ChemicalBook

Chemical Safety Data Sheet MSDS / SDS

Calcium hypochlorite

Revision Date:2025-02-01 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name	: Calcium hypochlorite
CBnumber	: CB8854319
CAS	: 7778-54-3
EINECS Number	: 231-908-7
Synonyms	: calcium hypochlorite,BLEACHING powder

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	: For R&D use only. Not for medicinal, household or other use.
Uses advised against	: none

Company Identification

Company	: Chemicalbook
Address	: Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone	: 010-86108875

SECTION 2: Hazards identification

Classification of the substance or mixture

Oxidizing solids, Category 2

Acute toxicity - Category 4, Oral

Skin corrosion, Sub-category 1B

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

Label elements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H272 May intensify fire; oxidizer

H302 Harmful if swallowed

H314 Causes severe skin burns and eye damage

H400 Very toxic to aquatic life

Precautionary statement(s)

P220 Keep/Store away from clothing/…/combustible materials.

P221 Take any precaution to avoid mixing with combustibles/…

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P310 Immediately call a POISON CENTER or doctor/physician.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continuerinsing.

P405 Store locked up.

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P220 Keep away from clothing and other combustible materials.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

Response

P370+P378 In case of fire: Use ... to extinguish.

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P363 Wash contaminated clothing before reuse.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P316 Get emergency medical help immediately.

P321 Specific treatment (see ... on this label).

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P391 Collect spillage.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards

no data available

SECTION 3: Composition/information on ingredients

Substance

Product name : Calcium hypochlorite

Synonyms	: calcium hypochlorite,BLEACHING powder
CAS	: 7778-54-3
EC number	: 231-908-7
MF	: Ca.2ClHO
MW	: 142.98

SECTION 4: First aid measures

Description of first aid measures

If inhaled

Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Give one or two glasses of water to drink. Do NOT induce vomiting. Refer for medical attention .

Most important symptoms and effects, both acute and delayed

Excerpt from ERG Guide 140 [Oxidizers]: Inhalation, ingestion or contact (skin, eyes) with vapors or substance may cause severe injury, burns or death. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may cause pollution. (ERG, 2016)

Indication of any immediate medical attention and special treatment needed

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Hypochlorite and Related Compounds

SECTION 5: Firefighting measures

Extinguishing media

If material involved in fire: Extinguish using agent suitable for type of surrounding fire. (Material itself does not burn or burns with difficulty.) Use water in flooding quantities as fog. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Chlorinated lime, liquid

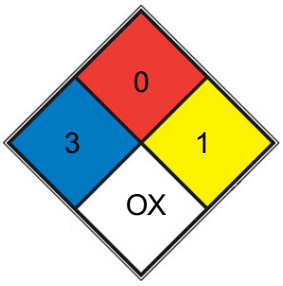
Specific Hazards Arising from the Chemical

Excerpt from ERG Guide 140 [Oxidizers]: These substances will accelerate burning when involved in a fire. Some may decompose explosively when heated or involved in a fire. May explode from heat or contamination. Some will react explosively with hydrocarbons (fuels). May ignite combustibles (wood, paper, oil, clothing, etc.). Containers may explode when heated. Runoff may create fire or explosion hazard. (ERG, 2016)

Advice for firefighters

NO powder. Use water in large amounts. In case of fire: keep drums, etc., cool by spraying with water.

NFPA 704



HEALTH	3	Short exposure could cause serious temporary or moderate residual injury (e.g. liquid hydrogen, sulfuric acid, calcium hypochlorite, hexafluorosilicic acid)
FIRE	0	Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)
REACT	1	Normally stable, but can become unstable at elevated temperatures and pressures (e.g. propene)
SPEC. HAZ.	OX	

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: chemical protection suit, face shield and filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered air-tight, dry containers. Then store and dispose of according to local regulations.

Environmental precautions

Personal protection: chemical protection suit, face shield and filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered air-tight, dry containers. Then store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

Personal protection: chemical protection suit, face shield and filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered air-tight, dry containers. Then store and dispose of according to local regulations.

SECTION 7: Handling and storage

Precautions for safe handling

NO contact with combustible substances or reducing agents. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Well closed. Store in an area without drain or sewer access. Separated from food and feedstuffs. See Chemical Dangers.Store in a cool, dry, well-ventilated location at a temperature below 120 deg F (50 deg C) to avoid slow decomposition. Separate from oxidizing materils, acids, ammonia, amines, and other chlorinating agents. Immediately remove and properly dispose of any spilled material. Calcium hypochlorite, dry or calcium hypochlorite, mixtures, dry

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SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

Exposure controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures

Eye/face protection

Wear face shield or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Physical state	Tablets
Colour	White to off-white or faint green
Odour	Strong chlorine odor
Melting point/freezing point	100 (decomposition)
Boiling point or initial boiling point and boiling range	Decomposes at 100 deg C
Flammability	Not combustible but enhances combustion of other substances. Many reactions may cause fire or explosion. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available

Flash point	no data available
Auto-ignition temperature	no data available
Decomposition temperature	100°C
pH	no data available
Kinematic viscosity	no data available
Solubility	200g/l (decomposition)
Partition coefficient n-octanol/water	no data available
Vapour pressure	no data available
Density and/or relative density	2.35
Relative vapour density	2.35
Particle characteristics	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes rapidly above 175°C . Decomposes rapidly on contact with acids. This produces chlorine and oxygen. This generates fire and explosion hazard. The substance is a strong oxidant. It reacts violently with combustible and reducing materials. The solution in water is a medium strong base. Reacts violently with ammonia, amines, nitrogen compounds and many other substances. This generates explosion hazard. Attacks many metals. This produces flammable/explosive gas (hydrogen - see ICSC 0001). Attacks plastics.

Chemical stability

All hypochlorite soln are unstable, esp if acidified; slowly decomp on contact with air hypochlorite soln

Possibility of hazardous reactions

Contact with combustible materials will increase fire hazard. May undergo accelerated decomposition with release of heat above 350 deg F (177 deg C). /Calcium hypochlorite, dry, or calcium hypochlorite, mixtures, dry/CALCIUM HYPOCHLORITE is a powerful oxidizing agent, particularly in the presence of water or as it decomposes when heated to release oxygen and chlorine gases. May react vigorously with carbon; reacts potentially explosively with finely divided carbon. Reacts with acetylene to form explosive chloroacetylenes. Reactions with organic matter, oil, hydrocarbons; alcohols may lead to explosions. Reactions with nitromethane, methanol, ethanol (and other alcohols) can become violent after a delay. Reacts with possible ignition and/or explosion with organic sulfur compounds and with sulfides. Decomposes evolving oxygen, a change that can be catalyzed by rust on metal containers. Forms highly explosive NCl_3 on contact with urea or ammonia. Evolves highly toxic gaseous chlorine gas when heated or on contact with acids [Sax, 9th ed., 1996, p. 1905]. A mixture with damp sulfur reacted violently, and molten sulfur was ejected [Chem Eng. News, 1965, 46(29), 6]. The combination of calcium hypochlorite, sodium hydrogen sulfate, starch, and sodium carbonate, when compressed, caused the materials to incandescence, followed by explosion, [Ind. Eng. Chem., 1937, 15, 282].

Conditions to avoid

no data available

Incompatible materials

Reacts with water and with acids releasing chlorine. Forms explosive compounds with ammonia and amines. Strong oxidizer. Other incompatible materials include organics, nitrogen containing compounds, dry chemical fire extinguishers containing mono-ammonium phosphate, combustible or flammable materials. Calcium hypochlorite, dry or calcium hypochlorite, mixtures, dry

Hazardous decomposition products

The 70% grade may decomp violently if exposed to heat or direct sunlight. Gives off chlorine and chlorine monoxide above 350 deg F (poisonous gases).

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat (male) oral 790 mg/kg
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

Evaluation: There is inadequate evidence for the carcinogenicity of hypochlorite salts in experimental animals. No data were available from studies in humans on the carcinogenicity of hypochlorite salts. Overall evaluation: Hypochlorite salts are not classifiable as to their carcinogenicity to humans (Group 3). Hypochlorite salts

Reproductive toxicity

no data available

STOT-single exposure

The substance is corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. Inhalation of decomposition products may cause lung oedema. See Notes. The effects may be delayed. Medical observation is indicated.

STOT-repeated exposure

no data available

Aspiration hazard

A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: Lepomis macrochirus (Bluegill) juvenile, weight 3.91 g, length 4.6 cm; Conditions: freshwater, renewal, 32 deg C, pH 7.25-7.55, hardness 41.5-46.3 mg/L CaCO3, alkalinity 42-45 mg/L CaCO3; Concentration: 71 ug/L for 24 hr (95% confidence interval: 68-75 ug/L) /total Cl ion

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water flea) 1st instar; Conditions: freshwater, static; Concentration: 73 ug/L for 48 hr (95% confidence interval: 67-79 ug/L); Effect: intoxication, immobilization /65% purity

Toxicity to algae: EC50; Species: Pseudokirchneriella subcapitata (Green algae) 3 day algal culture, 1,200,000 cells/cu cm; Conditions: freshwater, 27 deg C; Concentration: 983 ug/L for 72 hr (95% confidence interval: 805-1210 ug/L); Effect: decreased population growth rate /Chlorinated lime

Toxicity to microorganisms: no data available

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN1748 (For reference only, please check.)

IMDG: UN1748 (For reference only, please check.)

IATA: UN1748 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: CALCIUM HYPOCHLORITE, DRY or CALCIUM HYPOCHLORITE MIXTURE, DRY with more than 39% available chlorine (8.8% available oxygen) (For reference only, please check.)

IMDG: CALCIUM HYPOCHLORITE, DRY or CALCIUM HYPOCHLORITE MIXTURE, DRY with more than 39% available chlorine (8.8% available oxygen) (For reference only, please check.)

IATA: CALCIUM HYPOCHLORITE, DRY or CALCIUM HYPOCHLORITE MIXTURE, DRY with more than 39% available chlorine (8.8% available oxygen) (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 5.1 (For reference only, please check.)

IMDG: 5.1 (For reference only, please check.)

IATA: 5.1 (For reference only, please check.)

Packing group, if applicable

ADR/RID: II (For reference only, please check.)

IMDG: II (For reference only, please check.)

IATA: II (For reference only, please check.)

Environmental hazards

ADR/RID: Yes

IMDG: Yes

IATA: Yes

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

PICCS

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Other Information

Rinse contaminated clothing with plenty of water because of fire hazard.The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort.Rest and medical observation is therefore essential.Immediate administration of an appropriate inhalation therapy by a doctor or a person authorized by him/her, should be considered.