

# Calcium Hypochlorite

## Oxidizer and Disinfectant Treatment for Industrial and Municipal Water



### Product Description

Calcium Hypochlorite  $\text{Ca}(\text{OCl})_2$  from Lonza, is a ready-to-use source of highly soluble dry chlorine with a recognized efficacy on halogen demand of water (dissolved metals, organic matters, bacteria, algae, fungi and yeasts). Particularly convenient for water disinfection within industrial and municipal applications, it is available with an anti-scale feature to help reduce maintenance and improve reliability of application systems. Calcium hypochlorite is manufactured to exacting specifications in Lonza's own production plants, where product quality is assured throughout the manufacturing process.

### Product Benefits

- Effective alternative to Chlorine gas, on-site Electro-chlorination (salt) and Sodium Hypochlorite water disinfection treatments
- Helps to protect plant equipment from corrosion by forming a protective layer of calcium within the pipework
- Convenient pack sizes limit manual handling and storage issues
- Requires no bulk storage tanks or secondary containment
- 30 months shelf life when stored appropriately

### Available Formats

- **Granular:** Free flowing and quick dissolving. Dosed via pump and tank systems or dedicated feeders.
- **Shock:** Ultra-fast dissolving chlorination treatment with low insolubles rate. Manual dosing.
- **Briquette:** Pillow shaped 7g. Dosed via dedicated feeder system which uses patented spray technology.
- **Stick:** 300g with or without sleeve for slow and controlled dosing via dedicated equipment.

## Application

Area	Briquettes	Granular	Shock	Stick
Drinking water	■	■	■	■
Reclaimed and recycled water	■	■	■	■
Waste water	■	■	■	–
Recirculating cooling water systems	■	■	–	–
Air conditioning	■	■	–	–
Food and beverage process water eg. primary disinfection, over-chlorination, bottle rinsing	■	■	–	–
Industrial air washers	■	■	–	–
Oil field waters	■	■	–	–
Water storage tanks	■	–	■	■

## Active Content

### Calcium Hypochlorite

CAS No.: 7778–54–3

EINECS No.: 231–908–7

UN No.: 2880 (Granular/Shock); 1748 (Briquette, Stick)

## Specifications

Available Chlorine (% by weight)	65% minimum
Water (% by weight)	4–8.5%
Iron (% by weight)	0.05 % max
pH at 10g solution	10.5–13

## Packaging

Please note: availability of product, pack sizes and label languages vary in each country. Contact your local sales representative for details.

Available standard HDPE formats:

- 10kg pail
- 25kg drum
- 40kg drum
- 45kg drum

## Use Efficacy

Group of test organisms	Typical conditions for complete inactivation	
<b>Typical values</b>		
Bacteria	36–720 mg/l as Cl <sub>2</sub>	20°C–5 min
Bacteria (spores)	500 mg/l as Cl <sub>2</sub>	20°C–60 min
Mycobacteria	5,000 mg/l as Cl <sub>2</sub>	pH 11.2–1 min
Fungi	360–3600 mg/l Cl <sub>2</sub>	20°C–5 min
Viruses	360 mg/l as Cl <sub>2</sub>	25°C–60 min
Prions	13,000 mg/l as Cl <sub>2</sub>	more than 30 min

## Detailed Efficacy Data

Effect of chlorination on inactivating selected pathogens in water with low turbidity (< 1 NTU and demand-free water systems)

Pathogen	Chlorine Concentration (mg/l)	Time of exposure (min)	Inactivation (%)	Temperature (°C)	pH (pH unit)	Source
<b>Bacteria</b>						
<i>Burkholderia pseudomallei</i>	1.0	60	99	22–25	6.25–7.0	5
<i>Campylobacter jejuni</i>	0.1	5	99.0–99.9	25	8.0	1
<i>Escherichia coli</i>	0.5	< 0.5	99.999999	23	7.0	18
E; Coli (enterohemorrhagic)	0.5	< 0.5	99.980000 –99.999999	23	7.0	18
<i>Salmonella typhi</i>	0.05	20	99.2	20–25	7.0	2
<i>Shigella dysenteriae</i>	0.05	< 1	99.9	20–25	7.0	2
<i>Shigella sonnei</i>	0.5	1	99	25	7.0	7
<i>Vibrio cholerae</i> (smooth strain)	0.5	<1	100	20	7.0	11
<i>Vibrio cholerae</i> (rugose strain)	2.0	20	99.999	20	7.0	11
<i>Yersinia enterocolitica</i>	1.0	> 30	82–92	20	7.0	12
<b>Viruses</b>						
<b>Enteroviruses</b>						
Coxsackie A	0.46–0.49	0.3	99	5	6.0	3
Coxsackie B	0.48–0.50	4.5	99	–	7.81–7.82	3
Echovirus	0.48–0.52	1.8	99	5	7.79–7.83	3
Hepatitis A	0.41	< 1	99.99	25	8.0	4
Poliovirus	0.5	12.72	99.99	5	6.0	14
Noroviruses	1.0	0.07	99.99	5	7.0	14
Rotavirus	0.2	0.25	99.99	4	7.0	15
<b>Protazoa</b>						
<i>Entamoeba histolytica</i>	2.0	10	99	27–30	7.0	13
<i>Giardia lamblia</i>	1.5	10	99.9	25	7.0	6
<i>Toxoplasma gondii</i>	100	1440	–	22	7.0	16
<i>Cryptosporidium parvuum</i>	80	90	99	25	7.0	8

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# Regulatory Information

Calcium Hypochlorite meets the requirements of EN 900 (water intended for human consumption) and specific standards for France, UK and Germany; it is also NSF/ANSI 60 certified.

Calcium Hypochlorite has worldwide regulatory approvals, and is being supported through the European Biocidal Product Regulation (BPR) Active Substance Review Program for amongst others, the following product types:

- PT2: Usage areas include waste waters, air conditioning systems
- PT3: Products used to disinfect materials and surfaces associated with the housing or transportation of animals
- PT4: Disinfection of equipment, containers, surfaces or pipework associated with the production, transport, storage, or consumption of food or feed for humans and animals.
- PT5: Disinfection of drinking water for both humans and animals
- PT11: Preservatives for liquid-cooling and processing systems

Please note: not all applications have been registered for all products in every country. We therefore advise that customers should determine whether the product of interest has the necessary individual country permission(s) to place onto the market for the application of interest. Lonza representatives can assist you with any enquiries.

Approvals are regularly being attained, therefore Lonza is constantly updating its records. Full up-to-date information is available on request.

## Specific Registrations

REACH	Regarded as registered until final decision on inclusion (according to Art 15, section 2 of REACH regulation).
BPR	Supported by Lonza for PT 2, 3, 4, 5, 11



# Typical Properties

Parameter	Granular	Shock	Briquette	Stick
<b>Physical Properties</b>				
Appearance	White			
Odour	Chlorine like			
Solubility in Water	180 g/l			
Particle Size, US Standard Sieves				
Retained on 10 (2,00 mm)	0.5% max	–	–	–
Retained on 20 (0,84 mm)	–	2.0 % max	–	–
Through 70 (0,21 mm)	3.0 % max	1.5 % max	–	–
Loose Bulk Density, g/l	800	900	1240	–
Approx. size mm	–	–	32 x 19 x 13	Ø 46 x 102
Approx. dissolving rate <sup>†</sup> / hours	–	–	2 hrs	8 hrs (no sleeve) 52 hrs (sleeved)
Solution pH : 200 ppm available Chlorine	10.0			
500 ppm available Chlorine	10.3			
1000 ppm available Chlorine	10.7			
1% available chlorine	11.1			
Specific gravity of Solutions – 1%	1.01			
2%	1,03			
5%	1.06			
10%	1.11			
Shelf Life	30 months when stored in appropriate conditions			

Parameter	Briquette/Stick/Granular	Shock
<b>Chemical Properties</b>		
Available Chlorine (average % by weight)	70 %*	78%

<sup>†</sup>Approximate time to 95% dissolution at 30° C, with flowing tank. Dissolving rates vary with temperature, flow-rate and pH of water.

\*Test data from product selected over a 6 month period after manufacture from standard production stream at our Charleston factory.



[www.lonza.com](http://www.lonza.com)

[www.lonzawatertreatment.eu](http://www.lonzawatertreatment.eu)

## Technical Service

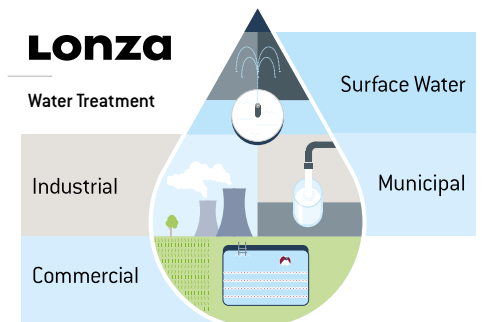
Lonza's technical laboratories can provide a range of testing as part of our customer support program. Please contact your local Lonza sales manager to take advantage of these customized services.

### Risk Assessment and Management

Lonza professionals have a wide expertise in the field of Health, Safety and Environmental protection. Lonza is committed to providing this expertise to assist you in your choice of product and its suitability for specific applications. Your local Lonza sales manager remains at your disposal should you have any question in this area.

### Health and Safety

Product Safety Data Sheets are supplied upon request. They should be read and understood by all supervisory personnel and employees before using the product. If there is any doubt please contact your local Lonza sales office for advice.



Lonza Ltd  
Muenchensteinerstrasse 38  
4002 Basel, Switzerland  
Tel: +41 61 316 81 11  
[watertreatmenteu@lonza.com](mailto:watertreatmenteu@lonza.com)

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