CALCIUM HYPOCHLORITE

CHY

CAUTIONARY RESPONSE INFORMATION

Common Synonyms			
HTH HTH dry chlorine Neutral anhydrous calcium hypochlorite	Solid granules Sinks and mixes with water.	White	Household bleaching powder odor

Keep people away. Avoid contact with solid and dust.
Wear goggles and self-contained breathing apparatus.
Notify local health and pollution control agencies.
Protect water intakes.

Fire

Not flammable.
May cause fire on contact with combustibles.
POISONOUS GASES ARE PRODUCED WHEN HEATED.
Wear chemical protective suit including self-contained breathing apparatus.
Extinguish adjacent fires with water.

Exposure

CALL FOR MEDICAL AID.

SOLID
Irritating to skin and eyes.
If swallowed, will cause nausea, vomiting or loss of consciousness.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.
IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.
DO NOT INDUCE VOMITING.

Water Pollution

HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.
May be dangerous if it enters water intakes.
Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
Stop discharge

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
2.2 Formula: $Ca(OCl)_2$
2.3 IMO/UN Designation: 5.1/1748
2.4 DOT ID No.: 1748
2.5 CAS Registry No.: 7778-54-3
2.6 NAERG Guide No.: 140
2.7 Standard Industrial Trade Classification: 52331

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Protective goggles, dust mask.
3.2 Symptoms Following Exposure: INHALATION: hypochlorous acid fumes given off only if compound comes in contact with acid, cause severe respiratory tract irritation and pulmonary edema. INGESTION: pain and inflammation of mouth, pharynx, esophagus, and stomach; erosion of mucous membranes, chiefly of the stomach; vomiting (hemorrhaging may cause vomitus to resemble coffee grounds); circulatory collapse, with cold and clammy skin, cyanosis, and shallow respirations; confusion, delirium, coma; edema of pharynx, glottis, and larynx, with stridor and obstruction; perforation of esophagus or stomach, with mediastinitis or peritonitis. SKIN CONTACT: may cause vesicular eruptions and eczematoid dermatitis.
3.3 Treatment of Exposure: INGESTION: swallow immediately milk, egg white, starch paste, milk of magnesia, aluminum hydroxide gel, or magnesium trisilicate gel. Avoid sodium bicarbonate because of the release of carbon dioxide. Do not use acidic antidotes; cautious gastric lavage with tap water or a 1% solution of sodium thiosulfate; milk of magnesia (1 oz) left in the stomach is useful as a mild antacid, adsorbent, demulcent, and cathartic; demulcents, such as starch, egg white, milk, gruel; opiates for the control of pain. Treat shock vigorously with intravenous fluids. Prompt surgical intervention when indicated, e.g., tracheotomy, gastrectomy. SKIN: wash with liberal quantities of water and apply a paste of baking soda.
3.4 TLV-TWA: Not listed.
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Grade 0; LD_{50} above 15 g/kg
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: None
3.10 Vapor (Gas) Irritant Characteristics: Not pertinent
3.11 Liquid or Solid Characteristics: Irritates eyes, skin, and mucous membranes.
3.12 Odor Threshold: Currently not available
3.13 IDLH Value: Not listed.
3.14 OSHA PEL-TWA: Not listed.
3.15 OSHA PEL-STEL: Not listed.
3.16 OSHA PEL-Ceiling: Not listed.
3.17 EPA AEGL: Not listed

4. FIRE HAZARDS

4.1 Flash Point: Not flammable
4.2 Flammable Limits in Air: Not flammable
4.3 Fire Extinguishing Agents: Not pertinent
4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent
4.5 Special Hazards of Combustion Products: Not pertinent
4.6 Behavior in Fire: Poisonous gases may be produced when heated
4.7 Auto Ignition Temperature: Not flammable
4.8 Electrical Hazards: Not pertinent
4.9 Burning Rate: Not flammable
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: Not Pertinent
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): Not Pertinent
4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed

5. CHEMICAL REACTIVITY

5.1 Reactivity with Water: No reaction
5.2 Reactivity with Common Materials: May cause fire in contact with wood or straw. Corrosive to most metals.
5.3 Stability During Transport: The 70% grade may decompose violently if exposed to heat or direct sunlight. Gives off chlorine and chlorine monoxide above 350°F (poisonous gases).
5.4 Neutralizing Agents for Acids and Caustics: Dilute with water.
5.5 Polymerization: Not pertinent
5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

6.1 Aquatic Toxicity:
0.5 ppm/*/trout/killed/fresh water
*Time period not specified
6.2 Waterfowl Toxicity: Currently not available
6.3 Biological Oxygen Demand (BOD): Not pertinent
6.4 Food Chain Concentration Potential: Not pertinent
6.5 GESAMP Hazard Profile:
Bioaccumulation: 0
Damage to living resources: 3
Human Oral hazard: 1
Human Contact hazard: II
Reduction of amenities: XX

7. SHIPPING INFORMATION

7.1 Grades of Purity: 70% (self-propagating); 65% (non propagating)
7.2 Storage Temperature: Currently not available
7.3 Inert Atmosphere: Currently not available
7.4 Venting: Currently not available
7.5 IMO Pollution Category: B/C
7.6 Ship Type: 3
7.7 Barge Hull Type: Currently not available

8. HAZARD CLASSIFICATIONS

8.1 49 CFR Category: Oxidizer
8.2 49 CFR Class: 5.1
8.3 49 CFR Package Group: II
8.4 Marine Pollutant: No
8.5 NFPA Hazard Classification:

Category	Classification	
Health Hazard (Blue).....	1	2
Flammability (Red).....	0	0
Instability (Yellow).....	2	2
Special (White).....	OX	

8.6 EPA Reportable Quantity: 10 pounds
8.7 EPA Pollution Category: A
8.8 RCRA Waste Number: Not listed
8.9 EPA FWPCA List: Yes

9. PHYSICAL & CHEMICAL PROPERTIES

9.1 Physical State at 15° C and 1 atm: Oxidizer
9.2 Molecular Weight: 174.98
9.3 Boiling Point at 1 atm: Not pertinent
9.4 Freezing Point: Not pertinent
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 2.35 at 20°C (solid)
9.8 Liquid Surface Tension: Not pertinent
9.9 Liquid Water Interfacial Tension: Not pertinent
9.10 Vapor (Gas) Specific Gravity: Not pertinent
9.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent
9.12 Latent Heat of Vaporization: Not pertinent
9.13 Heat of Combustion: Not pertinent
9.14 Heat of Decomposition: Not pertinent
9.15 Heat of Solution: Not pertinent
9.16 Heat of Polymerization: Not pertinent
9.17 Heat of Fusion: Currently not available
9.18 Limiting Value: Currently not available
9.19 Reid Vapor Pressure: Currently not available

NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
	NOT PERTINENT		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	VERY SOLUBLE		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT