

TECHNICAL DATA SHEET

Calcium Chloride

CAS NUMBER

10043-52-4

ALLIANCE CODE

calcium-chloride

GENERATED

2026-07-17

1. IDENTITY & COMPOSITION

PRODUCT NAME

Calcium Chloride

ALLIANCE CODE

calcium-chloride

GRADE

—

CONCENTRATION

—

CAS NUMBER

10043-52-4 [PubChem](#)

FORMULA

CaCl₂ [PubChem](#)

MOLECULAR WEIGHT

110.98 [PubChem](#)

PRODUCT TYPE

pure_substance

IUPAC NAME

calcium dichloride [PubChem](#)

INCHI-KEY

UXVMQQNJUSDDNG-UHFFFAOYSA-L [PubChem](#)

SMILES

[Ca+2].[Cl-].[Cl-] [PubChem](#)

PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE

Calcium chloride is a white to off-white solid.
Sinks and mixes with water. (USCG, 1999)

Product record

FORM

Solid Product record

ODOR

ODORLESS Product record

PH

9.7000 Vendor COA

DENSITY

2.15 at 68 °F (USCG, 1999) – Denser than water;
will sink Product record

BOILING POINT

1935 °C Product record

MELTING POINT

782 °C Product record

FLASH POINT

Not applicable Product record

SOLUBILITY (WATER)

0.745 g/mL (at 20 °C) 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

MATERIAL	RATING	MAX T (°C)	NOTES	SOURCE
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
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**

PACKING GROUP

Not regulated **Adjudicated**

HAZARD CLASS

Not regulated **Adjudicated**

PROPER SHIPPING NAME

Not regulated **Adjudicated**

GHS / OSHA HAZCOM 2012

SIGNAL WORD

Warning **Adjudicated**

P-CODES (PRECAUTIONARY STATEMENTS)

P264, P280, P305+P351+P338, P337+P313

Adjudicated

H-CODES (HAZARD STATEMENTS)

H319 **Adjudicated**

OCCUPATIONAL EXPOSURE LIMITS

OSHA PEL (29 CFR 1910.1000)

— **unknown**

ACGIH TLV

— **unknown**

NIOSH REL

— **unknown**

NIOSH IDLH

— **unknown**

REGIONAL CLASSIFICATIONS

EC NUMBER (EU EINECS)

233-140-8 **Web SDS consensus**

REACH SVHC

Not listed **Web SDS consensus**

CALIFORNIA PROP 65

Not listed **Web SDS consensus**

WGK WATER HAZARD (DE)

1 **Web SDS consensus**

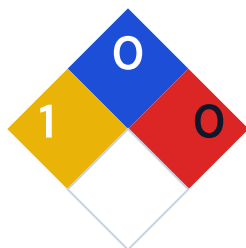
TDG CLASSIFICATION (CANADA)

not regulated **Web SDS consensus**

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.

HEALTH & FIRE HAZARD

NFPA 704



- Health: 1 [Web SDS consensus](#)
- Fire: 0 [Web SDS consensus](#)
- Reactivity: 0 [Web SDS consensus](#)
- Specific: —

HMIS III

Health	1	Web SDS consensus
Flammability	0	Web SDS consensus
Physical Hazard	0	Web SDS consensus
PPE	A	Web SDS consensus

ACUTE TOXICOLOGY

LD₅₀ ORAL (RAT)
1000 mg/kg [Web SDS consensus](#)

LD₅₀ DERMAL (RABBIT)
2630 mg/kg [Web SDS consensus](#)

NFPA 704 ratings 0 (no hazard) – 4 (severe hazard) per NFPA 704 standard. HMIS III ratings 0 – 4 per the American Coatings Association. Acute toxicology values from SDS Section 11 or NIOSH RTECS.

Supplier Qualification Packet

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

CATALOG EQUIVALENTS CROSS-REFERENCE VS MAJOR CHEMICAL SUPPLIERS

SIGMA-ALDRICH

SKU	GRADE	CONC.	MATCH	NOTES
C1016	Anhydrous, powder, ≥97%	≥97%	Close	Sigma anhydrous powder; confirm Alliance grade variant.

THERMOFISHER

SKU	GRADE	CONC.	MATCH	NOTES
AC219340010	Anhydrous	≥96%	Close	Acros / Thermo anhydrous calcium chloride.

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

APPLICATION GUIDANCE

Calcium Chloride 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 Calcium Chloride

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