generating dusts. Prevent the release of dust into the workplace air. Use in a well ventilated area, separate from the storage area. The use of compressed air to clean equipment, clothing, etc., is not recommended.



Dry sweeping is not recommended. Pre-wet the material or use a vacuum equipped with high efficiency filter(s).

Do not use with incompatible materials such as strong acids and strong bases. See Incompatibilities - Materials to Avoid section for more information.

Label and avoid damaging containers. Follow handling instructions on Material Safety Data Sheet. Maintain handling equipment. Practice good housekeeping.

**STORAGE :**

Store in suitable, labelled containers, preferably the supplier container. Protect from damage. It is good practice to keep storage containers closed when not in use and when empty. Follow storage advice provided on Material Safety Data Sheet.

**IX. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**NOTE :**

Exposure to this material can be controlled in many ways. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. This general information can be used to help develop specific control measures. Ensure that control systems are properly designed and maintained. Comply with occupational, environmental, fire, and other applicable regulations.

**SAMPLING AND ANALYSIS:**

Use appropriate instrumentation and sampling strategy (location, timing, duration, frequency, and number of samples). Interpretation of the sampling results is related to these variables and the analytical method. Sampling should be carried out by trained personnel.

**OSHA METHOD ID-111 - OSHA CD-ROM (OSHA A95-1).**

US Department of Labor, December 1994. Partially validated method. Collection on mixed cellulose ester membrane filter (MCE) (special handling required). Analysis by ion chromatography (IC). For further details contact the OSHA Salt Lake Technical Centre at (801) 487-0267.

**OSHA METHOD ID-165SG. OSHA CD-ROM (OSHA A95-1).**

US Department of Labor, December 1994. Partially validated method. Collection on treated silica gel sorbent tube. Analysis by ion chromatography (IC). For further details contact the OSHA Salt Lake Technical Centre at (801) 487-0267.

**NIOSH METHOD 7903 - NIOSH Manual of Analytical Methods. 4th edition. Volume 1. Fully evaluated method. Collection on washed silica gel sorbent tube. Desorption with 10 mL 1.7 mM sodium bicarbonate/1.8 mM sodium carbonate. Analysis by ion chromatography.**

**ENGINEERING CONTROLS:**

Engineering methods to control hazardous conditions are preferred. Use local exhaust ventilation, and process enclosure if necessary, to control airborne dust or mist from solutions. Use a ventilation system which is resistant to alkaline materials. Supply sufficient replacement air to make up for air removed by exhaust system. Personal protective equipment may also be required.

**PERSONAL PROTECTIVE EQUIPMENT:** If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection. Have appropriate equipment available for use in emergencies such as spills.



If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection. Refer to the CSA Standard Z94.4-93, "Selection, Use and Care of Respirators," available from the Canadian Standards Association, Rexdale, Ontario, M9W 1R3.

**RESPIRATORY PROTECTION GUIDELINES:**

An approved respirator suitable for protection from dusts and mists may be adequate.

**EMERGENCY OR PLANNED ENTRY INTO UNKNOWN CONCENTRATIONS OR IDLH CONDITIONS:**

Positive pressure, full-facepiece SCBA; or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA.

**ESCAPE:**

Full-facepiece respirator with high-efficiency particulate filter(s); or escape-type SCBA.

**ABBREVIATIONS:** SAR = supplied-air respirator; SCBA = self-contained breathing apparatus. IDLH = Immediately Dangerous to Life or Health.

**EYE/FACE PROTECTION:**

Chemical safety goggles. A face shield may also be necessary.

**SKIN PROTECTION:**

Impervious gloves, coveralls, boots, and/or other resistant protective clothing. Have a safety shower/eye-wash fountain readily available in the immediate work area.

**RESISTANCE OF MATERIALS FOR PROTECTIVE CLOTHING:**

No specific guidelines are available.

**EXPOSURE CONTROLS/PERSONAL PROTECTION COMMENTS : \*\* EXPOSURE GUIDELINES \*\*Remove contaminated clothing promptly. Keep contaminated clothing in closed containers. Discard or launder before rewearing. Inform laundry personnel of contaminant's hazards. Do not eat, drink or smoke in work areas. Wash hands thoroughly after handling this material. Maintain good housekeeping.**

**\* THRESHOLD LIMIT VALUES (TLVs) / AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH) / 1996 \***

**TIME-WEIGHTED AVERAGE (TLV-TWA):** Not established

**SHORT-TERM EXPOSURE LIMIT (TLV-STEL):** Not established

**TLV COMMENTS: ---**

**TIME WEIGHTED AVERAGE (PEL-TWA):** Not established

**SHORT TERM EXPOSURE LIMIT (PEL-STEL):** Not established

**TIME WEIGHTED AVERAGE (PEL-TWA):** Not established

**X. PHYSICAL AND CHEMICAL PROPERTIES**

**MOLECULAR WEIGHT:** 367.91 (anhydrous); 475.98 (hexahydrate)



**CONVERSION FACTOR:** Not applicable.

**MELTING POINT: BOILING POINT:**

Anhydrous form decomposes at 622 deg C (1152 deg F). The hexahydrate dehydrates (loses water) and decomposes at 100-120 deg C (212-248 deg F)

**RELATIVE DENSITY (SPECIFIC GRAVITY):**

2.57-2.62 (water = 1) (anhydrous); 2.12 (water = 1)

**SOLUBILITY IN WATER:**

Soluble (14.6 g/100 mL at 25 deg C)

**SOLUBILITY IN OTHER LIQUIDS:**

No information available.

**VAPOUR DENSITY:**

Not applicable.

**VAPOUR PRESSURE:**

Zero (does not form vapour)

**SATURATION VAPOUR CONCENTRATION: EVAPORATION RATE:**

Not applicable.

**pH VALUE:**

9.7-9.9 (1% solution)

**CRITICAL TEMPERATURE:**

Not applicable.

**COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT):** N.D.

**OTHER PHYSICAL PROPERTIES:**

**ACIDITY:** ND

**VISCOSITY-DYNAMIC:**ND

**XI. STABILITY AND REACTIVITY**

**STABILITY :**

Normally stable.

**HAZARDOUS POLYMERIZATION :**

Will not occur

**CONDITIONS TO AVOID:**

Moisture

**HAZARDOUS DECOMPOSITION PRODUCTS:**

None

**INCOMPATIBILITY - MATERIALS TO AVOID:**

STRONG CAUSTICS (e.g. potassium hydroxide) - react violently, causing spattering and considerable release of heat.

**STABILITY AND REACTIVITY COMMENTS:** Stable

**XII. TOXICOLOGICAL INFORMATION**

**LD50 (oral, rat):** N.D.

**LD50 (oral, rat):** N.D.

**LD50 (oral, mouse):** N.D.

**EYE IRRITATION** (rabbit): N.D.

**SKIN IRRITATION** (rabbit, guinea pig): Negligible irritation and no visible tissue damage was observed after a 50% solution was applied to intact and abraded skin.

**EFFECTS OF SHORT-TERM (ACUTE) SKIN CONTACT:** Kidney damage was observed in rats fed a diet containing 2% or 10% monosodic phosphate for one month, but not in animals fed 0.2%. No detectable toxic effects were observed following ingestion of 1.8% in the diet for 6 months and 0.5% for 2 years.

**MUTAGENICITY:** Was not mutagenic in three different mammalian in vivo test systems (host mediated assay in mice, cytogenetic study in rat bone marrow cells, and dominant lethal test in rats). Tests in vitro using bacteria, yeast and cultured human cells were also negative.

**XIII. ECOLOGICAL INFORMATION**

NOTE : This section is subject to future development.

**XIV. DISPOSAL CONSIDERATION**

Review federal, provincial and local government requirements prior to disposal. Store material for disposal as indicated in Storage Conditions Disposal by secure landfill may be acceptable.

**XV. TRANSPORT INFORMATION**

**This chemical is not specifically listed in the Canadian Transportation of Dangerous Goods Regulations. However it may be regulated as a part of a chemical family or group Not Otherwise Specified (N.O.S.) (e.g. LIQUID DYES N.O.S.). Consult the regulation.**

**SHIPPING NAME AND DESCRIPTION:** Tetrasodic Pyrophosphate

**PRODUCT IDENTIFICATION NUMBER (PIN):**

**CLASSIFICATION:** --

**SPECIAL PROVISIONS:**

**PACKING GROUP:**

**REGULATED LIMIT:**

**NOTE:** This information incorporates Schedule No. 21 amendments to the Transportation of Dangerous Goods Act, 1992, effective December 13, 1995.

**\*\* U.S. DEPARTMENT OF TRANSPORT (DOT) HAZARDOUS**





**MATERIALS SHIPPING INFORMATION (49 CFR) \*\***

**HAZARDOUS MATERIAL DESCRIPTION AND PROPER SHIPPING NAME: ---**  
**HAZARD CLASS OR DIVISION: ---**  
**IDENTIFICATION NUMBER: ---**  
**PACKING GROUP: ---**  
**LABEL(S) (IF NOT EXCEPTED): ---**

**NOTE :** This information (Docket No. HM-215A) was taken from the U.S. Federal Register, Vol. 59, no. 249 (December 1994) and is effective October 1, 1996.

**XVI. REGULATORY INFORMATION**

**\*\* CANADIAN WORKPLACE HAZARDOUS MATERIALS  
INFORMATION SYSTEM (WHMIS) \*\***

**PROPOSED WHMIS CLASSIFICATION :**

Insufficient information.

**WHMIS HEALTH EFFECTS :**

Insufficient information.

**WHMIS INGREDIENT DISCLOSURE LIST :**

. Not included.

**DETAILED WHMIS CLASSIFICATION ACCORDING TO CRITERIA :**

information

Reproductive Toxicity: Insufficient information

Mutagenicity: Insufficient information; no in vivo studies. Negative results obtained in bacteria.

Respiratory Tract Sensitization: Does not meet criteria; not reported as human respiratory sensitizer

Skin Sensitization: Insufficient information

Skin Irritation: Does not meet criteria; corrosive materials are not also classified as irritants.

Eye Irritation: Does not meet criteria; corrosive materials are not also classified as irritants.

CLASS E - CORROSIVE MATERIAL: ---

CLASS F - DANGEROUSLY REACTIVE MA CLASS A - COMPRESSED GAS: Does not meet criteria

CLASS B - FLAMMABLE & COMBUSTIBLE MATERIAL: Does not meet criteria; not combustible

CLASS C - OXIDIZING MATERIAL: Does not meet criteria

CLASS D - POISONOUS AND INFECTIOUS MATERIAL. DIVISION 1 - IMMEDIATE AND  
SERIOUS TOXIC EFFECTS: Does not meet criteria

Acute Lethality: Does not meet criteria;

CLASS D - POISONOUS AND INFECTIOUS MATERIAL. DIVISION 2 - OTHER TOXIC  
EFFECTS: Insufficient information for classification; see detailed evaluation below.

Chronic Health Effects: Insufficient information

Carcinogenicity: Insufficient information; not in standard reference lists.

Teratogenicity and Embryotoxicity: Insufficient TERIAL: Does not meet criteria

**\*\* U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)  
HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200) \*\***

**OSHA HAZARD COMMUNICATION EVALUATION :**

**\*\* EUROPEAN UNION (EU)  
CLASSIFICATION AND LABELLING INFORMATION \*\***

**Tri-Chem Industries, Inc.**

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INDUSTRIAL SPECIALTY CHEMICALS

P.O. Box 2056 Coppell, TX 75019

**An official classification for this substance has not been published in Commission Directives 93/72/EEC or 94/69/EC.**

## **XVII. OTHER INFORMATION**

### **Disclaimer:**

The information and recommendations presented herein are based on sources believed to be reliable as of the date hereof. Tri-Chem Industries, Inc. makes no representation as to the completeness or accuracy thereof. It is the user's responsibility to determine the product's suitability for its intended use, the product's safe use, and the product's proper disposal. No representations or warranties not expressly set forth herein are made hereunder, whether express or implied by operation of law or otherwise, including, but not limited to any implied warranties of MERCHANTABILITY OR FITNESS. Tri-Chem Industries, Inc. neither assumes nor authorizes any other person to assume for it, any other or ADDITIONAL LIABILITY OR RESPONSIBILITY resulting from the use of, or reliance upon, this information.