



CALCIUM HYPOCHLORITE

PRODUCT INFORMATION

CHEMICAL NAME: Calcium hypochlorite.
SYNONYMS: Calcium oxychloride, bleaching powder, chlorinated lime, hypochlorous acid, and Chloryte.
CHEMICAL FAMILY: Salt of hypochlorous acid.
MOLECULAR FORMULA: $\text{Ca}(\text{OCl})_2$
SHIPPING NAME: Calcium hypochlorite, hydrated
PIN - (UN/NA): UN 2880 Cl 5.1 (9.2) P.G.II
WHMIS: Exempt (P.C.P. regulated).
PRODUCT USE: Disinfection in swimming pools and drinking water supplies; slime control; odour control.
MANUFACTURER: Arch Chemicals, Inc. Norwalk, CT
EMERGENCY TELEPHONE NUMBER: (800) 654-6911
SUPPLIER: Panther Industries Inc. Box 628 Davidson, SK S0G 1A0
EMERGENCY TELEPHONE NUMBER: (306) 567-2814

HAZARDOUS INGREDIENTS

INGREDIENTS:	WEIGHT %	C.A.S. REGISTRY NUMBER:
Calcium hypochlorite	60-80	7778-54-3
Sodium chloride	10-20	7647-14-5
Calcium chloride	0-5	10043-52-4
Calcium hydroxide	0-4	1305-62-0
Calcium carbonate	0-5	471-34-1
Calcium chlorate	0-5	10137-74-3
Water	5.5-10	7732-18-5

PHYSICAL DATA

PHYSICAL STATE: Solid
ODOUR AND APPEARANCE: White, free flowing granular solid with a strong chlorine odour.
ODOUR THRESHOLD: $\sim 1.4 \text{ mg/m}^3$ based on Chlorine
VAPOUR PRESSURE: Not applicable. VAPOUR DENSITY: Not applicable.
EVAPORATION RATE: Not applicable. pH: 10.4-10.8 (1% solution)
BOILING POINT: Not applicable SPECIFIC GRAVITY: 2.35 (calcium Hypochlorite)
MELTING POINT: 100°C decomposes
SOLUBILITY IN WATER: 18% @ 25 °C. MOLECULAR WEIGHT: 142.98
% VOLATILES BY VOLUME: Not available.
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable (decomposes).

FIRE AND EXPLOSION DATA

CONDITIONS OF FLAMMABILITY: Non-flammable. Calcium hypochlorite is a strong oxidizing agent; may form explosive mixtures with combustibles, organic, or other oxidizable materials.
MEANS OF EXTINCTION: Drench with water, and cool surrounding products and area with water. Water in contact with hot calcium hypochlorites can release hydrochloric acid or chlorine gas.
FLASH POINT: Not applicable.
UPPER FLAMMABLE LIMIT: Not applicable.
LOWER FLAMMABLE LIMIT: Not applicable.
AUTO IGNITION TEMPERATURE: Not applicable.
HAZARDOUS COMBUSTION PRODUCTS: Oxygen, chlorine, and chlorine monoxide at higher tempera-



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tures. Water in contact with hot calcium hypochlorite can release hydrochloric acid or chlorine gas.
SPECIAL FIRE FIGHTING PROCEDURES: Wear NIOSH-approved self-contained breathing apparatus and protective clothing. Dike area to prevent runoff and contamination to water resources.
EXPLOSION HAZARDS: Not sensitive to mechanical impact or static discharge.

REACTIVITY DATA

STABILITY: Stable. Heat and contamination could cause decomposition.
HAZARDOUS POLYMERIZATION: Will not occur.
INCOMPATIBILITY: Acids, reducing agents, combustible materials such as wood, cloth or organic materials, dry powder fire extinguishers containing monoammonium phosphate, metals such as iron and copper and their alloys, water or stream, ammonia, urea, amines.
HAZARDOUS REACTIONS/DECOMPOSITIONS: Water in contact with calcium hypochlorite releases chlorine gas. Contact with incompatibles presents an explosion and fire hazard. Toxic or corrosive fumes may be liberated. These include chlorine gas.

HEALTH HAZARD DATA

INHALATION: Dust and mist irritate the nose and throat. In confined areas, mechanical agitation can result in high levels of dust, and reaction with incompatibles materials (e.g., acids and water/moisture) can result in high concentrations of chlorine vapour, either of which may result in burns to the respiratory tract, producing lung edema, shortness of breath, wheezing, choking, chest pains, impairment of lung function, and possible permanent lung damage.
SKIN CONTACT/ABSORPTION: Calcium hypochlorite dust and solutions can cause irritation and in severe cases, chemical burns, which are characterized by redness, swelling, and scab formation. Moisture from perspirations will accelerate tissue destruction.
EYE CONTACT: Exposure to calcium hypochlorite can cause eye irritation and vision impairment. Contact can produce impairment of vision and corneal damage.
INGESTION: When ingested, there will be burning in the mouth and throat. Calcium Hypochlorite can cause abdominal cramps, vomiting, diarrhea, tissue ulceration, and nausea which may lead to convulsions, coma, and even death.
CHRONIC EXPOSURE EFFECTS: Skin irritation may occur from repeated or prolonged skin contact. Chronic inhalation exposure may cause impairment of lung function and permanent lung damage. Asthma, respiratory and cardiovascular disease may be aggravated by exposure to this chemical.
EXPOSURE LIMITS: Ceiling = 3mg/m³ as chlorine (manufacturer's internal standard)
IRRITANCY: Causes burns to eyes and skin. **MUTAGENICITY:** Not a mutagen
CARCINOGENICITY: Not carcinogenic as per IARC, NTP, OSHA and ACGIH)
SENSITIZATION TO PRODUCT: Not available.
REPRODUCTIVE TOXICITY: Not reported to show reproductive toxicity.
TOXICOLOGICALLY SYNERGISTIC MATERIALS: Not available.
TERATOGENICITY DATA: Not a teratogen.
ANIMAL TOXICITY DATA:
LC50: (Inhalation, rats 1hr) = 1300mg/m³
LD50: (Oral, rats) = 850 mg/kg,
LD50 (rabbit, dermal) = >2000mg/kg
OTHER HEALTH EFFECTS: None known.

FIRST AID MEASURES

INHALATION: Remove victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Obtain medical attention immediately.



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SKIN CONTACT:Remove contaminated clothing. Irrigate affected area with water for at least 20 minutes. Seek immediate medical attention.

EYE CONTACT:Immediately flush the contaminated eye(s) for 20 minutes. Forcibly hold eyelids open to ensure complete irrigation of eye tissue. Seek immediate attention.

INGESTION:Immediately give large amounts of water. Do not induce vomiting. If vomiting occurs lean victim forward to prevent breathing in vomitus. Do not give anything by mouth to an unconscious or convulsing person. Seek immediate medical attention.

PREVENTATIVE MEASURES

RESPIRATORY PROTECTION:Use NIOSH-approved respirator- full facepiece with chlorine and dust/mist cartridges when

dust is present. Use a self-contained breathing apparatus for major spills.

SKIN PROTECTION:Impervious gloves, body suits, boots, and other resistant protective clothing made of butyl rubber, natural rubber, neoprene, nitrile, polyethylene, polyvinyl chloride.

EYE/FACE PROTECTION:Chemical goggles and full faceshield unless full facepiece respirator is worn. Contact lenses should not be worn during the handling of this product; they may contribute to severe eye injury.

SPECIAL HANDLING PROCEDURES:Use sensible industrial hygiene and housekeeping practises. Avoid generating dust. Wash thoroughly after handling. Avoid situations that could lead to harmful exposures.

STORAGE REQUIREMENTS:Store in a cool, dry, well ventilated place. Keep container tightly closed, and away from incompatible materials. Keep out of sun.

ENGINEERING CONTROLS:Local exhaust ventilation required where exposure to dust might occur.

ENVIRONMENTAL PROTECTION DATA

STEPS IN THE EVENT OF A LEAK OR SPILL:Prevent material from entering sewers, shovel into clean, labelled containers that contain water. Flush area with water. Neutralize wastewater with neutralizing agent. In the case of an adverse air release, vapours may be suppressed by use of water fog.

ENVIRONMENTAL EFFECTS:Aquatic toxicity:

LC50(Bluegill, 96-hr) = 0.088 mg/L

LC50(Rainbow trout, 96-hr) = 0.16 mg/L

LC50(Daphnia magna, 48-hr) = 0.11 mg/L

Wildlife Toxicity:

LC50(Bobwhite quail, dietary) = >5000 ppm

LD50(Mallard ducklings, dietary) = >5000 ppm

LC50(oral,bobwhite quail) = 3474 mg/kg

DEACTIVATING CHEMICALS: 35% hydrogen peroxide, sodium sulphite, or sodium bisulphite.

WASTE DISPOSAL METHODS:Consult appropriate Federal, State/Provincial, and local regulatory authorities to ascertain proper disposal procedures.

PREPARATION INFORMATION

MSDS PREPARED BY:Technical Department Panther Industries Inc.

TELEPHONE NUMBER: (306) 567-2814

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REFERENCES:

1. Manufacturer's MSDS

2. Hawley, Gessner G. "The Condensed Chemical Dictionary, Tenth Edition" (Van Nostrand Reinhold Co.) 1981.