

Material Safety Data Sheet

Material Name: Trisodium Phosphate, 12 Hydrate Crystalline (Technical Grade)

ID: C1-150

*** Section 1 - Chemical Product and Company Identification ***

Chemical Name: Trisodium Phosphate, 12 Hydrate Crystalline (Technical Grade)

Product Use: For Commercial Use

Synonyms: Sodium phosphate tribasic, Tribasic sodium phosphate, Trisodium orthophosphate, Orthophosphate trisodique, TSP

Supplier Information

Chem One Ltd.
14140 Westfair East Drive
Houston, Texas 77041-1104

Phone: (713) 896-9966
Fax: (713) 896-7540
Emergency # 1-800-424-9300

General Comments

NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

*** Section 2 - Composition / Information on Ingredients ***

CAS #	Component	Percent
10101-89-0	Trisodium Phosphate Dodecahydrate	98-100

Component Related Regulatory Information

No information available.

Component Information/Information on Non-Hazardous Components

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

*** Section 3 - Hazards Identification ***

Emergency Overview

This product is a colorless, odorless solid, in crystal form. This product is corrosive, and can cause moderate to severe irritation to contaminated tissues which come in contact with dusts or particulates of this product. If ingested burns can occur to the digestive system. This product is not flammable or reactive. Thermal decomposition of this product produces irritating vapors and toxic gases (e.g. phosphorous oxides). Emergency responders should wear proper personal protective equipment for the releases to which they are responding.

Hazard Statements

DANGER! MAY BE FATAL IF SWALLOWED. MAY CAUSE BURNS TO THE EYES AND SKIN. EYE CONTACT CAN RESULT IN CORNEAL DAMAGE. MAY CAUSE DIFFICULT BREATHING AND RESPIRATORY TRACT IRRITATION. Avoid contact with eyes and skin. Avoid breathing dusts. Keep containers closed. Use with adequate ventilation. Wash thoroughly after handling. Use with adequate ventilation.

Potential Health Effects: Eyes

Exposure to particulates or solution of this product may cause moderate to severe irritation of the eyes, including burns, depending on duration and concentration of contact. Severe contact with the eyes can cause corneal injury, including clouding and burns, which could lead to blindness. Permanent damage (cloudiness of the cornea) has resulted from contact with Trisodium Phosphate, Anhydrous solution in two case reports, one involving hot solution. Concentrations were not reported. In another case report, injury occurred as a result of a splash of aqueous solution, but healed within 48 hours (concentration not reported).

Potential Health Effects: Skin

This product can cause moderate to severe irritation of the skin, depending on duration and concentration of exposure. Severe exposure or contact in the presence of moisture, or if product is in solution can cause burns. Alkalies penetrate skin slowly. The extent of damage therefore depends on duration of contact. Repeated skin contact to low levels may lead to dermatitis (red, cracked skin).

Potential Health Effects: Ingestion

Ingestion of this product in large volumes may irritate or burn the tissues of the mouth, esophagus, and other tissues of the digestive system. Symptoms of exposure can include vomiting, diarrhea, and nausea. In severe cases, death may result. The estimated fatal dose of sodium phosphates is 50 g.

Potential Health Effects: Inhalation

Breathing dusts or particulates generated by this product or to mists if in solution, can lead to moderate to severe irritation of the nose, throat or respiratory system, depending on duration and concentration of exposure. Symptoms of minor exposure could include coughing, wheezing, and shortness of breath. According to one report, irritation of the nose and throat was caused by exposure to 0.5 to 2.0 mg/m³ airborne dust for one hour. Irritation has also been reported after short exposures above 7-10 mg/m³. Severe inhalation exposure can result in pulmonary edema (a condition of fluid in the lungs), which can be fatal.

HMIS Ratings: Health Hazard: 2 Fire : 0 Physical Hazard: 1

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

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*** Section 4 - First Aid Measures ***

First Aid: Eyes

In case of contact with eyes, rinse immediately with plenty of water for at least 20 minutes. Seek immediate medical attention.

First Aid: Skin

Remove all contaminated clothing. For skin contact, wash thoroughly with soap and water for at least 20 minutes. Seek immediate medical attention if irritation develops or persists. Completely decontaminate clothing, shoes, and leather goods before reuse.

First Aid: Ingestion

Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Immediately give large amounts of water. If vomiting occurs naturally, rinse mouth and repeat administration of water. Obtain medical advice immediately. Never give anything by mouth to a victim who is unconscious or having convulsions.

First Aid: Inhalation

Remove source of contamination or move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Get immediate medical attention.

First Aid: Notes to Physician

Provide general supportive measures and treat symptomatically.

*** Section 5 - Fire Fighting Measures ***

Flash Point: Not flammable

Method Used: Not applicable

Upper Flammable Limit (UEL): Not applicable

Lower Flammable Limit (LEL): Not applicable

Auto Ignition: Not applicable

Flammability Classification: Not applicable

Rate of Burning: Not applicable

General Fire Hazards

Trisodium Phosphate Dodecahydrate is not combustible, and does not contribute to the intensity of a fire. Closed containers exposed to heat may explode. When involved in a fire, this material may decompose and produce irritating vapors, acrid smoke and toxic gases. Solutions can react with metals such as aluminum, zinc and galvanized iron to produce highly flammable hydrogen gas, that may explode if ignited.

Hazardous Combustion Products

Oxides of phosphorous.

Extinguishing Media

Use methods for the surrounding fire and other materials involved in the fire.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self-contained breathing apparatus. If possible control runoff from fire control or dilution water to prevent environmental contamination.

NFPA Ratings: Health: 2 Fire: 0 Instability: 1 Other:

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

*** Section 6 - Accidental Release Measures ***

Containment Procedures

Stop the flow of material, if this can be done without risk. Contain the discharged material. If sweeping of a contaminated area is necessary use a dust suppressant agent, which does not react with product (see Section 10 for incompatibility information).

Clean-Up Procedures

Small releases can be cleaned-up wearing gloves, goggles and suitable body protection. In case of a large spill (in which excessive dusts can be generated), clear the affected area, protect people, and respond with trained personnel. Do not allow the spilled product to enter public drainage system or open water courses. Place all spill residues in an appropriate container and seal.

Thoroughly wash the area after a spill or leak clean-up. Prevent spill rinsate from contamination of storm drains, sewers, soil or groundwater.

Evacuation Procedures

Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. In case of large spills, follow all facility emergency response procedures.

Special Procedures

Remove soiled clothing and launder before reuse. Avoid all skin contact with the spilled material. Have emergency equipment readily available.

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*** Section 7 - Handling and Storage ***

Handling Procedures

All employees who handle this material should be trained to handle it safely. Do not breathe dust. Avoid all contact with skin and eyes. Use this product only with adequate ventilation. Wash thoroughly after handling.

Storage Procedures

Keep container tightly closed when not in use. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Storage areas should be made of corrosion- and fire-resistant materials. Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Use corrosion-resistant structural materials, lighting, and ventilation systems in the storage area. Floors should be sealed to prevent absorption of this material. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Have appropriate extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers).

Empty containers may contain residual particulates; therefore, empty containers should be handled with care. Do not cut, grind, weld, or drill near this container. Never store food, feed, or drinking water in containers that held this product. Keep this material away from food, drink and animal feed. Do not store this material in open or unlabeled containers. Limit quantity of material stored.

*** Section 8 - Exposure Controls / Personal Protection ***

Exposure Guidelines

A: General Product Information

Follow the applicable exposure limits.

B: Component Exposure Limits

The exposure limits given are for Particulates Not Otherwise Classified.

ACGIH: 10 mg/m³ TWA (Inhalable fraction)

3 mg/m³ TWA (Respirable fraction)

OSHA: 15 mg/m³ TWA (Total dust)

5 mg/m³ TWA (Respirable fraction)

DFG MAKs 4 mg/m³ TWA (Inhalable fraction)

1.5 mg/m³ TWA (Respirable fraction)

Engineering Controls

Ventilation must be sufficient to effectively remove and prevent buildup of dust or fumes that may be generated during handling or thermal processing. Use general ventilation and use local exhaust, where possible, in confined or enclosed spaces.

PERSONAL PROTECTIVE EQUIPMENT

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132). Please reference applicable regulations and standards for relevant details.

Personal Protective Equipment: Eyes/Face

Wear safety glasses (or goggles). If necessary, refer to U.S. OSHA 29 CFR 1910.133.

Personal Protective Equipment: Skin

Use impervious gloves. Gloves should be tested to determine their suitability for prolonged contact with this material. If necessary, refer to U.S. OSHA 29 CFR 1910.138.

Personal Protective Equipment: Respiratory

None required where adequate ventilation conditions exist. If airborne concentration is high, use an appropriate respirator or dust mask. If airborne concentrations are above the applicable exposure limits, use NIOSH-approved respiratory protection. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

Personal Protective Equipment: General

Wash hands thoroughly after handling material. Do not eat, drink or smoke in work areas. Have a safety shower or eye-wash fountain available.

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*** Section 9 - Physical & Chemical Properties ***

Physical Properties: Additional Information

The data provided in this section is to be used for product safety handling purposes. Please refer to Product Data Sheets, Certificates of Conformity or Certificates of Analysis for chemical and physical data for determinations of quality and for formulation purposes.

Appearance:	White crystals	Odor:	Odorless
Physical State:	Solid	pH:	12.0 (1% solution)
Vapor Pressure:	Zero	Vapor Density:	Not applicable
Boiling Point:	Not applicable	Melting Point:	166 deg F (73 deg C)
Solubility (H2O):	28 g/100 ml water @ 15 deg C	Specific Gravity:	1.62(H2O = 1)
Freezing Point:	Not applicable	Particle Size:	Not determined
Softening Point:	Not applicable	Bulk Density:	Not available
Molecular Weight:	380.13	Chemical Formula:	Na3PO4•12H2O

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

Stable under conditions of standard temperature and pressure. Trisodium Phosphate can react with air to form disodium phosphate and sodium carbonate. Trisodium phosphate forms strong caustic solution, similar to soda lye. Solutions can react with metals such as aluminum, zinc and galvanized iron to produce highly flammable hydrogen gas, that may explode if ignited.

Chemical Stability: Conditions to Avoid

Avoid high temperatures, exposure to air and incompatible materials.

Incompatibility

Trisodium Phosphate is incompatible with strong acids and may react violently; in solution reaction may cause splattering. In solution, Trisodium Phosphate will react with metals such as aluminum, zinc and galvanized iron to form flammable hydrogen gas. Trisodium Phosphate may react violently with magnesium. Trisodium Phosphate can be corrosive with some metals, including aluminum, zinc and tin. Trisodium Phosphate is corrosive to gray cast iron at high temperatures and may be corrosive to steel or brass, if wet.

Hazardous Decomposition

Phosphorus oxides.

Hazardous Polymerization

Will not occur.

*** Section 11 - Toxicological Information ***

Acute and Chronic Toxicity

A: General Product Information

May cause moderate to severe eye, skin, nose, throat and respiratory tract irritation or burns. After 0.1 ml of Trisodium Phosphate was placed in the eye of a rabbit, a corrosive effect was seen within 24 hours. After 14 days, eye regained normal appearance. Moderate irritation was observed when 0.5 mg/L of Trisodium Phosphate was held in continuous contact with intact skin of a rabbit and abraded skin for 24 hours.

Chronic: Long term skin overexposure to this product may lead to dermatitis (red, itchy skin).

B: Component Analysis - LD50/LC50

Trisodium Phosphate:

LD₅₀ (Oral-Rat) 7400 mg/kg; LD₅₀ (Intraperitoneal-Mouse) 430 mg/kg; LD₅₀ (Skin-Rabbit) > 7940 mg/kg

C: Component Analysis - TDLo/LDLo

LDLo (Intravenous-Rabbit) 1580 mg/kg

Carcinogenicity

A: General Product Information

Trisodium Phosphate is not considered carcinogenic by ACGIH, IARC, NIOSH, NTP, or OSHA.

B: Component Carcinogenicity

No information available.

Epidemiology

No information available.

Neurotoxicity

No information available.

Mutagenicity

Sex Chromosome Loss and Non-Disjunction (Oral-Drosophila melanogaster) 11 pph

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*** Section 11 - Toxicological Information *** (Continued)

Teratogenicity

No information available.

Other Toxicological Information

LD (Skin-Rabbit) > 300 mg/kg

*** Section 12 - Ecological Information ***

Ecotoxicity

A: General Product Information

Product can be dangerous to aquatic life in high concentrations as it will increase the pH of the aquatic environment.

B: Ecotoxicity

No information available.

Environmental Fate

Product is not expected to accumulate in the food chain.

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

EPA waste code for corrosivity (D002) may be required. Wastes should be tested to determine applicability.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

All wastes must be handled in accordance with local, state and federal regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

*** Section 14 - Transportation Information ***

NOTE: The shipping classification information in this section (Section 14) is meant as a guide to the overall classification of the product. However, transportation classifications may be subject to change with changes in package size. Consult shipper requirements under I.M.O., I.C.A.O. (I.A.T.A.) and 49 CFR to assure regulatory compliance.

US DOT Information

UN/NA #: Not Applicable

Shipping Name: Not Regulated

Hazard Class: Not Applicable

Packing Group: Not Applicable

Required Label(s): Not Applicable

Additional Info.: For packagings equal to or greater than 5,000 pounds this product is REGULATED as a U.S. DOT hazardous material as the following: RQ, UN 3077, Environmentally hazardous substances, solid, n.o.s. (sodium phosphate, tribasic), 9, PG III, Label CLASS 9.

50th Edition International Air Transport Association (IATA):

For Shipments by Air transport: This information applies to air shipments both within the U.S. and for shipments originating in the U.S., but being shipped to a different country.

UN/NA #: UN 3077

Proper Shipping Name: Environmentally Hazardous Substance, solid, n.o.s. (Trisodium Phosphate)

Hazard Class: 9 (Miscellaneous Dangerous Goods)

Packing Group: III

Passenger & Cargo Aircraft Packing Instruction: 911

Passenger & Cargo Aircraft Maximum Net Quantity: 400 kg

Limited Quantity Packing Instruction (Passenger & Cargo Aircraft): Y911

Limited Quantity Maximum Net Quantity (Passenger & Cargo Aircraft): 30 kg G

Cargo Aircraft Only Packing Instruction: 911

Cargo Aircraft Only Maximum Net Quantity: 400 kg

Excepted Quantities: E1

Special Provisions: A97, A158

ERG Code: 9L

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Limited Quantity Shipments: Shipments for air must be marked with the Proper Shipping Name Environmentally Hazardous Substance, solid, n.o.s. (Trisodium Phosphate) and shall be marked with the UN Number (3077) preceded by the letters "UN", placed within a diamond. The width of the line forming the diamond shall be at least 2 mm; the number shall be at least 6 mm high. The total weight of each outer packaging cannot exceed 30 kg.

Excepted Quantities: The maximum quantity of this material per inner receptacle is limited to 30 g per receptacle and the aggregate quantity of this material per completed package does not exceed 1kg. The inner receptacles must be securely packed in an intermediate packaging with cushioning material to prevent movement in the inner receptacles and packed in a strong outer box with a gross mass not to exceed 29kg. The completed package must meet a drop test. The requirements are found in 2.7.6.1. The package must not be opened or otherwise altered until it is no longer in commerce. For air transportation no shipping paper is required. The package must be legibly marked with the following marking:



NOTE: The "***" must be replaced by the primary hazard class, or when assigned, the division of each of the hazardous materials contained in the package. The "****" must be replaced by the name of the shipper or consignee if not shown elsewhere on the package. The symbol shall be not less than 100 mm x 100 mm and must be durable and clearly visible.

International Maritime Organization (I.M.O.) Classification

I.M.O. Classification: Sodium Phosphate, Tribasic is not regulated under the I.M.D.G./I.M.O. regulations.

***** Section 15 - Regulatory Information *****

US Federal Regulations

A: General Product Information

Trisodium Phosphate Dodecahydrate (CSA # 10101-89-0) is not on the TSCA inventory. As a hydrate, Trisodium Phosphate Dodecahydrate is excepted from TSCA Inventory requirements (per 40 CFR 720.3 (u) (2)).

B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

SARA 302 There are no specific Threshold Planning Quantities for Trisodium Phosphate Dodecahydrate. The default Federal (EHS TPQ) MSDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.

Trisodium Phosphate Dodecahydrate (10101-89-0)

CERCLA: final RQ = 5000 pounds (2270 kg) (Listed under 'Sodium phosphate, tribasic')

The following identified ingredients are not on the TSCA Inventory:

10101-89-0 Trisodium Phosphate Dodecahydrate

C: Sara 311/312 Tier II Hazard Ratings:

Component	CAS #	Fire Hazard	Reactivity Hazard	Pressure Hazard	Immediate Health Hazard	Chronic Health Hazard
Trisodium Phosphate Dodecahydrate	10101-89-0	No	No	No	Yes	No

State Regulations

A: General Product Information

California Proposition 65

Trisodium Phosphate Dodecahydrate is not on the California Proposition 65 chemical lists.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substance lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Trisodium Phosphate Dodecahydrate	10101-89-0	Y	N	Y	N	Y	Y

Other Regulations

A: General Product Information

Trisodium Phosphate Anhydrous is designated as a hazardous substance under section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply

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to discharges of this substance.

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Trisodium Phosphate Dodecahydrate	10101-89-0	No	No	Unlisted

C: Component Information (Canada)

Trisodium Phosphate Dodecahydrate is not listed in the WHMIS IDL

ANSI LABELING (Z129.1):

DANGER! MAY BE FATAL IF SWALLOWED. CAUSES SKIN AND EYE BURNS. HARMFUL IF INHALED. Do not taste or swallow. Do not get on skin or in eyes. Avoid breathing dusts or particulates. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Wear gloves, goggles, faceshields, suitable body protection, and NIOSH/MSHA-approved respiratory protection, as appropriate. **FIRST-AID:** In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If inhaled, remove to fresh air. If ingested, do not induce vomiting. Get medical attention. **IN CASE OF FIRE:** Use water fog, dry chemical, CO₂, or "alcohol" foam. **IN CASE OF SPILL:** Absorb spill with inert material or neutralizing agent for bases. Place residue in suitable container. Consult Material Safety Data Sheet for additional information.

*** Section 16 - Other Information ***

Other Information

Chem One Ltd. ("Chem One") shall not be responsible for the use of any information, product, method, or apparatus herein presented ("Information"), and you must make your own determination as to its suitability and completeness for your own use, for the protection of the environment, and for health and safety purposes. You assume the entire risk of relying on this Information. In no event shall Chem One be responsible for damages of any nature whatsoever resulting from the use of this product or products, or reliance upon this Information. By providing this Information, Chem One neither can nor intends to control the method or manner by which you use, handle, store, or transport Chem One products. If any materials are mentioned that are not Chem One products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed. Chem One makes no representations or warranties, either express or implied of merchantability, fitness for a particular purpose or of any other nature regarding this information, and nothing herein waives any of Chem One's conditions of sale. This information could include technical inaccuracies or typographical errors. Chem One may make improvements and/or changes in the product (s) and/or the program (s) described in this information at any time. If you have any questions, please contact us at Tel. 713-896-9966 or E-mail us at Safety@chemone.com.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration

Contact: Sue Palmer-Koleman, PhD

Contact Phone: (713) 896-9966

Revision Log

07/11/00 10:50AM SEP Company name revised, Sect 1 and 16, from Corporation to Ltd.; text in Sect 12 "will lower pH", changed to "will increase pH".
06/02/01 9:31 AM HDF Checked exposure limits; made changes to Sect 9; overall review, add SARA 311/312 Haz Ratings.
08/20/01 6:00 PM CLJ Add Shipments by Air information to Section 14, Changed contact to Sue, non-800 Chemtrec Num.
09/30/03: 11:10 AM HDF General review and up-date of entire MSDS. Up-date of HMIS categories. Up-date of Section 8. Addition of Stability information, Section 10. Up-date of toxicity data, Section 11. Up-date of Section 14. Addition of Clean Water Act information, Section 15.
06/22/05: 11:10 SEP Updated IATA, Section 14
10/23/07 2:31pm SEP Updated IATA Section 14
10/15/08 10:53 AM DLY Changed Chem One Physical Address, Section 1
12/27/2010 4:00 PM SEP Updated IATA

This is the end of MSDS # C1-150