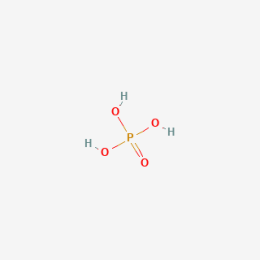
Technical Data Sheet

# Phosphoric Acid 5% Food Grade

Food · 5% w/w

| Alliance Code | Revised | Revision |
|---|---|---|
| phosphoric-acid-5-food-grade | 2026-10-20 | 1.8 |

| | | |
|---|---|---|
| CAS number<br>7664-38-2 | UN number<br>UN1805 | Hazard class · packing group<br>8 · PG III |
| <br>Structure · PubChem | Grade<br>Food · 5% w/w | Signal word<br>**Danger** |
| Hazards<br>Corrosive H314 | | |
| Proper shipping name<br>Phosphoric acid solution | | |

## IDENTITY & COMPOSITION

PRODUCT NAME
Phosphoric Acid 5% Food Grade

ALLIANCE CODE
phosphoric-acid-5-food-grade

GRADE
Food

CONCENTRATION
5% w/w

CAS NUMBER
7664-38-2 PubChem

FORMULA
H3PO4 PubChem

PRODUCT TYPE
Solution

## SPECIFICATIONS

| TEST | SPECIFICATION | TYPICAL | METHOD | SOURCE |
|---|---|---|---|---|
| Assay (H3PO4) | 4.5 - 5.5 % w/w | — | — | Interpreted |

| TEST | SPECIFICATION | TYPICAL | METHOD | SOURCE |
|---|---|---|---|---|
| Identification (phosphate) | Positive test for phosphate | — | FCC phosphate identification tests | Interpreted |
| Mercury (Hg) | 0.06 ppm Hg | — | Cold-vapour AAS (EPA 245.1) | Interpreted |
| Arsenic (As) | 0.18 mg/kg max | — | — | Interpreted |
| Cadmium (Cd) | 0.18 mg/kg max | — | — | Interpreted |
| Chlorides (Cl) | 0.96 ppm max | — | — | Interpreted |
| Fluoride (F) | 0.59 mg/kg max | — | — | Interpreted |
| Iron (Fe) | 0.6 ppm max | — | — | Interpreted |
| Lead (Pb) | 0.19 mg/kg max | — | — | Interpreted |
| Sulfate (SO4) | 6.8 ppm max | — | — | Interpreted |
| Color (maximum) | 10 APHA Units max | — | — | Interpreted |
| Composition | 5 % phosphoric acid in deionized water, by weight | — | By formulation; batch weights (scale ticket) | Interpreted |

Values are reproduced from the current product reference. Source labels do not by themselves establish a supplier guarantee or a test result for your lot. Confirm applicable acceptance limits and request lot-specific documentation.

## AVAILABLE GRADES SAME CAS, ALTERNATE GRADES AND CONCENTRATIONS

| GRADE | CONCENTRATION | TYPICAL ASSAY | SKU |
|---|---|---|---|
| THIS GRADE Food | 5% w/w | — | current |

| GRADE | CONCENTRATION | TYPICAL ASSAY | SKU |
|---|---|---|---|
| ACS Grade | 85% w/w | — | phosphoric-acid-85-acs-grade |
| Technical Grade | 85% w/w | — | phosphoric-acid-85-technical-grade |
| USP Food Grade | 85% w/w | — | phosphoric-acid-85-usp-food-grade |
| ACS Grade | 75% w/w | — | phosphoric-acid-75-acs-grade |
| Technical | 75% w/w | — | phosphoric-acid-75 |
| ACS | 45% w/w | — | phosphoric-acid-45-acs-grade |
| Food | 20% w/w | — | phosphoric-acid-20-food-grade |
| Technical | 20% w/w | — | phosphoric-acid-20-technical-grade |
| Technical | 15% w/w | — | phosphoric-acid-15-technical-grade |
| ACS | 10% w/w | — | phosphoric-acid-10-acs-grade |
| Technical | 10% w/w | — | phosphoric-acid-10-technical-grade |
| ACS | 5% w/w | — | phosphoric-acid-5-acs-grade |

Typical assay for each grade is the average of its recent lots. Confirm a grade meets your specification before substituting it.

## PHYSICAL & CHEMICAL PROPERTIES

| PROPERTY | VALUE | SOURCE |
|---|---|---|
| Appearance | Clear, colorless liquid | Adjudicated |
| Specific Gravity | 1.027 at 20/20 °C (water = 1) | Adjudicated |
| Density | 1.0255 g/cm$^3$ at 20 °C | Adjudicated |
| Boiling Point | approx. 100 °C (212 °F) (aqueous solution) | Adjudicated |
| Melting Point | approx. -1 °C (30 °F), freezing point (aqueous solution) | Adjudicated |

Strong acid — density and vapor-pressure values shown are at 20 °C; values shift markedly with concentration and temperature. Reference concentration-temperature curves before specifying equipment.

## MATERIALS OF CONSTRUCTION SERVICE ENVELOPE ≈ 5%

MOC ratings are required for this chemical class but no compatibility data has been seeded yet. Treat as no-data and consult Alliance Technical Services before equipment selection.

## REGULATORY & TRANSPORT

### DOT / 49 CFR

UN NUMBER
UN1805 Adjudicated

HAZARD CLASS
8 Adjudicated

PACKING GROUP
III Adjudicated

PROPER SHIPPING NAME
Phosphoric acid solution Adjudicated

### GHS / OSHA HCS 2024

SIGNAL WORD
Danger Adjudicated

H-CODES (HAZARD STATEMENTS)
H314 Adjudicated

P-CODES (PRECAUTIONARY STATEMENTS)
P234, P260, P264, P280, P301+P330+P331, P303+P361+P353, P304+P340, P305+P351+P338, P310, P321, P363, P405, P501

Adjudicated

### OCCUPATIONAL EXPOSURE LIMITS

OSHA PEL (29 CFR 1910.1000)
1 mg/m³ TWA OSHA 29 CFR 1910.1000

ACGIH TLV
— no canonical

NIOSH REL
1 mg/m³ TWA / 3 mg/m³ STEL NIOSH Pocket Guide

NIOSH IDLH
1000 mg/m³ NIOSH Pocket Guide

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

## CATALOG EQUIVALENTS CROSS-REFERENCE VS MAJOR CHEMICAL SUPPLIERS

### SIGMA-ALDRICH

| SKU | GRADE | CONC. | MATCH | NOTES |
|---|---|---|---|---|
| 345245 | ACS Reagent | 85% | Unverified candidate | ACS Reagent ≥85% |

Cross-references are informational. Confirm against the manufacturer's current specification before substitution. Competitor trademarks are property of their respective owners.

## APPLICATIONS

Fertilizer manufacture, and use as a pH modifier, sanitizing agent and rust converter laballey.com

Bulk food chemical and bulk pharmaceutical chemical for manufacturing, processing or repackaging digitalassets.avantorsciences.com

Miscellaneous or general purpose food additive, GRAS under 21 CFR 182.1073 static1.squarespace.com

Miscellaneous or general purpose feed additive, GRAS under 21 CFR 582.1073 static1.squarespace.com

Acidifying agent in meat and poultry products and margarine; antioxidant synergist in lard, shortening and poultry fats

static1.squarespace.com

Applications are drawn from published manufacturer and supplier documentation; each is sourced. Suitability for a specific use is the buyer's to confirm.

## STORAGE & HANDLING

RECOMMENDED STORAGE

Keep closed in polyethylene or other acid-resistant containers, not mild steel, away from bases, bleach and metals.

Adjudicated

HANDLING PRECAUTIONS

Use full PPE including face shield, acid-resistant gloves and apron. Add acid to water slowly with stirring; never reverse. Ventilation required.

Class-level guidance — not product-specific; the SDS controls.

INCOMPATIBILITIES

Strong bases (violent reaction); bleach and other hypochlorites (release chlorine) and ammonia; most metals (release flammable hydrogen); sulfides, sulfites and cyanides (release toxic gases).

Adjudicated

SHELF LIFE

Consult Technical Services for product-specific shelf life

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.

## PACKAGING & LOGISTICS

### SHIPPING DESCRIPTION (US DOT)

```
UN1805, Phosphoric acid solution, 8, PG III
```

Sourced from 49 CFR 172.101. Confirm against shipping documents and carrier requirements before tender.

| NMFC CLASS | PLACARD | PACKING GROUP |
|---|---|---|
| 65 | Corrosive | PG III |

## REVISION HISTORY

Last reviewed 2026-10-20 by Andre Taki, Chief Commercial Officer, DOT Hazmat–certified (49 CFR 172.704).

| VERSION | DATE | CHANGE | TRIGGER |
|---|---|---|---|
| 1.8 | 2026-10-20 | Canonical data updated: 2 fields changed via the provenance/adjudication pipeline.<br>• density · canonical change (coa.data_provenance / adjudication)<br>• specificGravity · canonical change (coa.data_provenance / adjudication) | canonical_change |
| 1.7 | 2026-10-13 | Canonical data updated: 4 fields changed via the provenance/adjudication pipeline.<br>• storage_precautions · canonical change (coa.data_provenance / adjudication)<br>• incompatible_materials · canonical change (coa.data_provenance / adjudication)<br>• conditions_to_avoid · canonical change (coa.data_provenance / adjudication)<br>• hazardous_decomposition_products · canonical change (coa.data_provenance / adjudication) | canonical_change |
| 1.6 | 2026-10-05 | Canonical data updated: 1 field changed via the provenance/adjudication pipeline.<br>• oel_osha_pel · canonical change (coa.data_provenance / adjudication) | canonical_change |
| 1.5 | 2026-09-30 | Canonical data updated: 3 fields changed via the provenance/adjudication pipeline.<br>• meltingPoint · canonical change (coa.data_provenance / adjudication)<br>• appearance · canonical change (coa.data_provenance / adjudication)<br>• boilingPoint · canonical change (coa.data_provenance / adjudication) | canonical_change |
| 1.4 | 2026-08-19 | Canonical data updated: 1 field changed via the provenance/adjudication pipeline.<br>• unNumber · canonical change (coa.data_provenance / adjudication) | canonical_change |
| 1.3 | 2026-08-05 | Canonical data updated: 3 fields changed via the provenance/adjudication pipeline.<br>• hazardClass · canonical change (coa.data_provenance / adjudication)<br>• packingGroup · canonical change (coa.data_provenance / adjudication)<br>• unNumber · canonical change (coa.data_provenance / adjudication) | canonical_change |
| 1.2 | 2026-07-22 | Canonical data updated: 2 fields changed via the provenance/adjudication pipeline.<br>• dotSubsidiaryHazardClass · canonical change (coa.data_provenance / adjudication)<br>• dotProperShippingName · canonical change (coa.data_provenance / adjudication) | canonical_change |

| VERSION | DATE | CHANGE | TRIGGER |
|---|---|---|---|
| 1.1 | 2026-07-17 | Canonical data re-verified: 6 fields updated against independent vendor SDSs, CLP Annex VI, 49 CFR, and OSHA HazCom 2024 (GHS classification, hazard/precautionary codes, signal word, physical properties as applicable).<br>• countryOfOrigin · canonical adjudication / reground (coa.data_provenance)<br>• ghsClassification · canonical adjudication / reground (coa.data_provenance)<br>• hazard_h_codes · canonical adjudication / reground (coa.data_provenance)<br>• hazard_p_codes · canonical adjudication / reground (coa.data_provenance)<br>• hsCode · canonical adjudication / reground (coa.data_provenance)<br>• signalWord · canonical adjudication / reground (coa.data_provenance) | canonical_change |
| 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.