

PRODUCT IDENTIFICATION



Product Name: Trisodium Phosphate Dodecahydrate - ACS Reagent Grade

CAS Number: 10101-89-0

Molecular Formula: $\text{H}_{24}\text{Na}_3\text{O}_{16}\text{P}$

Molecular Weight: 380.12 g/mol

Grade: Reagent Grade

Purity / Concentration: Not Available

Synonyms: TSP Dodecahydrate, Sodium Phosphate Tribasic Dodecahydrate

PRODUCT OVERVIEW

Trisodium Phosphate Dodecahydrate (CAS 10101-89-0) is a high-purity ACS Reagent Grade chemical characterized by its 100.0% assay and minimal impurity profile, including heavy metals that are not detected. This versatile white crystalline powder is essential for precise pH control and surface cleaning applications in laboratory and industrial settings.

Grade Significance: ACS Reagent Grade signifies that this product meets the strict purity standards set by the American Chemical Society, ensuring reliability and consistency for critical analytical work where even minor impurities could skew experimental results.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay	%	100.0	98	100.5	Titration/Gravimetric
pH	—	11.7	11.5	12.5	pH Meter
Arsenic As	ppm	≤ 5 ppm	—	—	ICP-MS
Heavy Metals As Pb	ppm	ND	0	100.0	ICP-MS (as Pb)
Iron	%	0.0030	—	0.01	ICP
Chloride Cl	%	0.02	0	0.3	ICP
Phosphate	ppm	≤ 50 ppm	—	—	Per specification
Sulfate (SO_4^{2-})	%	0.4	0	0.5	ICP-MS
Insoluble Matter	%	0.01	0	0.14	Gravimetric
Insolubles	%	0.11	—	0.14	Filtration
Particle Size	μm	≤ 4 μm	—	—	Sieve Analysis

ND = Not Detected. Values are typical and may vary by lot.

PHYSICAL & CHEMICAL PROPERTIES

Appearance	White crystalline powder, hygroscopic	Odor	Odorless
Form	Solid	Boiling Point	100°C (212°F)
Melting / Freezing Point	Melting point equals 164 to 170 ° F	Solubility	Soluble in water
Molecular Formula	$\text{H}_{24}\text{Na}_3\text{O}_{16}\text{P}$	Molecular Weight	380.12 g/mol
Vapor Pressure (20°C)	0.01 mmHg (approx.)	Density (25°C)	0.88 g/mL

APPLICATIONS

1. **Laboratory Research** — Used as a high-purity buffer component to maintain consistent pH levels in sensitive chemical reactions and analytical procedures.
2. **Industrial Cleaning** — Leveraged for its strong alkaline properties to effectively emulsify and remove stubborn grease, oils, and organic stains from various surfaces.
3. **Food Processing** — Functions as a critical emulsifier and stabilizer to improve texture and maintain consistency in specific food product formulations.
4. **Water Treatment** — Utilized to adjust water pH and mitigate hardness, preventing scale buildup and protecting infrastructure in aquatic systems.

STORAGE & HANDLING

As a hygroscopic material, this product must be stored in a cool, dry, and tightly sealed container to prevent moisture absorption which can compromise its chemical integrity. Proper storage is also vital for safety, as the substance causes severe skin burns and eye damage, requiring containment to prevent accidental exposure or environmental contamination.

- Store in a cool, dry place away from moisture and incompatible substances.
- Use HDPE or glass containers for storage to prevent contamination.
- Avoid exposure to strong acids or bases to maintain chemical integrity.
- Ensure proper ventilation when handling to avoid inhalation of dust.
- Wear appropriate personal protective equipment (PPE) such as gloves and safety goggles.

AVAILABLE PACKAGING

- 2 lbs.
- 5 Lbs.
- 50 Lbs.

SAFETY SUMMARY (CROSS-REFERENCE TO SDS)

Signal Word: **Warning**



Hazard Statements:

- H314: Causes severe skin burns and eye damage
- H315: Causes skin irritation
- H319: Causes serious eye irritation
- H335: May cause respiratory irritation

Emergency Contact: CHEMTEL - 800-255-3924 (24 Hours/Day, 7 Days/Week)

For complete safety information, refer to the Safety Data Sheet (SDS) for this product.

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