MATERIAL SAFETY DATA SHEET

CALCIUM HYPOCHLORITE HYDRATED GRANULES

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Identified Product	**CALCIUM HYPOCHLORITE HYDRATED GRANULES**
CAS No.	7778-54-3
Product Form	Granules
Supplier	Cosmo Chemistry India Pvt. Ltd., Office No. 713, 7th Floor, Millennium Business Hub, Sarthana Jakatnaka, Varachha Main Road, Surat, Gujarat, India - 395006
Email	info@cosmochemistryindia.com
Product Uses	Water Treatment, Swimming Pool Treatment, Sanitizer, Disinfectant

SECTION 2: COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical Name: CALCIUM HYPOCHLORITE | CAS No.: 7778-54-3

Chemical Formula: Ca(OCl)2 | EC No.: 231-908-7

Product	Composition (%)	CAS No.
Chlorine	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
Water	5.5-10%	7732-18-5

SECTION 3: HAZARDS IDENTIFICATION

3.1 GHS Classification (Rev. 8, 2019)

3.1.1 Physical Hazard Classifications:

Hazard Class	Category	Description
Oxidizing Solids	Category 2	May intensify fire; oxidizer

3.1.2 Health Hazard Classifications:

Hazard Class	Category	Description
Acute Oral Toxicity	Category 4	Harmful if swallowed
Acute Inhalation Toxicity	Category 4	Harmful if inhaled

Skin Corrosion/Irritation	Category 1B	Causes severe skin burns and eye damage
Serious Eye Damage/Eye Irritation	Category 1	Causes serious eye damage
Specific Target Organ Toxicity - Single Exposure	Category 3	Causes respiratory tract irritation (RTI)

3.1.3 Environmental Hazard Classifications:

Hazard Class	**Category**	**Description**
Short Term (Acute) Aquatic Hazards	Category Acute 1	Very toxic to aquatic life
Long Term (Chronic) Aquatic Hazards	Category Chronic 1	Very toxic to aquatic life with long lasting effect

3.2 Labelling in Accordance with GHS (Rev. 8, 2019)

3.2.1 Hazard Pictograms: GHS03, GHS05, GHS06, GHS07, GHS09

3.2.2 Signal Word: DANGER

3.2.3 Hazard Statements (H-Codes):

H272 - May intensify fire; oxidizer.

H302 - Harmful if swallowed.

H314 - Causes severe skin burns and eye damage.

H335 - May cause respiratory irritation (harmful if inhaled).

H410 - Very toxic to aquatic life with long lasting effects.

3.2.4 Precautionary Statements (P-Codes):

P102 - Keep out of reach of children.

P210 - Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P220 - Keep away from clothing and other combustible materials.

P260 - Do not breathe dust and gas.

P264 - Wash hands, eyes, face and any other contacted body part thoroughly after handling.

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

P271 - Use only outdoors or in a well-ventilated area.

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

3.2.4.1 Response:

P301+P330+P331 - IF SWALLOWED: Rinse mouth, do not induce vomiting.

P302+P361+P354 - IF ON SKIN: Take off immediately all contaminated clothing. Rinse with water for several minutes.

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

P305+P354+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and continue rinsing.

P306+P363 - IF ON CLOTHING: Wash contaminated clothing before reuse.

P337+P316 - If eye irritation persists: Get emergency medical help immediately.

P319 - Get medical help if you feel unwell.

P370+P378 - In case of fire: Use the firefighting measures in Section 5 for extinction.

3.2.4.2 Storage:

P403+P233 - Store in a well-ventilated place. Keep container tightly closed.

P405 - Store locked up.

P420 - Store separately.

3.2.4.3 Disposal:

P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 4: FIRST AID MEASURES

4.1 Description of Necessary First Aid Measures

Route	First Aid Measure
Upon Inhalation	Take the victim away from exposure to fresh air. Remove all contaminated clothes. Rest until fully recovered. If breathing is difficult, seek medical advice immediately.
Upon Skin Contact	Wash skin and hair thoroughly in running water for 15 minutes. Remove all contaminated clothes. Seek medical assistance if irritation, blisters, redness or swelling occurs. Do not reuse clothes before thoroughly washing.
Upon Eye Contact	Immediately rinse eyes with running fresh water for 15 minutes, washing under the eyelids. Remove contact lenses if present after the initial 5 minutes and continue rinsing. Seek medical advice immediately.
Upon Ingestion	Thoroughly clean the mouth with water. Do not induce vomiting. Drink a few glasses of water and consult a doctor immediately.

4.2 Most Important Symptoms/Effects

Route	Symptoms/Effects
Upon Inhalation	Irritation in nose, coughing, runny nose, headache, breathing difficulties and sore throat.
Upon Skin Contact	Irritation, redness on contacted area. May cause dermatitis, blisters or swelling upon prolonged exposure.
Upon Eye Contact	Causes serious irritation, redness, burning sensation, pain, infection.
Upon Ingestion	Respiratory tract irritation, sore throat, nausea, vomiting. May cause ulcers, inflammation and burning in esophagus or stomach.

4.3 Indication of Immediate Medical Attention and Special Treatment

Treat as per the visible symptoms.

SECTION 5: FIRE AND EXPLOSION DATA

5.1 Suitable Extinguishing Media: Spray large quantities of water.

5.2 Specific Hazard Arising from the Chemicals: Presence of the product may intensify fire and increase the burning rates of other materials. The product emits toxic fumes of chlorine in fire. Upon decomposition, the product emits white fumes.

5.3 Special Protective Actions for Fire-Fighters: Keep unharmed containers cool by spraying water on them. Take intact containers away from the fire in open air. Upon rise in temperature, the product starts to decompose leading to expansion inside the container and may cause explosion. Avoid spraying water directly on exposed or damaged containers. Wear protective suits equipped with oxygen supply to avoid exposure to harmful chlorine gas; cover the full body to avoid exposure to chemicals.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedure: Keep unprotected people away from the spill. Use protective equipment as per Section 8. Do not let the product touch eyes, skin or clothes. Avoid breathing the powdery dust/chlorine. Ensure adequate ventilation, do not smoke, and keep the product away from any ignition source. For large accidental spills, contact emergency services promptly.

6.2 Environmental Precautions: Prevent the spill from getting into waterways, sewers and drains. Do not let water touch the spill. The material is very toxic to aquatic life and causes long lasting effects. Monitor chlorine levels in water and pH before discharge.

Dry spills: Use a brush, plastic broom or plastic shovel to collect the spill into a separate HDPE container. Use non-sparking tools. Avoid metal containers. Avoid mixing the spill with any other chemical; use soil as an absorbent to reduce the chemical effect.

6.3 Methods and Materials for Containment and Cleaning Up: Wet spills: Collect carefully with protective equipment in separate open-top HDPE containers and allow the spill to neutralize before disposal. Can also be neutralized by adding it into a very large volume of water in a fibre tank. Use proper protective equipment. Mark and label the contaminated containers.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling: Wear all necessary personal protective equipment for safe handling. Cover eyes, skin and mouth/nose to minimize exposure as advised in Section 8. Handle the product using dry plastic tools. Do not add water into the product; add product to large quantities of water only. Do not mix with any other chemicals. Eating, drinking and smoking are prohibited in the storage area. Thoroughly wash hands, eyes and contacted surfaces after use.

7.2 Conditions of Safe Storage, Including Any Incompatibilities: Store in a cool, dry, well-ventilated place. Avoid direct sunlight. Keep out of reach of children. Avoid storage around flammable chemicals and away from electrical equipment that can cause sparks. Store only in original containers. Keep the container tightly closed to minimize release. Re-tie the liner bag inside the container after each use.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters (Regulatory Exposure Limits)

Substance	Exposure Limit
Calcium Hypochlorite	NIOSH REL guidelines: 37-48 mg/m3
Chlorine	NIOSH REL guidelines: C 0.5 ppm (1.45 mg/m3) [15-minute]

The National Institute for Occupational Safety and Health standards helps reduce health hazards. It is requested to minimize possible exposure limits for safety.

8.2 Appropriate Engineering Controls: Keep the storage area well-ventilated and open. Use local exhaust ventilation when high humidity or high temperature. Ensure eye-washer and safety shower are available.

8.3 Individual Protection Measures (PPE)

Type	Requirement
Eye/Face Protection	Protective chemical glasses that do not allow air to pass. Keep safety eye-washer/safety shower for emergency use.
Skin Protection	Full body protective clothing to minimize skin contact. Wear industrial coveralls, impervious gloves and protective boots. Reuse only after thorough washing.
Respiratory Protection	Wear an N95 mask to cover mouth and nose to avoid dust particles entering the respiratory tract, especially during emergencies where fumes are produced.
Thermal Hazard	During emergencies where fumes are produced, wear a fire protective suit covering the whole body, fire protective glasses, and acid gas cartridges with N95 filters. Wear protective boots.
Protection Type	PVC, Butyl or Natural rubber, or Nitrile for gloves, boots and apron/protective suit.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Parameter	Value
Physical State/Appearance	Granular solids
Colour	White
Odour	Chlorine
Melting Point	100°C
Boiling Point	Not available
Flammability	Not available
Flammability Limit	Not available
Flash Point	Not available
Relative Vapour Density	Not available

Auto-Ignition Temperature	Not available
Decomposition Temperature	177°C
pH	10.4-10.8 (1% Aq. solution)
Kinematic Viscosity	Not available
Solubility	21 g/100 ml in water
Partition Coefficient N-Octanol/Water (Log Value)	Not available
Vapour Pressure	Not available
Density	2.35 ± 0.1 g/cm3
Particle Characteristics	Not available

SECTION 10: STABILITY AND REACTIVITY DATA

10.1 Reactivity: Contact with acids liberates toxic gas. Contact with organic matter may cause fire.

10.2 Chemical Stability: Stable if stored as per Section 7 of this SDS.

10.3 Possibility of Hazardous Reactions: The product may intensify and support combustion. It is a strong oxidizing agent. Emits toxic fumes of chlorine gas. Upon decomposition, emits white fumes.

10.4 Conditions to Avoid: Avoid contact with heat, flame, moisture, incompatible materials and sources of spark or ignition.

10.5 Incompatible Materials: Keep away from acids, water, petroleum products or any combustible material. Keep away from alkali metals, alcohol, ammonium compounds, nitrogen compounds and reducing agents.

10.6 Hazardous Decomposition Products: Chlorine, carbon monoxide if burning.

SECTION 11: TOXICOLOGICAL INFORMATION

a) Acute Toxicity (Product: Calcium Hypochlorite)

Test	**Value**
LD50 Oral	850 mg/kg (Rat)
LD50 Dermal	> 2000 mg/kg (Rabbit)
LC50 Inhalation (nose), 1h	> 2.04 mg/L (Rat)
LC50 Inhalation (nose), 4h	> 0.51 mg/L (Rat)

Oral Toxicity: (GHS Category 4) Harmful if swallowed. Can cause respiratory tract irritation, sore throat, nausea, vomiting. May cause ulcers, inflammation and burning in esophagus or stomach.

Inhalation Toxicity: (GHS Category 4) Harmful if inhaled. Irritation in nose, coughing, runny nose, headache, breathing difficulties and sore throat.

b) Skin Irritation: (GHS Category 1B) Causes skin damage/irritation, blisters, redness or swelling.

c) Serious Eye Irritation: (GHS Category 1) Causes eye damage, burns in eyelids, conjunctivitis, corneal oedema, redness, burning sensation, pain, infection.

d) Respiratory or Skin Sensitization: No data available.

e) Germ Cell Mutagenicity: No data available.

f) Carcinogenicity: No data available.

g) Reproductive Toxicity: No data available.

h) STOT - Single Exposure: (GHS Category 3) May cause respiratory irritation. Irritant to the mucous membranes of the respiratory tract.

i) STOT - Repeated Exposure: No data available.

j) Aspiration Hazard: No data available.

SECTION 12: ECOLOGICAL INFORMATION

The product is very toxic for aquatic life with long lasting effects. Unregulated dosing/spill releases chlorine upon mixing with water and harms aquatic life. The product may deteriorate at high temperatures, releasing chlorine. It is biodegradable by nature and does not persist in the open environment for long periods. Chlorine dissipates in the environment and other components react rapidly to complete decomposition. Hydrolysis of the product produces chlorine; it is a non-bioaccumulative component.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal Methods: Consult the disposal methods for contents and containers with the local waste management authority. Comply with disposal norms in accordance with local/regional/international regulations. Discourage disposal of product in sewers, drains or water bodies. Wash and dry the container prior to disposal.

SECTION 14: TRANSPORT INFORMATION

Air Transport Association (IATA)

Parameter	Value
UN Number	UN 2880
UN Proper Shipping Name	Calcium Hypochlorite, hydrated
Transportation Hazard Class	5.1
Packing Group	II

International Maritime Dangerous Goods Code / International Maritime Organization (IMDG/IMO)

Parameter	Value

UN Number	UN 2880
UN Proper Shipping Name	Calcium Hypochlorite, hydrated
Transportation Hazard Class	5.1
Packing Group	II
Environmental Hazards	Marine pollutant (YES)

Department of Transportation (DOT)

Parameter	**Value**
UN Number	UN 2880
UN Proper Shipping Name	Calcium Hypochlorite, hydrated
Transportation Hazard Class	5.1
Packing Group	II
Emergency Response Guidebook Number	140

Transport of Dangerous Goods (TDG)

Parameter	**Value**
UN Number	UN 2880
UN Proper Shipping Name	Calcium Hypochlorite, hydrated
Transportation Hazard Class	5.1
Packing Group	II

SECTION 15: OTHER REGULATORY INFORMATION

EU Regulations

Chemical Name	**CAS No.**	**EINECS**	**UN Number**
Calcium Hypochlorite	7778-54-3	231-908-7	2880

(Refer to Section 2 of this SDS for hazardous details.)

SECTION 16: OTHER INFORMATION

Source of Data: United Nations Publications (2019). Globally Harmonized System of Classification and Labelling of Chemicals (GHS), Eighth Revised Edition. United Nations.

Disclaimer:

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