
SECTION 7: Handling and storage (....)

- Contaminated clothing should be laundered before reuse
- Use good personal hygiene practices
- Do not eat, drink or smoke when using this product.
- Wash thoroughly after handling.
- Ensure eyewash stations and safety showers are nearby

7.2 Conditions for safe storage, including any incompatibilities

- Store in a cool, dry well-ventilated place. Keep container tightly closed.
- Protect from moisture
- Protect from sunlight.
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Keep away from food, drink and animal feedingstuffs
- Keep away from combustible material

7.3 Specific end use(s)

- Pool / spa treatment
-

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

- If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace exposure - Measurement of exposure by inhalation to chemical agents - Strategy for testing compliance with occupational exposure limit values). European Standard EN 14042 (Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents). European Standard EN 482 (Workplace exposure. General requirements for the performance of procedures for the measurement of chemical agents). Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- The UK HSE (EH40) recommends the following limits for dusts: 10 mg/m³ (8hr TWA) total inhalable dust; 4 mg/m³ (8hr TWA) total respirable dust

Calcium hypochlorite

(As chlorine)

(EU) OELV (short term limit value) 0.5 ppm 1.5 mg/m³WEL (short term limit value) 0.5 ppm 1.5 mg/m³ (UK)

Sodium chloride

DNEL (inhalational) 2 068.62 mg/m³ Industry, Long Term, Systemic EffectsDNEL (inhalational) 2 068.62 mg/m³ Industry, Acute/Short Term, Systemic Effects

DNEL (dermal) 295.52 mg/kg bw/day Industry, Long Term, Systemic Effects

DNEL (dermal) 295.52 mg/kg bw/day Industry, Acute/Short Term, Systemic Effects

DNEL (inhalational) 443.28 mg/m³ Consumer, Long Term, Systemic EffectsDNEL (inhalational) 443.28 mg/m³ Consumer, Acute/Short Term, Systemic Effects

DNEL (dermal) 126.65 mg/kg bw/day Consumer, Long Term, Systemic Effects

DNEL (dermal) 126.65 mg/kg bw/day Consumer, Acute/Short Term, Systemic Effects

DNEL (oral) 126.65 mg/kg bw/day Consumer, Long Term, Systemic Effects

DNEL (oral) 126.65 mg/kg bw/day Consumer, Acute/Short Term, Systemic Effects

PNEC aqua (freshwater) 5 mg/L

PNEC (STP) 500 mg/L

PNEC terrestrial (soil) 4.86 mg/kg

Calcium chloride

DNEL (inhalational) 5 mg/m³ Industry, Long Term, Local EffectsDNEL (inhalational) 10 mg/m³ Industry, Acute/Short Term, Local EffectsDNEL (inhalational) 2.5 mg/m³ Consumer, Long Term, Local EffectsDNEL (inhalational) 5 mg/m³ Consumer, Acute/Short Term, Local Effects

SECTION 8: Exposure controls/personal protection (....)

Calcium dihydroxide

(EU) OELV (long term TWA) 1 mg/m³
 (EU) OELV (short term limit value) 4 mg/m³
 WEL (long term) 5 mg/m³ (UK, inhalable fraction)
 WEL (long term) 1 mg/m³ (UK, respirable fraction)
 WEL (short term) 4 mg/m³ (UK, respirable fraction)
 DNEL (inhalational) 1 mg/m³ Industry, Long Term, Local Effects
 DNEL (inhalational) 4 mg/m³ Industry, Short Term, Local Effects
 DNEL (inhalational) 1 mg/m³ Consumer, Long Term, Local Effects
 DNEL (inhalational) 4 mg/m³ Consumer, Short Term, Local Effects
 PNEC aqua (freshwater) 490 µg/L
 PNEC aqua (intermittent releases, freshwater) 490 µg/L
 PNEC aqua (marine water) 320 µg/L
 PNEC (STP) 3 mg/L
 PNEC terrestrial (soil) 1.08 g/kg

Carbonic acid, calcium salt (1:1)

WEL (long term) 10 mg/m³ (UK, inhalable dust)
 WEL (long term) 4 mg/m³ (UK, respirable dust)
 DNEL (inhalational) 6.36 mg/m³ Industry, Long Term, Local Effects
 DNEL (inhalational) 1.06 mg/m³ Consumer, Short Term, Local Effects
 DNEL (oral) 6.1 mg/kg bw/day Consumer, Long Term, Systemic Effects
 DNEL (oral) 6.1 mg/kg bw/day Consumer, Acute/Short Term, Systemic Effects
 PNEC (STP) 100 mg/L

8.2 Exposure controls

- Selection and use of personal protective equipment should be based on a risk assessment of exposure potential
- Engineering controls
 Engineering controls should be provided which maintain airborne concentrations below the relevant guidelines
 Use local exhaust ventilation and/or enclosures.
- Respiratory protection
 In case of insufficient ventilation, wear suitable respiratory equipment
 Where a reusable half mask respirator is required, use EN 140 mask and EN 143 particle filter, or EN 1827
 Where a full face mask respirator is required, use EN 136, with particle filter EN 143
- Eye/face protection
 Wear goggles giving complete eye protection approved to standard EN 166.
- Skin protection
 Wear suitable protective clothing
 Wear protective gloves. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and standard EN 374.
 The selection of a suitable glove depends on work conditions and whether the product is present on its own or in combination with other substances. Breakthrough time is dependent on the characteristics of the brand of glove used and the supplier should be consulted.
 Natural rubber are recommended
- Hygiene measures
 Do not eat, drink or smoke when using this product.
 Use good personal hygiene practices
 Wash thoroughly after handling.
 Contaminated clothing should be laundered before reuse
 Contaminated work clothing should not be allowed out of the workplace.
 Ensure eyewash stations and safety showers are nearby
- Thermal hazards
 Not applicable

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SECTION 8: Exposure controls/personal protection (....)

- Environmental exposure controls
Do not empty into drains
Do not allow to penetrate the ground/soil.



SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Physical state: Solid, powder or crystalline Granules
- Colour: White to grey
- Odour: Smells of chlorine
Odour threshold 1 - 3 ppm (value for chlorine)
- Melting point/freezing point: 100 °C with decomposition
- Boiling point or initial boiling point and boiling range: Not applicable
- Flammability: Not combustible, but will contribute to the combustion of other materials. May cause violent, sometimes explosive reactions.
- Lower and upper explosion limit: Not applicable
- Flash point: Not applicable
- Auto-ignition temperature: Not applicable
- Decomposition temperature: Slowly decomposes at less than 100 °C; when above 140 °C, around 12 minutes of heating up, violent decomposition and combustion occur
- Self-Accelerating Decomposition Temperature (SADT): 60 °C < SADT ≤ 75 °C
- Critical Ambient Temperature (CAT): 55 °C
- pH: 10.8 (10 % Solution)
- Kinematic viscosity: No data available
- Solubility: 21g/100mL (25 °C) ; 43 - 48g/100mL (40 °C) ; Insoluble in ethanol
- Partition coefficient n-octanol/water (log value): Log Pow: -2.46
- Vapour pressure: No data available
- Density and/or relative density: 2.00 (20 °C) (Water = 1)
- Relative vapour density: 6.9 @ 20 °C
- Particle characteristics: Particle size (range): Granular (0.3 - 2mm) or tablet (7 - 300g) or Customized

9.2 Other information

- Oxidising properties: Category 2 (oxidising solids) based on GHS criteria
- Refractive Index: 1.545 (alpha), 1.69 (beta)
- Bulk Density: 1.0 g/cm³ (loose granules)
- Moisture content: 5.5 - 10 %
- Molecular weight: 142.98

SECTION 10: Stability and reactivity

10.1 Reactivity

- May intensify fire; oxidiser.
- Warning! Do not use with other products. May release dangerous gases (chlorine)

10.2 Chemical stability

- May decompose on exposure to heat and light

SECTION 10: Stability and reactivity (....)

- May decompose on exposure to air and moisture
- Decomposition may lead to spontaneous ignition through self- heating

10.3 Possibility of hazardous reactions

- No dangerous reactions known under normal conditions of use.
- Hazardous polymerisation will not occur, however this product is a highly reactive oxidising chlorine compound.
- May cause fire or explosion.
- Readily ignites with flammable and combustible materials, in contact with anhydrous (dry) calcium hypochlorite.
- Reacts with ammonia, primary amines, aromatic amines, and urea to form explosive nitrogen trichloride. May explode upon contact with ethanol or methanol, due to the formation of the alkyl hypochlorites. Contact with hydroxy compounds causes ignition and may be explosive.
- Contact with acetylene may lead to formation of explosive chloroacetylenes.
- Reaction with acetic acid and potassium cyanide may be explosive.
- Reaction with reducing agents causes a violent reaction.
- Reaction with metal oxides can cause a violent oxygen-evolving decomposition of hypochlorites.
- A confined intimate mixture of calcium hypochlorite + finely divided charcoal exploded on heating.
- Metals catalyze the decomposition.
- Reaction with organic sulfur compounds may cause a flash fire/explosion. A mixture of damp sulfur and 'solid swimming pool chlorine' caused a violent exothermic reaction.
- May explode with turpentine.

10.4 Conditions to avoid

- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Keep away from direct sunlight
- Avoid formation of dust
- Avoid contact with moisture

10.5 Incompatible materials

- Incompatible with flammable, organic and combustible materials, ammonia, primary amines, aromatic amines, and urea acids, ammonium chloride, different types of chlorinating chemicals, ethanol or methanol, hydroxy compounds, acetylene, acetic acid and potassium cyanide, reducing agents, metal oxides, charcoal + heat, metals, organic sulfur, compounds, sulfur (damp), turpentine and all sources of ignition.

10.6 Hazardous decomposition products

- Decomposition products may include hydrogen chloride gas, hydrochloric acid, calcium oxides, calcium chlorate, calcium hydroxide, calcium carbonate, and chlorine, oxygen gas, and dichlorine monoxide above 177 °C. In contact with incompatible materials, the formation of extremely hazardous gases such as explosively unstable N-mono of Di- Chloramines, corrosive chlorine gas, explosive nitrogen trichloride, alkyl hypochlorites, and explosive chloroacetylenes.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

- Acute Toxicity
H302: Harmful if swallowed

Substances

Chemical Name	LD ₅₀ (oral, rat)	LC ₅₀ (inhalation, rat)	LD ₅₀ (dermal, rabbit)
Calcium hypochlorite	850 mg/kg	No data available	> 2000 mg/kg
Sodium chloride	3 980 mg/kg	(1 h) > 42 g/m ³	No data available
Calcium chloride	2 120 - 2 361 mg/kg	No data available	> 5 000 mg/kg
Calcium dihydroxide	7340 mg/kg	(4 h) 6.04 mg/L	2 500 mg/kg

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SECTION 11: Toxicological information (....)

Carbonic acid, calcium salt (1:1)	6450 mg/kg	(4 h) 3 mg/L	2 000 mg/kg (rat)
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- Skin corrosion/irritation
H314: Causes severe skin burns

Substances

Chemical Name	Irritation/corrosion
Calcium hypochlorite	No data available
Sodium chloride	No adverse effect observed (not irritating)
Calcium chloride	No adverse effect observed (not irritating)
Calcium dihydroxide	Adverse effect observed (irritating)
Carbonic acid, calcium salt (1:1)	No adverse effect observed (not irritating)

- Serious eye damage/irritation
H318: Causes serious eye damage

Substances

Chemical Name	Irritation/corrosion
Calcium hypochlorite	Adverse effect observed (corrosive)
Sodium chloride	Adverse effect observed (irritating)
Calcium chloride	Adverse effect observed (irritating)
Calcium dihydroxide	Adverse effect observed (irritating)
Carbonic acid, calcium salt (1:1)	No adverse effect observed (not irritating)

- Respiratory or skin sensitisation
Based on available data, the classification criteria are not met

Substances

Chemical Name	Skin sensitisation	Respiratory sensitisation
Calcium hypochlorite	No data available	No data available
Sodium chloride	No adverse effect observed (not sensitising)	No data available
Calcium chloride	No adverse effect observed (not sensitising)	No adverse effect observed (not sensitising)
Calcium dihydroxide	No study available	No study available
Carbonic acid, calcium salt (1:1)	No adverse effect observed (not sensitising)	No study available

- Germ cell mutagenicity
No evidence of mutagenic effects

Substances

Chemical Name	Toxicity - In Vitro	Toxicity - In Vivo
Calcium hypochlorite	No data available	No data available
Sodium chloride	No data available	No study available
Calcium chloride	No adverse effect observed (negative)	No data available
Calcium dihydroxide	No data available	No data available
Carbonic acid, calcium salt (1:1)	No adverse effect observed (negative)	No study available

- Carcinogenicity
No evidence of carcinogenic effects

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SECTION 11: Toxicological information (....)

Substances

Chemical Name	NOAEL (oral, rat)	NOAEC (inhalation, rat)	NOAEL (dermal, rat)
Calcium hypochlorite	No data available	No data available	No data available
Sodium chloride	No data available	No data available	No data available
Calcium chloride	No data available	No data available	No data available
Calcium dihydroxide	517 mg/kg bw/day	No data available	No data available
Carbonic acid, calcium salt (1:1)	No data available	No data available	No data available

- Reproductive toxicity
No evidence of reproductive effects

Substances

Chemical Name	NOAEL (oral, rat)	NOAEC (inhalation, rat)	NOAEL (dermal, rat)
Calcium hypochlorite	No data available		
Sodium chloride	No data available	No data available	No data available
Calcium chloride	No data available	No data available	No data available
Calcium dihydroxide	582 mg/kg bw/day (Effect on developmental toxicity)	No data available	No data available
Carbonic acid, calcium salt (1:1)	No data available	No data available	No data available

- Specific target organ toxicity (STOT) - single exposure
May cause respiratory irritation.

Substances

Chemical Name	Route	Remarks
Calcium hypochlorite	Respiratory	No data available
Sodium chloride	Respiratory	No data available
Calcium chloride	Respiratory	No adverse effect observed (not irritating)
Calcium dihydroxide	Respiratory	Adverse effect observed (irritating)
Carbonic acid, calcium salt (1:1)	Respiratory	No study available

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

Substances

Chemical Name	NOAEL (oral, rat)	NOAEC (inhalation, rat)	NOAEL (dermal, rat)
Calcium hypochlorite	No data available	No data available	No data available
Sodium chloride	No data available	No data available	No data available
Calcium chloride	No data available	No data available	No data available
Calcium dihydroxide	No data available	107 mg/m ³	No data available
Carbonic acid, calcium salt (1:1)	1 000 mg/kg bw/day	212 mg/m ³	No data available

- Aspiration hazard
Based on available data, the classification criteria are not met
- Contact with eyes
Causes redness and swelling
May cause severe damage with formation of corneal ulcers and permanent impairment of vision.
- Contact with skin
May cause severe burns with permanent skin damage which are slow to heal.
May cause blistering of the skin

SECTION 11: Toxicological information (....)

- Ingestion
 - May cause burns to mouth and throat
 - May disturb the mucous membranes
 - May cause stomach pain
 - The ingestion of significant quantities may cause burning sensation
- Inhalation
 - Inhalation of decomposition products of calcium hypochlorite may cause lung oedema. The effects may be delayed.
 - May cause respiratory tract irritation.
 - May cause shortness of breath
 - May cause coughing

11.2 Information on other hazards

- Does not contain any substances with endocrine disrupting properties
-

SECTION 12: Ecological information

12.1 Toxicity

- Based on available data, the classification criteria are not met

Substances

Chemical Name	LC ₅₀ (fish)	EC ₅₀ (aquatic invertebrates)	EC ₅₀ (aquatic algae)
Calcium hypochlorite	(4 days) 0.049 - 0.16 mg/L (static) (4 days) 0.4 mg/L (flow-through)	No data available	No data available
Sodium chloride	(4 days) 5.84 g/L	LC ₅₀ (48 h) 4.136 g/L	(5 days) 2.43 g/L
Calcium chloride	(4 days) 4.63 g/L	LC ₅₀ (48 h) 2.4 - 2.77 g/L	(72 h) 2.9 - 27 g/L
Calcium dihydroxide	(4 days) 50.6 - 457 mg/L	(48 h) 49.1 mg/L	(72 h) 184.57 mg/L
Carbonic acid, calcium salt (1:1)	No data available	No data available	(72 h) 14 mg/L

12.2 Persistence and degradability

Substances

Chemical Name	Biodegradation
Calcium hypochlorite	Not applicable, inorganic
Sodium chloride	Not applicable, inorganic
Calcium chloride	Not applicable, inorganic
Calcium dihydroxide	Not applicable, inorganic
Carbonic acid, calcium salt (1:1)	Readily biodegradable in water (100%)

12.3 Bioaccumulative potential

- Bioaccumulation is not expected

Substances

Chemical Name	Bioconcentration Factor (BCF)	Log Kow
Calcium hypochlorite	Bioaccumulation is not expected	Log Pow -2.46
Sodium chloride	Bioaccumulation is not expected	Not applicable, inorganic
Calcium chloride	Bioaccumulation is not expected	Not applicable, inorganic
Calcium dihydroxide	Bioaccumulation is not expected	Not applicable, inorganic
Carbonic acid, calcium salt (1:1)	Bioaccumulation is not expected	Not applicable, inorganic

12.4 Mobility in soil

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SECTION 12: Ecological information (....)

- Large volumes may penetrate soil and contaminate groundwater

Chemical Name	Adsorption/desorption
Calcium hypochlorite	No data available
Sodium chloride	No data available
Calcium chloride	No data available
Calcium dihydroxide	No data available
Carbonic acid, calcium salt (1:1)	Low potential for adsorption

12.5 Results of PBT and vPvB assessment

- Not a PBT according to REACH Annex XIII
- Not a vPvB according to REACH Annex XIII

12.6 Endocrine disrupting properties

- Has not been identified as having endocrine disrupting properties

12.7 Other adverse effects

- Do not empty into drains

SECTION 13: Disposal considerations

13.1 Waste treatment methods

- Disposal should be in accordance with local, state or national legislation
- Do not discharge into drains or the environment, dispose to an authorised waste collection point
- Do not reuse empty containers without commercial cleaning or reconditioning

13.2 Classification

- The waste must be identified according to the List of Wastes (2000/532/EC)
- Hazardous Property Code(s): HP 2 Oxidising; HP 6 Acute Toxicity; HP 8 Corrosive; HP 14 Ecotoxic

SECTION 14: Transport information



14.1 UN number or ID number

- UN No.: 3487

14.2 UN proper shipping name

- Proper Shipping Name: CALCIUM HYPOCHLORITE, HYDRATED, CORROSIVE

14.3 Transport hazard class(es)

- Hazard Class: 5.1 (8)

14.4 Packing group

- Packing Group: II

14.5 Environmental hazards

- MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS

14.6 Special precautions for user

- Keep away from heat and direct sunlight.
- Ensure adequate ventilation

SECTION 14: Transport information (....)

14.7 Maritime transport in bulk according to IMO instruments

- Not applicable

14.8 Road/Rail (ADR/RID)

- ADR UN No.: 3487
- Proper Shipping Name: CALCIUM HYPOCHLORITE, HYDRATED, CORROSIVE
- ADR Hazard Class: 5.1 (8)
- ADR Packing Group: II
- Tunnel Code: (E)

14.9 Sea (IMDG)

- IMDG UN No.: 3487
- Proper Shipping Name: CALCIUM HYPOCHLORITE, HYDRATED, CORROSIVE
- IMDG Hazard Class: 5.1 (8)
- IMDG Packing Group: II

14.10 Air (ICAO/IATA)

- ICAO UN No.: 3487
- Proper Shipping Name: CALCIUM HYPOCHLORITE, HYDRATED, CORROSIVE
- ICAO Hazard Class: 5.1 (8)
- ICAO Packing Group: II

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

- This safety data sheet is provided in compliance with REACH Regulation (EC) No 1907/2006 (as amended by Regulation (EU) 2020/878) and UK REACH
- The GB Classification, Labelling and Packaging Regulation (GB CLP) applies in Great Britain
- Regulation (EC) No. 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP Regulation) applies in Europe
- This product is covered by the GB Biocidal Products Regulation (GB BPR)
- This product is covered by EU Directive 2012/18/EU (the Seveso III Directive)

15.2 Chemical safety assessment

- A REACH chemical safety assessment has not been carried out

SECTION 16: Other information

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of PLASTICA'S limited knowledge and belief, accurate, and reliable as of the date of authorisation of this safety data sheet. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to be satisfied as to the suitability and completeness of such information for the product as used.

Sources of data: Information from published literature and supplier safety data sheets

Revision No. 2.0.0. Revised June 2022.

Changes made: Updated to conform to latest version of REACH

Training advice

- Workers must be informed of the presence of hazardous ingredients and trained in the proper use and handling of this product as required under applicable regulations

Text not given with phrase codes where they are used elsewhere in this safety data sheet:

SECTION 16: Other information (....)

- H272: May intensify fire; oxidizer
- H302: Harmful if swallowed
- H314: Causes severe skin burns and eye damage
- H315: Causes skin irritation.
- H318: Causes serious eye damage
- H319: Causes serious eye irritation.
- H335: May cause respiratory irritation
- H400: Very toxic to aquatic life
- EUH031: Contact with acids liberates toxic gas

Acronyms

- ATE: Acute Toxicity Estimate
- CAS: Chemical Abstracts Service
- DNEL: Derived No-Effect Level
- EC: European Community
- EC₅₀: Effective Concentration, 50%
- GHS: Globally Harmonised System
- LOAEC: Lowest observed adverse effect concentration
- LOAEL: Lowest Observed Adverse Effect Level
- LC₅₀: Lethal Concentration, 50%
- LD₅₀: Lethal Dose, 50%
- NOAEC: No observed adverse effect concentration
- NOAEL: No observed adverse effect level
- OEL: Occupational Exposure Limit
- PBT: Persistent, Bioaccumulative and Toxic
- PNEC: Predicted No-Effect Concentration
- REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
- SCL: Specific Concentration Limit
- SVHC: Substances of Very High Concern
- vPvB: very Persistent and very Bioaccumulative
- WEL: Workplace Exposure Limit

--- end of safety datasheet ---
