



CALCIUM HYPOCHLORITE GRANULES

Main hazards:	Oxidiser; skin and eye hazard; corrosive; lung toxin; in case of fire do not breathe fumes
R phrases:	
R 8	Contact with combustible material may cause fire.
R 22	Harmful if swallowed
R 31	Contact with acids liberates toxic gas
R 34	Causes burns
R 50	Very toxic to aquatic organisms
S phrases:	
S 1/2	Keep locked up and out of reach of children
S 26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
S 45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
S 61	Avoid release to the environment. Refer to special instructions/safety data sheet.
Hazard classification:	O (Oxidiser) C (Corrosive) N (Dangerous for the environment)

4. FIRST AID MEASURES

Eyes:	May cause severe irritation and/or chemical burns with corneal damage. Immediately flush with large amounts of water for at least 15 minutes occasionally lifting the upper and lower eyelids. Seek medical attention at once.
Skin:	Can cause severe irritation and/or chemical burns. Immediately flush with water for 15 minutes. Seek medical attention. If clothing comes into contact with the product, it should be removed immediately and laundered before re-use.
Ingestion:	Can cause irritation and/or chemical burns to the gastrointestinal tract characterised by nausea, vomiting, diarrhoea, abdominal pain, bleeding, and ulceration. Immediately drink large quantities of water. Do not induce vomiting. Seek medical attention at once. Do not give anything by mouth if the person is unconscious or is having convulsions.
Inhalation:	May cause severe irritation to respiratory tract. Symptoms include wheezing, choking, chest pain and a shortness of breath. Move victim to fresh air. Support respiration if needed. Seek medical attention.



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5. FIRE-FIGHTING MEASURES

This product is chemically reactive with other substances. Contaminated product may initiate a Chemical reaction which may spontaneously ignite any combustible material present resulting in a fire of great intensity. In a fire chlorine gas can be produced. In case of a spill separate spilled product from packaging, debris and other materials. This product is a strong oxidiser which is capable of intensifying a fire once started.

Flash point:	Not applicable
Autoignition temperature:	Not applicable
Flammable limits - (% volume in air):	LEL – Not applicable UEL – Not applicable
Extinguishing media:	Water only. Take note of surrounding materials.
Fire fighting comments:	Cool exposed containers with water. Response requires the use of a full-encapsulated suit and an approved positive pressure supplied air respirator. Do not use dry extinguishers containing ammonium compounds.
Other:	This product is chemically reactive with many substances including: other pool treatment products, acids, nitrogen-containing compounds, dry powder extinguishers (containing mono-ammonium compounds), oxidisers, all corrosive liquids, flammable or combustible materials.

6. ACCIDENTAL RELEASE MEASURES

Spill mitigation:	Hazardous concentrations in air may be found in local spill area and immediately downwind. This could include chlorine gas, which is toxic. Fire is a potential hazard, remove all sources of ignition. Stop source of spill as soon as possible. Prevent contamination of any watercourse. Inform the site or duty manager. If spill is large inform the emergency services and National Environment Agency. For further information contact NCEC Tel. 01865 407 333 or Arch USA Emergency Telephone No. + 1-423-780-2970
Air release:	Dust/vapours may be suppressed by the use of a water fog. All water utilised to assist in fume suppression, decontamination or fire suppression may be contaminated and must be contained before disposal and or treatment as a hazardous waste.



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Water release:	This material is heavier than water This material is soluble in water. Monitor all exit water for available chlorine and pH. Advise local authorities of any contaminated water release.
Land spill:	All spilled material should be treated as hazardous waste. Containerise all virgin material in a clean dry container using only clean dedicated equipment to clean up material. Containerise all contaminated material in a clean dry container and remove to a well ventilated area being sure not to seal tightly. Place all damaged packaging material in container of water to ensure decontamination. For further information contact NCEC Tel. 01865 407 333 and Arch USA Emergency Telephone No. + 1-423-780-2970.
Spill Residues:	This material may be neutralised for disposal, please contact NCEC Tel. 01865 407 333 and Arch USA Emergency Telephone No. + 1-423-780-2970 before beginning such operations.
Personal protection:	In case of fire, use normal fire fighting equipment as well as self contained breathing apparatus. Chlorine cartridge full face piece respirator with dust/mist pre-filter.

7. HANDLING AND STORAGE

Do not take internally. Avoid inhalation of dust and fumes. Avoid contact with eyes, skin or clothing, upon contact with skin or eyes, immediately wash off with water and seek medical advice. Remove contaminated clothing and launder clothing before re-use.

Storage

-conditions	Keep tightly sealed in original containers. Store in a clean, cool, dry, well ventilated area. Store away from combustible or flammable materials. Keep product packaging clean and free of all contamination, including other pool treatment products, acids, nitrogen-containing compounds, dry powder extinguishers (containing mono-ammonium compounds), oxidisers, all corrosive liquids, flammable or combustible materials.
- temperature:	Do not store at temperatures above 52°C (125 °F). Storage above this temperature may result in rapid decomposition, evolution of chlorine gas and heat sufficient to ignite combustible products. Storage in a climate-controlled area is recommended in areas where extremes of High temperature occur.
Shelf life limitation:	When stored under moderate temperature conditions, product will maintain the stated label strength for approx. 2 years. Prolonged storage at 35°C or above will significantly shorten the shelf life. Where extremes of high temperature occur a climate controlled storage area is recommended.

Comment [SF1]:



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Incompatible materials:

- for packaging:

- for storage or transport:

Containers must be clean and free of organic residues.

Do not allow contamination of the product and/or packaging. Store Away from combustible or flammable products. Keep product packaging clean and free of all contamination, including other pool treatment products, acids, nitrogen-containing compounds, dry powder extinguishers (containing mono-ammonium compounds), oxidisers, all corrosive liquids, flammable or combustible materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal protection for routine use of product:

Exposure standards: AIES = Arch Internal Exposure Standard

Substance	TLV (ceiling)	TWA (8.0 hr)	MAK
Calcium hypochlorite. (AIES)	3.0 mg/m ³ (AIES)	Not established	Not established
Calcium carbonate (total inhalable dust)	Not established	10 mg/m ³	Not established
Calcium hydroxide	Not established	5.0 mg/m ³	Not established
Chlorine gas	Not established	1.5 mg/m ³	1.5 mg/m ³

WGK value:

2

Respiratory protection:

Full face respirator with a chlorine cartridge and a dust/mist pre-filter

Ventilation:

Use local exhaust ventilation to minimise dust levels and chlorine gas.

Eye/skin protection:

Neoprene gloves, boots, goggles and an apron. A full suit may be required. Have an emergency eyewash and shower available in immediate area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	White free flowing powder / granules.
Freezing point:	Not applicable
Boiling point:	Not applicable
Decomposition temperature:	170 to 180 °C (338 to 356 °F).
Specific gravity:	Not applicable
Bulk density:	0.8 (g/cc)
pH @ 25 °C:	10.4 to 10.8 (1.0 % soln)
Vapour pressure @ 25 °C:	Not applicable



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Solubility in water @ 25°C:	Approximately 18% Product contains calcium hydroxide and calcium carbonate which will leave a residue
Volatiles, percent by volume:	Not applicable
Evaporation rate:	Not applicable
Vapour density:	Not applicable
Molecular weight:	143 (active ingredient)
Odour:	Chlorine like
Log Pow:	No data

10. STABILITY AND REACTIVITY

Conditions under which this product may be unstable:

Temperatures above: 170 °C (338 °F)

Mechanical shock or impact: No

Electrical (static) discharge: No

Hazardous polymerisation: Will not occur

Incompatible materials: This product is chemically reactive with many substances including; Other pool treatment products, acids, nitrogen-containing compounds, dry powder extinguishers (containing mono-ammonium compounds), oxidisers, all corrosive liquids, flammable or combustible materials.

Hazardous decomposition products:

Chlorine gas.

Other conditions to avoid: Storage above 52 °C (125 °F), high humidity. Prevent ingress of moisture into product or packaging.

Summary of Reactivity: This product is a strong oxidiser, which is capable of intensifying a fire once started. This product is chemically reactive with above substances. Any contamination of the product with above substances by spill or otherwise may result in a chemical reaction and fire.

Water reactive: Yes

11. TOXICOLOGY INFORMATION

Routes of absorption: Inhalation, skin, eyes, ingestion.

Warning statements and properties: May be fatal if swallowed. Avoid breathing dust or fumes.

Harmful if inhaled or ingested. Causes burns to skin, eyes, digestive and respiratory tract.



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Signs, symptoms, and effects of exposure:

Inhalation:	Acute exposure may cause severe irritation to respiratory tract resulting in lung oedema which can cause shortness of breath, wheezing, choking, chest pain and impaired lung function. Inhalation of high concentrations can result in permanent lung damage. Chronic (repeated) exposure may cause impairment of lung function and permanent lung damage.
Skin:	Acute exposure can cause severe irritation and/or chemical burns characterised by redness, swelling and scab formation. Prolonged skin exposure may cause dermis destruction with impaired skin regeneration at the site of contact. Chronic (repeated) exposure effects would be similar to those from acute exposure except for effects secondary to tissue destruction
Eye:	Exposure may cause severe irritation and/or chemical burns with corneal damage. Impairment of vision is possible.
Ingestion:	Ingestion can cause irritation and/or chemical burns to the gastrointestinal tract characterised by nausea, vomiting, diarrhoea, abdominal pain, bleeding, and ulceration. Due to the corrosive nature of this product ingestion may be fatal. Chronic toxicity via this route is unlikely due to its corrosive nature.

Medical conditions which are aggravated by exposure:

Asthma, respiratory and cardiovascular diseases

Chemical interactions which enhance toxicity:

None known

ANIMAL TOXICOLOGY

Acute toxicity LC / LD₅₀:

Inhalation :

Approximately 1300 mg/cm³
(1 hour in the rat based on acute toxicity for chlorine)

Dermal :

> 2.0 g/kg (rabbit)

Oral :

850 mg/kg (rat)

Reproductive and developmental toxicity:

Not known to be a reproductive or developmental toxin

Carcinogenicity:

Not known to be carcinogenic

Mutagenicity:

Dominant lethal assay - negative



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12. ECOLOGY INFORMATION

AQUATIC LC₅₀:

Bluegill sunfish 96 hr: 0.088 mg/l

Rainbow trout 96 hr: 0.16 mg/l

Daphnia magna 48 hr: 0.11 mg/l

WILDLIFE LD/LC₅₀:

Bobwhite quail Oral: >3474 ppm

Bobwhite quail Dietary: >5000 ppm

Mallard duck Dietary: >5000 ppm

13. DISPOSAL CONSIDERATIONS

Providing this container, when empty, is thoroughly rinsed out in the pool it may be treated as normal waste. Care must be taken to prevent environmental contamination from the use of this material. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, national and EU laws, directives and regulations regarding treatment, storage and disposal for hazardous and non-hazardous wastes.

14. TRANSPORT INFORMATION

U.S. DOT: Calcium hypochlorite, hydrated, Class 5.1, UN 2880, PG II

IMDG: Calcium hypochlorite, hydrated, Class 5.1, UN 2880, PG II, IMDG Pg. No 5138

ICAO/IATA: Calcium hypochlorite, hydrated mixtures, Class 5.1, UN 2880, PG II, ERG No. 45

RID/ADR: Calcium hypochlorite, hydrated mixture, Class 5.1, UN 2880, PG II,
15 marginal (b) ADR

Hazard Oxidiser

Placard:



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15. REGULATORY INFORMATION

Harmonised system No:	28.28.10.000
WGK value:	2
Toxic substances control act (USA):	Listed on the TSCA inventory
EINECS No:	231- 908 -7
R phrases:	R8, R22, R31, R34, R50
S phrases:	S1/2, S26, S36/37/39, S45, R61
Hazard classification:	O (Oxidiser) C (Corrosive) N (Dangerous for the environment)

16. OTHER INFORMATION

SDS revision status:	New format
Corresponds to USA MSDS:	00002-0182-7075
Major references:	Available upon request.

This Material Safety Data Sheet (SDS) has been prepared in compliance with relevant EU directives and regulations. The information in this material data safety sheet should be provided to all who will use, handle, store, transport, or otherwise be exposed to this product. This information has been prepared for the guidance of plant engineering, operations and management and for persons working with or handling this product. Arch believes this information to be reliable and up to date as of the date of publication, but makes no warranty that it is. Additionally, if this material safety data sheet is more than three years old, you should contact Arch at the phone number listed below to make certain that this sheet is current.

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