Technical Data Sheet

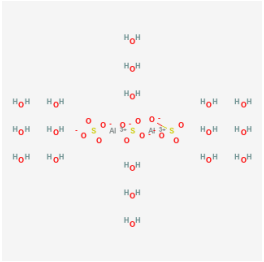
# Aluminum Sulfate Hydrate ACS Grade

ACS Grade

| Alliance Code | Revised | Revision |
|---|---|---|
| aluminum-sulfate-hydrate-acs-grade | 2026-10-13 | 1.5 |

CAS number

7784-31-8



Structure · PubChem

| Grade | Signal word |
|---|---|
| ACS Grade | **Danger** |

Hazards

Corrosive H290 H318 H412

## IDENTITY & COMPOSITION

PRODUCT NAME
Aluminum Sulfate Hydrate ACS Grade

ALLIANCE CODE
aluminum-sulfate-hydrate-acs-grade

GRADE
ACS Grade

CONCENTRATION
—

CAS NUMBER
7784-31-8 PubChem

FORMULA
Al2(SO4)3 * 18H2O PubChem

PRODUCT TYPE
Pure substance

## SPECIFICATIONS

| TEST | SPECIFICATION | TYPICAL | METHOD | SOURCE |
|---|---|---|---|---|
| Assay (as the labeled hydrate) | 98.0-102.0% | — | — | Interpreted |
| Calcium (Ca) | <= 0.01% | — | — | Interpreted |

| TEST | SPECIFICATION | TYPICAL | METHOD | SOURCE |
|---|---|---|---|---|
| Chloride (Cl) | <= 0.005% | — | — | Interpreted |
| Degree of Hydration | 14 - 18 | — | — | Interpreted |
| Heavy Metals (as Pb) | <= 0.001% | — | — | Interpreted |
| Insoluble Matter | <= 0.01% | — | — | Interpreted |
| Iron (Fe) | <= 0.002% | — | — | Interpreted |
| Magnesium (Mg) | <= 0.002% | — | — | Interpreted |
| Potassium (K) | <= 0.005% | — | — | Interpreted |
| Sodium (Na) | <= 0.02% | — | — | Interpreted |
| Ammonium (NH4) | ≤0.005 % | — | Nessler colorimetric comparison | Interpreted |
| loss on drying | 22 - 25 % | — | — | 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.

## PHYSICAL & CHEMICAL PROPERTIES

Additional physical properties are listed in the Safety Data Sheet (SDS). For anything not shown, contact sales@alliancechemical.com.

| PROPERTY | VALUE | SOURCE |
|---|---|---|
| Appearance | White crystalline powder, granular texture | Adjudicated |
| Form | Solid | Published reference |
| Odor | Odorless | Published reference |
| Density | 0.9 - 0.91 g/cc | Interpreted |
| Boiling Point | Not applicable (decomposes) | Published reference |
| Melting Point | 86°C (186.8°F) | Adjudicated |
| Flash Point | None (non-flammable) | Published reference |
| Solubility (water) | Soluble in water | Published reference |

## MATERIALS OF CONSTRUCTION SERVICE ENVELOPE ≈ 100%

| MATERIAL | RATING | MAX T (°C) | NOTES | SOURCE |
|---|---|---|---|---|
| Buna-N (NBR)<br>Elastomer | Good | 60 | Acceptable | Cole-Parmer Chemical Compatibility |
| EPDM<br>Elastomer | Excellent | 100 | Standard for brine gaskets. | Parker O-ring Chemical Compatibility |
| Viton (FKM)<br>Elastomer | Excellent | 100 | Preferred elastomer | Cole-Parmer Chemical Compatibility |
| Borosilicate Glass<br>Glass Ceramic | Excellent | 100 | Universally inert to salt solutions. | Cole-Parmer Chemical Compatibility |

| MATERIAL | RATING | MAX T (°C) | NOTES | SOURCE |
|---|---|---|---|---|
| Concrete (sealed)<br>Glass Ceramic | Good | — | Acceptable with epoxy coating | Cole-Parmer Chemical Compatibility |
| 304 stainless steel<br>Metal | Fair | 25 | Pitting in chloride-rich service | Cole-Parmer Chemical Compatibility |
| 316L Stainless Steel<br>Metal | Good | 60 | Watch for chloride pitting above 60 °C in chloride salts. | NACE Chloride Pitting Guidelines |
| Aluminium<br>Metal | Poor | — | Pitting; not recommended for brine | Cole-Parmer Chemical Compatibility |
| Carbon steel<br>Metal | Poor | — | Rapid rust in brine | Cole-Parmer Chemical Compatibility |
| FRP<br>Thermoplastic | Excellent | 60 | Common bulk-storage | Cole-Parmer Chemical Compatibility |
| HDPE<br>Thermoplastic | Excellent | 60 | Universal salt brine compatibility. | Cole-Parmer Chemical Compatibility |
| PP<br>Thermoplastic | Excellent | 80 | Acceptable for hot brine | Cole-Parmer Chemical Compatibility |
| PVC<br>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 HCS 2024

SIGNAL WORD

Danger Adjudicated

H-CODES (HAZARD STATEMENTS)

H290, H318, H412 Adjudicated

P-CODES (PRECAUTIONARY STATEMENTS)

P234, P264, P273, P280, P305+P351+P338, P310, P313, P390, P406, P501

Adjudicated

### OCCUPATIONAL EXPOSURE LIMITS

OSHA PEL (29 CFR 1910.1000)

2 mg/m$^3$ TWA (Al) OSHA 29 CFR 1910.1000

ACGIH TLV

— no canonical

NIOSH REL

2 mg/m$^3$ TWA (Al) NIOSH Pocket Guide

NIOSH IDLH

— no canonical

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.

## APPLICATIONS

Water-soluble reagent suitable for development, manufacturing or research applications labdepotinc.com

Laboratory use in high-purity applications, where ACS specifications are the de facto quality standard

labdepotinc.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 containers tightly closed in a dry, cool, well-ventilated place away from direct sunlight and heat; the material is hygroscopic. Store in corrosion-resistant containers.

Adjudicated

HANDLING PRECAUTIONS

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

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

INCOMPATIBILITIES

Strong oxidizing agents; strong bases and alkalis (may react violently); moisture; most common metals in the presence of moisture.

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)

```
Not regulated for transport.
```

A package holding 5,000 lb (2,270 kg) or more of this product contains a reportable quantity (RQ) and ships as:

```
UN3077, Environmentally hazardous substance, solid, n.o.s. (Aluminum sulfate), 9, III, RQ
```

Confirm against shipping documents and carrier requirements before tender.

NMFC CLASS
70

## REVISION HISTORY

Last reviewed 2026-10-13 by Andre Taki, Chief Commercial Officer, DOT Hazmat–certified (49 CFR 172.704).

| VERSION | DATE | CHANGE | TRIGGER |
|---|---|---|---|
| 1.5 | 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` |

| VERSION | DATE | CHANGE | TRIGGER |
|---|---|---|---|
| 1.4 | 2026-10-07 | Canonical data updated: 3 fields changed via the provenance/adjudication pipeline.<br>• ghsClassification · canonical change (coa.data_provenance / adjudication)<br>• hazard_h_codes · canonical change (coa.data_provenance / adjudication)<br>• hazard_p_codes · canonical change (coa.data_provenance / adjudication) | canonical_change |
| 1.3 | 2026-10-05 | Canonical data updated: 2 fields changed via the provenance/adjudication pipeline.<br>• oel_niosh_rel · canonical change (coa.data_provenance / adjudication)<br>• oel_osha_pel · canonical change (coa.data_provenance / adjudication) | canonical_change |
| 1.2 | 2026-09-30 | Canonical data updated: 2 fields changed via the provenance/adjudication pipeline.<br>• meltingPoint · canonical change (coa.data_provenance / adjudication)<br>• appearance · canonical change (coa.data_provenance / adjudication) | canonical_change |
| 1.1 | 2026-07-17 | Canonical data re-verified: 8 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>• dotSubsidiaryHazardClass · 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>• physicalProperties · 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.