

TETRASODIUM PYROPHOSPHATE (TSPP)

Date of compilation: 02-08-2026 | Revised: 02-08-2026 | Version: 1

SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

TETRASODIUM PYROPHOSPHATE
Synonyms: TSPP; Sodium pyrophosphate; Tetrasodium diphosphate; Na&sub4;P&sub2;O&sub7;
CAS: 7722-88-5

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Buffering, emulsifying and water-retention agent in processed meat, seafood and dairy products (food-grade use); dispersant/thinner in oil-well drilling fluids; detergent and dishwashing-formulation builder; metal cleaning and surface-treatment formulations; ceramics deflocculant; paper-industry auxiliary. For industrial user only.
Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

SURAJ CHEMICALS
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
Email: sales@surajchemicals.com | Website: www.surajchemicals.com
GST No: 33ACEPV8190L1ZZ

1.4 Emergency phone number:

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Eye Irrit. 2	Eye irritation, Category 2, H319
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2.2 GHS label elements, including precautionary statements:

GHS: Warning

Hazard statements:

H319 – Causes serious eye irritation.

Precautionary statements:

P264: Wash exposed skin thoroughly after handling.
P280: Wear eye protection.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313: If eye irritation persists, get medical advice/attention.

2.3 Other hazards which do not result in classification:

Dust may cause transient mechanical irritation to the respiratory tract. Not a PBT or vPvB substance.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Tetrasodium Pyrophosphate
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 7722-88-5	Tetrasodium Pyrophosphate — Eye Irrit. 2: H319 – Warning	≥ 98% (technical/food grade, anhydrous)

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

3.2 Mixtures:

Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

Request medical assistance in case of discomfort or when in doubt, showing the SDS of this product.

By inhalation:

Remove to fresh air if dust is inhaled and irritation occurs.

By skin contact:

Wash with plenty of water and soap. Remove contaminated clothing.

By eye contact:

Rinse immediately and continuously with plenty of water for at least 15 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Seek medical attention if irritation persists.

By ingestion/aspiration:

Rinse the mouth with water. If a large quantity is swallowed, seek medical advice.

4.2 Most important symptoms/effects, acute and delayed:

Dust/concentrated solution causes serious eye irritation. No significant systemic effects expected at normal occupational exposure.

4.3 Indication of immediate medical attention and special treatment needed, if necessary:

Treat symptomatically. No specific antidote.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:

Suitable: Non-combustible; use extinguishing media appropriate to the surrounding fire (water spray, foam, dry chemical powder, carbon dioxide).
Unsuitable: None known.

5.2 Specific hazards arising from the chemical:

Non-combustible. Does not support combustion. No specific fire hazard from this product itself.

5.3 Special protective actions for fire-fighters:

Standard fire-fighting protective equipment (self-contained breathing apparatus and full protective clothing) when fighting fires involving surrounding combustible materials.

Additional provisions:

Cool containers/bulk storage exposed to fire with water spray if safe to do so.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Evacuate unnecessary personnel. Keep upwind. Ventilate the area. Use the personal protective equipment described in Section 8. Avoid contact with skin, eyes and clothing. Avoid generating and inhaling dust.

For emergency responders:

Wear suitable protective equipment as described in Section 8. Act only if trained and equipped for the task.

6.2 Environmental precautions:

Prevent large spills from entering drains, watercourses or soil. As a phosphate compound, significant release may contribute to eutrophication of receiving water. Contain and collect for recovery or disposal.

6.3 Methods and materials for containment and cleaning up:

Sweep up or vacuum (avoid dust generation) and place in a suitable, labelled container for reuse (preferred) or disposal.

6.4 Reference to other sections:

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

A. General precautions for safe use:

Avoid generating and inhaling dust. Avoid contact with eyes; use eye protection given the eye irritation classification.

B. Technical recommendations for the prevention of fires and explosions:

Not applicable – product is non-combustible and does not present fire or explosion hazards under normal conditions.

C. Technical recommendations on general occupational hygiene:

Do not eat, drink or smoke during handling; wash hands and exposed skin thoroughly after handling.

D. Technical recommendations to prevent environmental risks:

Avoid uncontrolled discharge to the environment, given the eutrophication potential of phosphate compounds. Follow the protective measures in Section 8.

7.2 Conditions for safe storage, including any incompatibilities:

A. Specific storage requirements:

Storage temperature	Ambient
Maximum shelf life	Typical value — refer to current specification sheet

B. General conditions for storage:

Store in a cool, dry, well-ventilated place in tightly closed containers/bags, away from moisture (hygroscopic) and strong acids.

7.3 Specific end use(s):

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

No specific occupational exposure limit established for tetrasodium pyrophosphate. Treat as a nuisance dust: as a general guide, the Factories Act, 1948 framework recommends total inhalable dust not otherwise classified be kept below 10 mg/m³ (TWA, 8 hr) and respirable dust below 4 mg/m³ (TWA, 8 hr).

8.2 Appropriate engineering controls:

Ensure adequate general and/or local exhaust ventilation to keep exposure below the occupational exposure limits (where established) and to keep dust concentrations as low as reasonably practicable. Eyewash station and safety shower should be available in the work area. Consult the manufacturer's information leaflet for storage, use, cleaning and maintenance of PPE.

B. Respiratory protection:

Not normally required with adequate ventilation. Where dust levels may be exceeded, use a particulate filter (dust) mask.

C. Specific protection for the hands:

Protective gloves against minor risks (e.g. cotton or nitrile).

D. Eye and face protection:

Chemical safety goggles mandatory, given the eye irritation hazard (H319).

E. Bodily protection:

Standard industrial workwear; dust mask/apron for prolonged bulk handling.

F. Additional emergency measures:

Emergency shower (ANSI Z358-1, ISO 3864-1:2011, ISO 3864-4:2011) and eyewash stations (DIN 12 899, ISO 3864-1:2011, ISO 3864-4:2011) should be available in the immediate work area.

Environmental exposure controls:

Avoid release of the product to drains, soil and watercourses. See subsection 7.1.D and Section 12.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance	
Physical state at 20°C	Solid (crystalline powder/granules)
Appearance	White crystalline powder
Odor	Odourless
Odour threshold	Not relevant (odourless)
Volatility	
Boiling point at atmospheric pressure	Not applicable (decomposes before boiling)
Vapour pressure at 20°C	Negligible
Evaporation rate at 20°C	Not relevant (solid)

Product Description	
Density / Relative density at 20°C	2.534 g/cm³
Bulk density	Typical value — refer to current specification sheet
pH (aqueous solution, 1% w/v)	≈ 10.0 – 10.5 (alkaline)
Partition coefficient n-octanol/water	Not applicable (inorganic salt)
Solubility in water at 20°C	≈ 4 – 5 g/100 mL
Decomposition temperature	Not relevant below melting point
Melting point/freezing point	≈ 880°C (literature range 880–990°C)
Flammability	
Flash Point	Non-applicable (inorganic solid)
Flammability (solid, gas)	Non-flammable
Autoignition temperature	Non-applicable
Lower / Upper flammability limit	Non-applicable
Particle Characteristics	
Median equivalent diameter	Typical value — refer to current specification sheet

Molecular weight: 265.90 g/mol (anhydrous). Values are typical literature/specification values for this well-characterised commercial grade; minor batch-to-batch variation is normal.

9.2 Other information:

Explosive properties	Not explosive
Oxidising properties	Not oxidising
Corrosive to metals	Not corrosive
Heat of combustion	Not relevant (non-combustible)
Surface tension at 20°C	Not relevant (solid)
Refraction index	Not relevant

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

Stable under normal conditions of use. Aqueous solutions are alkaline and will slowly hydrolyse to orthophosphate on prolonged storage/heating, especially under acidic conditions.

10.2 Chemical stability:

Chemically stable under the indicated conditions of storage, handling and use.

10.3 Possibility of hazardous reactions:

No hazardous reactions expected under normal use and storage conditions.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	No specific hazard	No specific hazard	No specific hazard	Avoid prolonged dampness (hygroscopic/caking)

10.5 Incompatible materials:

Strong Acids	Strong Oxidisers	Moisture
Avoid contact (hydrolyses)	No specific reaction known	Avoid prolonged exposure (caking)

10.6 Hazardous decomposition products:

Negligible under normal conditions. At high temperature, may release phosphorus oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

Tetrasodium pyrophosphate is of low acute toxicity and is permitted for food use (INS/E450) within regulatory limits. In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect):

Low toxicity. Large doses may cause gastrointestinal discomfort.

B. Inhalation (acute effect):

Dust may cause mechanical/alkaline irritation of the respiratory tract.

C. Contact with skin and eyes (acute effect):

May cause mild skin irritation on prolonged contact. Causes serious eye irritation (H319).

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):

Classification criteria are not met based on available data. Not listed by IARC.

E. Sensitizing effects:

Classification criteria for respiratory or skin sensitisation are not met based on available data.

F. Specific target organ toxicity (STOT) – single exposure:

Classification criteria are not met based on available data.

G. Specific target organ toxicity (STOT) – repeated exposure:

Classification criteria are not met based on available data.

H. Aspiration hazard:

Not relevant (solid).

Product-specific toxicological information:

Identification	Acute Toxicity	Genus
Tetrasodium Pyrophosphate CAS: 7722-88-5	LD50 oral: ≈ 3750 mg/kg	Rat
	LD50 dermal: Not established for this grade	–

SECTION 12: ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment under GHS criteria based on available data; as a phosphate compound, significant uncontrolled release may contribute to nutrient enrichment (eutrophication) of receiving water.

12.1 Toxicity:

Identification	Acute Toxicity	Species	Genus
Tetrasodium Pyrophosphate CAS: 7722-88-5	LC50: > 100 mg/L (96h)	Non-applicable	Fish
	EC50: Not established for this grade	Non-applicable	Crustacean

12.2 Persistence and degradability:

Inorganic substance; hydrolyses in the environment to orthophosphate, which is naturally occurring.

12.3 Bioaccumulative potential:

Not expected to bioaccumulate.

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Not relevant (ionic salt)	Not relevant	Mobile (soluble)	Mobile, binds to soil minerals over time

12.5 Results of PBT and vPvB assessment:

Non-applicable (inorganic substance; PBT/vPvB criteria apply to organic substances).

12.6 Other adverse effects:

Phosphate content may contribute to eutrophication of surface waters if released in large quantities.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Recover for reuse where possible. Non-hazardous waste; dispose of via an authorised waste contractor in accordance with local regulations, avoiding uncontrolled discharge to water bodies.

Refer to national and local regulations on waste management. In India, dispose of in accordance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, as amended, through an authorised waste handler/recycler, or as advised by the State Pollution Control Board.

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023 principles, as adapted for India):

14.1 UN number	Not assigned – not a dangerous good
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Not classified
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Non-hazardous for transport; physico-chemical properties: see section 9
14.7 Transport in bulk	Permitted subject to standard bulk-solid handling practice

Transport of dangerous goods by sea (IMDG):

14.1 UN number	Not assigned – not a dangerous good
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Not classified
14.4 Packing group	N/A
14.5 Marine pollutant	No
14.6 Special precautions for user	Non-hazardous for transport
14.7 Transport in bulk	Permitted subject to standard bulk-solid handling practice

Transport of dangerous goods by air (IATA/ICAO):

14.1 UN number	Not assigned – not a dangerous good
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Not classified
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Non-hazardous for transport
14.7 Transport in bulk	Permitted subject to standard bulk-solid handling practice

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question:

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation (India):

Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 (as amended)
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996
Public Liability Insurance Act, 1991
Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3:

H319: Causes serious eye irritation.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training:

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:

United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS); European Chemicals Agency (ECHA) Classification & Labelling Inventory; United Nations Recommendations on the Transport of Dangerous Goods (Model Regulations).

Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | PG: Packing Group | BCF: Bioconcentration factor | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Log-Pow: Octanol-water partition coefficient | IARC: International Agency for Research on Cancer | STOT SE/RE: Specific Target Organ Toxicity, Single/Repeated Exposure | PBT/vPvB: Persistent, Bioaccumulative and Toxic / very Persistent, very Bioaccumulative

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

END OF SAFETY DATA SHEET