



Lonza Water Care

Scientific™ C Range for Cooling Towers



Lonza Cooling Water Treatment

Cooling towers play an important role in the removal of waste heat from heat exchange systems. Inefficient cooling towers require more energy to deliver a specific amount of cooling and can result in higher electricity usage and unnecessary water consumption. Corrosion, scaling, fouling and biological contamination are the main factors that affect the efficiency of cooling towers. Regular maintenance and feed water treatment can assist in minimizing the effects of these factors, resulting in decreased equipment downtime, lower electricity consumption and less frequent blowdowns.

Lonza is proud to present the Scientific™ C range as a solution to the management of the factors that negatively affect efficiency in cooling towers.



Why Lonza Products?

The Scientific™ C range consists of concentrated solid products that can be used to address common cooling water problems. The products present the following benefits over traditional liquid chemical products:

For Onsite Employees:

- No heavy drums to handle
- No spillage or splashing of harmful liquid chemicals
- No offensive chemical odours
- No powders or small particles that can irritate eyes, nose and mouth.

For Operations:

- Compact packaging that does not require large storage space or containment areas.
- Compact packaging means more product can be loaded onto trucks for transport.
- No spillage of product during transit or at the facility.
- No risk of product leaking and seeping into the ground.
- Simple application via the Scientific™ Ultra-S Dissolving Unit.



Lonza Scientific™ C Range

The chemical products in the Scientific™ range are listed below along with their respective applications:

Product	Application
Scientific™ C20V ¹	Scale Inhibitor
Scientific™ C22V ¹	Corrosion Inhibitor
Scientific™ CMO-C	Nitrite-free Corrosion Inhibitor for Closed systems
Scientific™ CPEN-C	General dispersant
Scientific™ C31	Multifunctional Scale and Corrosion Inhibitor
HTH Scientific® Slow Release Chlorine Tablets ²	Bactericide and Fungicide

¹ Product to be dosed using the Scientific™ Ultra-S Dissolving Unit

² Product to be dosed using the HTH Scientific® Inline Feeder



Scientific™ C20V

Suitable for

Conditions with higher scaling tendencies (RSI 6.0–3.0, LSI 0.1–3.0)

A proprietary solid concentrate that utilizes modern anti-scaling, anti-fouling, and corrosion inhibitor technology. This multifunctional product serves as both a scale dispersant and corrosion inhibitor and works together with conventional chemistry to help provide protection to the cooling system at low product dosage rates. It is blended with a fluorescent dye that allows for online tracking and monitoring with probes and controllers.

The product is offered in 2.28 kg units (8 units per case) to be applied via the Scientific™ Ultra-S Dissolving Unit. Maximum solubility will be reached at 26.5°C. At 20 ppm, 1 case of product is equivalent to 220 kg of a conventional liquid product.

Recommended Dosages

Water Quality		Dosage	Test Range	Monitored PTSA
Ryzner Stability Index	Langelier Saturation Index	Chemical Level in Recirculating Water	Organo-Phosphonate	
6.0–4.0	0.0–2.0	15–25 ppm	3–5 ppm	60–100 ppb
4.0–3.0	2.0–3.0	25–40 ppm	5–7 ppm	100–160 ppb
< 3.0	< 3.0	40+ ppm	7+ ppm	160+ ppb



Scientific™ C22V

Suitable for

Conditions with higher corrosion tendencies ((RSI 6.1–8.5, LSI (-0.1) –(-2.0))

A proprietary solid concentrate that utilizes modern anti-scaling, anti-fouling, and corrosion inhibitor technology to treat corrosive conditions in cooling tower systems. The Scientific™ C22V product inhibits ferrous metal corrosion by using both cathodic and anodic protection, and corrosion inhibitors. The product is blended with a fluorescent dye that allows for online tracking and monitoring with probes and controllers.

The product is offered in 2.28 kg units (8 units per case) to be applied via the Scientific™ Ultra-S Dissolving Unit. Maximum solubility will be reached at 26.5°C. At 20 ppm, 1 case of product is equivalent to 220 kg of a conventional liquid product.

Recommended Dosages

Water Quality		Dosage	Method	Monitored PTSA
Ryzner Stability Index	Langelier Saturation Index	Chemical Level in Recirculating Water	Organo-Phosphonate	
6.0–6.5	0.0– -0.20	10–25 ppm	2.0–4.0 ppm	60–100 ppb
6.5–7.5	-0.20– -0.75	25–40 ppm	4.0–6.5 ppm	100–160 ppb
7.5–8.5	-0.75– -1.50	40–50 ppm	6.5–8.0 ppm	160+ ppb



Scientific™ CMO-C

Suitable for

Closed water systems with high corrosion tendencies.

The Scientific™ CMO-C product is a molybdate corrosion inhibitor and one that is designed for use in closed water systems. It is a blended solid concentrate used as a stand-alone treatment containing no nitrites.

Application & Recommended Dosages

To be dosed manually. One Scientific™ CMO-C stick per 3 785 liters of water will deliver approximately 24 ppm of molybdate (as Mo). Product will generally dissolve in 30 minutes or less. Dissolving rate may be slowed down by cold water. The product is offered in 360 g sticks.

Scientific™ CPEN-C

Suitable for

General dispersant for all cooling systems.

The Scientific™ CPEN-C product is a solid concentrate that is a general dispersant for cooling systems and assists in the prevention and removal of organic materials and foulants. It is designed to supplement cooling system inhibitors/dispersants and biocides to maintain clean surfaces in heat transfer equipment and cooling towers. It also serves as a general corrosion inhibitor and cleaner for heavily fouled systems.

Application & Recommended Dosages

Conditions*	Dosing Frequency	Concentration
To maintain clean surfaces	1–3 times per week	60–120 ppm
Systems with a greater tendency to foul	2–3 times per week	100–200 ppm
Heavily fouled systems	Daily until system is clean	100–200 ppm

* To be dosed manually. Always feed a biocide to kill bacteria and algae in the system. Care should be taken during cleaning to prevent clogging of screens and strainers in heavily fouled systems.

Note: This product may cause foaming when fed at high levels. One stick [270 g] per 3 500 litres of water will deliver 100 ppm of product. Maximum solubility will be reached at 26.5°C.



Scientific™ C31

Suitable for

Scientific™ C31 is a multifunctional scale and corrosion inhibitor with impressive stabilizing, sequestering and dispersing properties that can be used in potable water applications. The dosing of this product is simple via an approved Lonza feeder system.

Application & Recommended Dosages

The dosing rate of Scientific™ C31 should be between 2–5 ppm P_2O_5 according to the size of the dispenser and the consumption of water. Usage should not exceed 12 mg/L. This product is offered in conveniently packed 800 g pouches.

Recommended Dosages

Water Quality		Dosage	Test Range	Monitored PTSA
Ryzner Stability Index	Langelier Saturation Index	Chemical Level in Recirculating Water	Organo-Phosphonate	
6.0–4.0	0.0–2.0	15–25 ppm	3–5 ppm	60–100 ppb
4.0–3.0	2.0–3.0	25–40 ppm	5–7 ppm	100–160 ppb
< 3.0	< 3.0	40+ ppm	7+ ppm	160+ ppb



HTH Scientific® Slow Release Chlorine Tablets

Suitable for

HTH Scientific® Slow Release Chlorine Tablets are an effective bactericide and fungicide and can be used as an oxidizing agent in any water system. This calcium hypochlorite-based product effectively eliminates slime and bacteria growth in cooling water systems.

Application

This product is easily dosed via an approved inline chlorinator system (see 2kg inline feeder). It is offered in containers of 7 × 260 g calcium hypochlorite tablets. It provides a slow release of active ingredient while a relatively small amount of product can disinfect large amounts of water. This product is ISO 9001:2015 certified.

Equipment

HTH Scientific® Inline Feeders

The HTH Scientific® Inline Feeders are designed to provide an effective and efficient way of dosing a chlorine solution into cooling water systems. The feeders are to be used in conjunction with HTH Scientific® Slow Release Tablets.

The 2kg Inline Feeder can handle pressures of up to 8bar and can provide between 5 000 and 3.1 Megaliters/day of chlorinate solution at a concentration of 3 ppm available chlorine. The chlorinated solution supply is regulated with manual valves.



No electricity required for operation. Includes wall mount brackets for easy installation.

Scientific™ Ultra-S Dissolving Unit

The Scientific™ Ultra-S produces an onsite chemical solution from the solid concentrated products of the Scientific™ Cooling Water Product range. It has a unique, non-contact level control system and integrated flow control that can provide a chemical solution ready to be dosed on demand.

Application

This unit is to be used in conjunction with Scientific™ C20V and C22V solid concentrated products.

Typical Properties

The unit has a small footprint which allows multiple units to be mounted in close vicinity to each other. It consists of durable HDPE injection molded components with no moving internal parts. Ultrasonic technology is used for level control – it eliminates contact with the solution inside the reservoir and prevents fouling of critical components. The ultrasonic is capable of measuring outside of the normal operating range and can indicate when the liquid level is too high.



Can easily be installed by one person. Operates at 12V (DC) 1 amp.

Arch Chemicals (Pty) Ltd,
a Lonza company, South Africa
NCP Factory Site, 9 Hytor Road
ZA – 1624 Kempton Park
Tel +27 11 393 9000
Fax +27 11 393 9073



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