SAFETY DATA SHEET

1. Identification

Product identifier **Calcium Sulfate**

Other means of identification

Catalog number 1087406

Chemical name Sulfuric acid, calcium salt (1:1) dihydrate

Recommended use Specified quality tests and assay use only.

Recommended restrictions Not for use as a drug. Not for administration to humans or animals.

Manufacturer/Importer/Supplier/Distributor information

Company name U. S. Pharmacopeia

Address 12601 Twinbrook Parkway
Rockville
MD
20852-1790
US

Telephone RS Technical Services 301-816-8129

Website www.usp.org

E-mail RSTECH@usp.org

Emergency phone number CHEMTREC within US & Canada 1-800-424-9300
CHEMTREC outside US & Canada +1 703-527-3887

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Not classified.

OSHA hazard(s) Not classified.

Label elements

Hazard symbol No symbol.

Signal word Not available.

Hazard statement Not available.

Precautionary statement

Prevention Not available.

Response Not available.

Storage Not available.

Disposal Not available.

Hazard(s) not otherwise classified (HNOC) Not classified.

3. Composition/information on ingredients

Substance

Hazardous components

Chemical name	Common name and synonyms	CAS number	%
Calcium Sulfate		10101-41-4	100

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Rinse skin with water/shower. Get medical attention if irritation develops and persists.

Eye contact Rinse with water. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.

Most important symptoms/effects, acute and delayed Gastrointestinal disturbances. Hypercalcemia.

Indication of immediate medical attention and special treatment needed

Treatment of overdose of calcium sulfate should be symptomatic and supportive and may include the following:
1. For ingestion: To delay the hardening of calcium sulfate in the stomach, dilute with copious amounts of water, glycerin, or gelatin solutions. Monitor for gastrointestinal obstruction and injury.
2. For inhalation: Administer oxygen, assist ventilation if needed, and treat bronchospasm with inhaled beta2 agonist and corticosteroids. [Poisindex 2004]
For hypercalcemia:
1. Hydrate with intravenous 0.9% sodium chloride injection.
2. Force diuresis with furosemide or ethacrynic acid to rapidly increase calcium excretion.
3. Monitor serum potassium and magnesium; start replacement early, if indicated.
4. Monitor ECG; use beta adrenergic blocking agents to protect the heart against arrhymias.
5. Include hemodialysis, calcitonin, and corticosteroids in treatment, if needed.
6. Monitor serum calcium concentrations frequently to guide therapy adjustments. [USP DI 2004]

General information

Remove from exposure. Remove contaminated clothing. For treatment advice, seek guidance from an occupational health physician or other licensed health-care provider familiar with workplace chemical exposures. In the United States, the national poison control center phone number is 1-800-222-1222. If person is not breathing, give artificial respiration. If breathing is difficult, give oxygen if available. Persons developing serious hypersensitivity (anaphylactic) reactions must receive immediate medical attention.

5. Fire-fighting measures

Suitable extinguishing media

Use fire-extinguishing media appropriate for surrounding materials. Water. Foam. Dry chemical or CO2.

Unsuitable extinguishing media

None known.

Specific hazards arising from the chemical

No unusual fire or explosion hazards noted.

Special protective equipment and precautions for firefighters

Wear suitable protective equipment.

Fire-fighting equipment/instructions

Use water spray to cool unopened containers. As with all fires, evacuate personnel to a safe area. Firefighters should use self-contained breathing equipment and protective clothing.

Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Avoid inhalation of dust from the spilled material. Wear appropriate personal protective equipment.

Methods and materials for containment and cleaning up

Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid the generation of dusts during clean-up. For waste disposal, see section 13 of the SDS. Clean surface thoroughly to remove residual contamination.

7. Handling and storage

Precautions for safe handling

As a general rule, when handling USP Reference Standards, avoid all contact and inhalation of dust, mists, and/or vapors associated with the material. Clean equipment and work surfaces with suitable detergent or solvent after use. After removing gloves, wash hands and other exposed skin thoroughly.

Conditions for safe storage, including any incompatibilities

Store in tight container as defined in the USP-NF. This material should be handled and stored per label instructions to ensure product integrity.

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Material	Type	Value	Form
Calcium Sulfate (CAS 10101-41-4)	TWA	10 mg/m3	Inhalable fraction.

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Airborne exposure should be controlled primarily by engineering controls such as general dilution ventilation, local exhaust ventilation, or process enclosure. Local exhaust ventilation is generally preferred to general exhaust because it can control the contaminant at its source, preventing dispersion into the work area. An industrial hygiene survey involving air monitoring may be used to determine the effectiveness of engineering controls.

Individual protection measures, such as personal protective equipment

Eye/face protection

Safety glasses with sideshields are recommended. Face shields or goggles may be required if splash potential exists or if corrosive materials are present. Approved eye protection (e.g., bearing the ANSI Z87 or CSA stamp) is preferred. Maintain eyewash facilities in the work area.

Skin protection	
Hand protection	Chemically compatible gloves. For handling solutions, ensure that the glove material is protective against the solvent being used. Use handling practices that minimize direct hand contact. Employees who are sensitive to natural rubber (latex) should use nitrile or other synthetic nonlatex gloves. Use of powdered latex gloves should be avoided due to the risk of latex allergy.
Other	For handling of laboratory scale quantities, a cloth lab coat is recommended. Where significant quantities are handled, work clothing may be necessary to prevent take-home contamination.
Respiratory protection	Where respirators are deemed necessary to reduce or control occupational exposures, use NIOSH-approved respiratory protection and have an effective respirator program in place (applicable U.S. regulation OSHA 29 CFR 1910.134).
Thermal hazards	Not available.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance	White to slightly yellow powder.
Physical state	Solid.
Form	Not available.
Odor	Odorless.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	2642 °F (1450 °C)
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility in water	Slightly soluble.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Chemical family	Inorganic salt.
Density	2.32 g/cm3
Molecular formula	$CaSO_4 \cdot 2H_2O$
Molecular weight	172.17 g/mol
Percent volatile	0 %
Solubility (other)	Soluble in dilute hydrochloric acid; practically insoluble in alcohol.
Specific gravity	2.96

10. Stability and reactivity

Reactivity	No reactivity hazards known.
Chemical stability	Stable at normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.

Conditions to avoid	None known.
Incompatible materials	Strong oxidizing agents. Acids. Aluminum. Phosphorus.
Hazardous decomposition products	Irritating and/or toxic fumes or gases. Emits toxic fumes under fire conditions. SOx, CaOx.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Based on available data, the classification criteria are not met.
Inhalation	Due to lack of data the classification is not possible.
Skin contact	Due to lack of data the classification is not possible.
Eye contact	Based on available data, the classification criteria are not met.
Symptoms related to the physical, chemical, and toxicological characteristics	Nausea. Vomiting. Constipation. Abdominal pain. Loss of appetite. Dry mouth. Thirst. Increased urination. Headache. Drowsiness. Weakness. Behavior, mood, or mental changes.
Delayed and immediate effects of exposure	Gastrointestinal obstruction. Hypercalcemia. Kidney stones. Increase in blood pressure. Heart rate changes.
Medical conditions aggravated by exposure	Kidney impairment. Kidney stones (active or history of). Hypercalcemia. Hypercalciurea. Sarcoidosis. Dehydration. Electrolyte imbalance.

Acute toxicity

Product	Species	Test Results
Calcium Sulfate (CAS 10101-41-4)		
Acute		
Oral		
LD50	Rat	> 2000 mg/kg

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Local effects

Eye irritancy test, (anhydrous calcium sulfate).
Result: No irritation noted.
Species: Rabbit
Skin irritancy test (OECD 404).
Result: No erythema or edema observed.
Species: Rabbit

Respiratory sensitization Due to lack of data the classification is not possible.

Skin sensitization Based on available data, the classification criteria are not met.

Sensitization

Buehler test for skin sensitization
Result: No sensitization noted.
Species: Guinea pig

Germ cell mutagenicity Due to lack of data the classification is not possible.
Data from germ cell mutagenicity tests were not found.

Mutagenicity

Bacterial reverse mutation tests in S. typhimurium and E. coli.
Result: Negative.
In vivo mouse erythrocyte micronucleus assay.
Result: Negative.

Carcinogenicity Due to lack of data the classification is not possible.
This material is not considered to be a carcinogen by IARC, NTP, or OSHA.

Reproductive toxicity Based on available data, the classification criteria are not met.

Reproductivity

0 - 1000 mg/kg/day Fertility, reproductivity, and development study, administered by gavage.
Result: No adverse effects on fertility; no reproductive or development toxicity noted.
Species: Rat

Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met.

Specific target organ toxicity - repeated exposure Based on available data, the classification criteria are not met.

Aspiration hazard Based on available data, the classification criteria are not met.

12. Ecological information

Ecotoxicity

Product		Species	Test Results
Calcium Sulfate (CAS 10101-41-4)			
Acute			
Crustacea	EC50	Daphnia magna	> 100 mg/l, 48 hours, Static
Aquatic			
Acute			
Algae	EC50	Green algae (Selenastrum capricornutum)	> 100 mg/l, 72 hours, Static
Fish	LC50	Medaka, high-eyes (Oryzias latipes)	> 100 mg/l, 96 hours, Static

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential Not available.

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Dispose in accordance with all applicable regulations. Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

Local disposal regulations Not available.

Hazardous waste code Not available.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as a hazardous material by DOT.

IATA

Not regulated as a dangerous good.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available.

15. Regulatory information

US federal regulations CERCLA/SARA Hazardous Substances - Not applicable.

All components are on the U.S. EPA TSCA Inventory List.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical No

Other federal regulations

Safe Drinking Water Act (SDWA) Not regulated.

Food and Drug Administration (FDA)
Total food additive
Direct food additive
GRAS food additive

US state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other information, including date of preparation or last revision

Issue date 05-19-2004

Revision date 02-09-2015

Version # 02

Further information Not available.

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Revision Information This document has undergone significant changes and should be reviewed in its entirety.