

TECHNICAL DATA SHEET

Trisodium Phosphate Dodecahydrate - ACS Reagent Grade

ACS Reagent

CAS NUMBER

10101-89-0

ALLIANCE CODE

trisodium-phosphate-
dodecahydrate-acs-reagent-grade

GENERATED

2026-07-17

1. IDENTITY & COMPOSITION

PRODUCT NAME

Trisodium Phosphate Dodecahydrate - ACS Reagent Grade

ALLIANCE CODE

trisodium-phosphate-dodecahydrate-acs-reagent-grade

GRADE

ACS Reagent

CONCENTRATION

—

CAS NUMBER

10101-89-0 [PubChem](#)

FORMULA

H₂₄Na₃O₁₆P [PubChem](#)

MOLECULAR WEIGHT

380.12 [PubChem](#)

PRODUCT TYPE

pure_substance

PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE

Dry Powder [Product record](#)

FORM

Solid [Product record](#)

BOILING POINT

100 [Product record](#)

MELTING POINT

Melting point equals 164 to 170 ° F
[Product record](#)

FLASH POINT

N/A [Product record](#)

SOLUBILITY (WATER)

Soluble in water [Product record](#)

MATERIALS OF CONSTRUCTION

MATERIAL	RATING	MAX T (°C)	NOTES	SOURCE
Buna-N (NBR) Elastomer	Good	60	Acceptable	Cole-Parmer Chemical Compatibility
EPDM Elastomer	Excellent	100	Standard for brine gaskets.	Parker O-ring Chemical Compatibility
Viton (FKM) Elastomer	Excellent	100	Preferred elastomer	Cole-Parmer Chemical Compatibility
Borosilicate Glass Glass Ceramic	Excellent	100	Universally inert to salt solutions.	Cole-Parmer Chemical Compatibility
Concrete (sealed) Glass Ceramic	Good	—	Acceptable with epoxy coating	Cole-Parmer Chemical Compatibility
304 stainless steel Metal	Fair	25	Pitting in chloride-rich service	Cole-Parmer Chemical Compatibility
316 stainless steel Metal	Good	50	Pitting risk in hot brine; passivate	Cole-Parmer Chemical Compatibility
316L Stainless Steel Metal	Good	60	Watch for chloride pitting above 60 °C in chloride salts.	NACE Chloride Pitting Guidelines
Aluminium Metal	Poor	—	Pitting; not recommended for brine	Cole-Parmer Chemical Compatibility
Carbon steel Metal	Poor	—	Rapid rust in brine	Cole-Parmer Chemical Compatibility
Carbon Steel Metal	Fair	—	Chloride salts accelerate rust; coating required.	Cole-Parmer Chemical Compatibility

MATERIAL	RATING	MAX T (°C)	NOTES	SOURCE
FRP Thermoplastic	Excellent	60	Common bulk-storage	Cole-Parmer Chemical Compatibility
HDPE Thermoplastic	Excellent	60	Universal salt brine compatibility.	Cole-Parmer Chemical Compatibility
PP Thermoplastic	Excellent	80	Acceptable for hot brine	Cole-Parmer Chemical Compatibility
PVC Thermoplastic	Excellent	60	Standard for brine piping.	Cole-Parmer Chemical Compatibility

Ratings reflect the service envelope (concentration × temperature) shown. Always confirm against your specific duty cycle and contact-time before equipment selection. The most cautious rating across overlapping references is shown.

REGULATORY & TRANSPORT

DOT / 49 CFR

UN NUMBER

Not regulated **Adjudicated**

HAZARD CLASS

Not regulated **Adjudicated**

PACKING GROUP

Not regulated **Adjudicated**

PROPER SHIPPING NAME

Not regulated **Adjudicated**

GHS / OSHA HAZCOM 2012

SIGNAL WORD

Danger **Adjudicated**

H-CODES (HAZARD STATEMENTS)

H314, H315, H319, H335 **Adjudicated**

P-CODES (PRECAUTIONARY STATEMENTS)

P260, P261, P264, P271, P280, P301+P330+P331,
P302+P352, P303+P361+P353, P304+P340,
P305+P351+P338, P310, P314, P321, P332+P313,...

OCCUPATIONAL EXPOSURE LIMITS

OSHA PEL (29 CFR 1910.1000)

— **unknown**

ACGIH TLV

— **unknown**

NIOSH REL

— **unknown**

NIOSH IDLH

— **unknown**

Transport descriptions reflect 49 CFR 172.101 lookup at time of publication. Sourced data: ECHA CLP Annex VI for harmonised classifications, NIOSH Pocket Guide for REL/IDLH, OSHA Z-Tables for PEL. Always verify against the latest regulatory text before shipment-critical decisions.

Supplier Qualification Packet

One zipped download containing the TDS, SDS, latest lot COA (when available), and a fresh Letter of Continuing Guaranty for Trisodium Phosphate Dodecahydrate – ACS Reagent Grade. Every file included is SHA-256 hashed and listed in a manifest your QA team can audit.

APPLICATION GUIDANCE

Trisodium Phosphate Dodecahydrate – ACS Reagent Grade (ACS Reagent) is supplied across multiple grades. Grade selection drives the appropriate end-use — food/pharma, technical, or specialty.

- Brine production and de-icing
- Concrete and construction (set acceleration, dust control)
- Food and beverage applications (food-grade only)
- Oilfield and drilling fluid additive
- Chemical manufacturing precursor

Often hygroscopic — store in sealed containers, control humidity. Hydrate form (anhydrous vs di/hexa-hydrate) affects mass-equivalent dosing.

STORAGE & HANDLING

RECOMMENDED STORAGE

Cool, dry area in sealed containers. Many salts are hygroscopic — protect from atmospheric moisture, which can cause caking, hydrate...

INCOMPATIBILITIES

Specific incompatibilities depend on the salt — consult the SDS. Many salts react with strong acids to release gases.

HANDLING PRECAUTIONS

Standard chemical PPE — dust mask and goggles for handling of fine grades. Avoid generating airborne dust.

SHELF LIFE

24 months from date of manufacture in sealed, original packaging

For full hazard, PPE, and emergency response guidance, refer to the Safety Data Sheet (SDS) for this product. The SDS controls in all cases where guidance differs.

REVISION HISTORY

Last reviewed 2026-05-20 by Hossein Taki, Vice President (Vice President, Alliance Chemical · CAGE Code 1LT50 · DOT Hazmat Registrant #2188383).

VERSION	DATE	CHANGE	TRIGGER
1.0	2026-05-20	Initial URL-first TDS published from canonical chemistry registry.	initial

This Technical Data Sheet is provided for technical reference. The Safety Data Sheet (SDS) controls in all cases where guidance differs. Values reflect Alliance Chemical canonical data at time of generation; subsequent revisions are recorded in the Revision History above.

ALLIANCE CHEMICAL

Order Trisodium Phosphate Dodecahydrate – ACS Reagent Grade

Bulk & packaged sizes · COA/SDS ships with every order