



Material Safety Data Sheet

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TRISODIUM PHOSPHATE

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Trisodium Phosphate dodecahydrate

Chemical Formula: $\text{Na}_3\text{PO}_4 \cdot 12\text{H}_2\text{O}$

CAS Number: 10101-89-0

Other Designations: TSP; trisodium orthophosphate; sodium phosphate, tribasic; tertiary sodium phosphate; trisodium phosphate

Derivation: Prepared by combining proper proportions of phosphoric acid and soda ash to form disodium phosphate, then adding caustic soda.

General Use: Used in softening water, tanning leather, manufacturing paper, clarifying sugar; in detergent mixtures, photographic developers, food additives, buffers, emulsifiers, dietary supplements, boiler water compounds, and industrial cleaners.

Emergency Telephone: (ChemTel) Contract MIS0000335; 800 255-3924; INTL 813 248-0585

Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	EINECS/ELINCS	% wt or % vol
Trisodium Phosphate dodecahydrate	10101-89-0	231-509-8	100

Trace Impurities:

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
	TWA	STEL	TWA	STEL	TWA	STEL	IDLH
Trisodium Phosphate	5 mg/m ³	none estab.	none estab.	none estab.	none estab.	none estab.	none estab.

Section 3 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆
MAY CAUSE EYE INJURY. CAUSES SKIN IRRITATION. MAY BE HARMFUL IF SWALLOWED.

HMIS

H	1
F	0
R	2

PPE†

†Sec. 8

Potential Health Effects

Primary Entry Routes: Inhalation, ingestion or skin contact.

Target Organs: Skin, digestive tract.

Acute Effects

Inhalation: May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema.

Eye: May cause severe eye irritation. May result in corneal injury.

Skin: May cause severe irritation and possible burns.

Ingestion: May cause severe gastrointestinal tract irritation with nausea, vomiting and possible burns.

Carcinogenicity: IARC, NTP, and OSHA do not list Trisodium Phosphate as a carcinogen.

Medical Conditions Aggravated by Long-Term Exposure:

Chronic Effects: Prolonged or repeated eye and skin contact causes irritation. Injury to the esophagus from scarring may occur. Alkali exposures may necessitate irrigation for extended duration.

Section 4 - First Aid Measures

Inhalation: Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Eye Contact: Prolonged or repeated eye and skin contact causes irritation.

Skin Contact: Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

TRISODIUM PHOSPHATE

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Treat symptomatically and supportively.



Section 5 - Fire-Fighting Measures

Flash Point: noncombustible

Burning Rate: N/A

Autoignition Temperature: noncombustible

LEL: N/A

UEL: N/A

Flammability Classification: noncombustible

Extinguishing Media: Use what is appropriate to the surrounding fire since this material is noncombustible.

Unusual Fire or Explosion Hazards: In a fire situation at high temperature, phosphates can emit highly toxic phosphorus oxides (PO_x) fumes.

Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways.

Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.



Section 6 - Accidental Release Measures

Spill /Leak Procedures: Cleanup personnel should wear the necessary personal protective equipment to prevent skin or eye contact and dust inhalation.

Small Spills: Vacuum or sweep up material and place into a suitable disposal container.

Large Spills

Containment: Dike with inert absorbent material, as needed, to contain and limit spill area. Sweep, vacuum, or scoop the spilled solid, avoiding dust generation, into a suitable disposal container (with secure lid). Do not release into sewers or waterways.

Cleanup: Flush residues to drain with plenty of water.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Wash thoroughly after handling. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.

Storage Requirements: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Avoid dust inhalation, body contact, contact with acidic materials, and heating to decomposition.

Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls:

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or non-routine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA.

Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.



Section 9 - Physical and Chemical Properties

Physical State: solid
Appearance and Odor: white/off white crystals
 /powder/granules - odorless
Odor Threshold:
Vapor Pressure:
Vapor Density (Air=1):
Formula Weight: 380.12
Density:
Specific Gravity (H₂O=1, at 4 °C): 1.62 g/cm³
pH:

Water Solubility: soluble
Other Solubilities:
Boiling Point: at 212 °F (100 °C) (decomposes)
Freezing/Melting Point: 163.9 to 170.1 °F (73.3 to 76.7 °C)
Viscosity:
Refractive Index:
Surface Tension:
% Volatile:
Evaporation Rate:

Section 10 - Stability and Reactivity

Stability: Trisodium Phosphate is stable at room temperature in closed containers under normal storage and handling conditions.
Polymerization: Hazardous polymerization will not occur.
Chemical Incompatibilities: This strong caustic material reacts violently with water and strong acids to generate heat.
Conditions to Avoid: Never heat to decomposition.
Hazardous Decomposition Products: Thermal oxidative decomposition of Trisodium Phosphate can produce highly toxic fumes of phosphorus oxides (PO_x) and sodium oxide (Na₂O).

Section 11- Toxicological Information

Toxicity Data:*

Rabbit, intravenous, LD_{Lo}: 1580 mg/kg
Acute Inhalation Effects:
 Human, inhalation, TC_{Lo}: ?? ppm

Chronic Effects: no data available
Carcinogenicity: no data available
Mutagenicity: no data available
Teratogenicity: no data available

Acute Oral Effects:
 Rat, oral, LD₅₀: 7400 mg/kg

* See NIOSH, RTECS (TC9575000), for additional toxicity data.

Section 12 - Ecological Information

Ecotoxicity: Aquatic toxicity: 151 ppm/96 hr/mosquito fish/TLm/Turbid water; 126 ppm/96 hr/daphnia magna/TLm
Environmental Fate: no data available
Environmental Degradation: no data available
Soil Absorption/Mobility: no data available

Section 13 - Disposal Considerations

Disposal: Scrap material can be used for neutralizing acid wastes or buried in an approved landfill. If regulations permit, you may flush *small* amounts to drain with large excess of water. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.
Disposal Regulatory Requirements:
Container Cleaning and Disposal

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101): Not Regulated.*

*(If shipping package is equal to or exceeds 5000 lbs., then product is hazard class 9, shipping name: Environmentally Hazardous substance, Solid, n.o.s. (sodium Phosphate, Tribasic); UN3077.)

Shipping Name:
Shipping Symbols:
Hazard Class:
ID No.:
Packing Group:
Label:
Special Provisions (172.102):

Section 15 - Regulatory Information**US FEDERAL****TSCA**

CAS# 10101-89-0 is not on the TSCA Inventory. It is a hydrate and exempt from TSCA Inventory requirements (40CFR720.3(u)(2)).

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

SARA**Section 302 (RQ)**

CAS# 10101-89-0: final RQ = 5000 pounds (2270 kg) (Listed under 'Sodiu

Section 302 (TPQ)

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 10101-89-0: acute.

Section 313

No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

CAS# 10101-89-0 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

Sodium phosphate tribasic dodecahydrate can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.

California No Significant Risk Level:

None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XI

Risk Phrases:

R 36/37/38 Irritating to eyes, respiratory system and skin.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 28 After contact with skin, wash immediately with plenty of ... (to be specified by the manufacturer).

WGK (Water Danger/Protection)

CAS# 10101-89-0: 1

Canada

None of the chemicals in this product are listed on the DSL/NDSL list.

This product has a WHMIS classification of D2B.

CAS# 10101-89-0 is not listed on Canada's Ingredient Disclosure List.

Section 16 - Other Information

The information contained herein is furnished without warranty of any kind. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment. Any information relating to usage is for guidance purposes only.