

NATCHLOR™ BROCHURE

www.cumberlandec.com



CLEAN AND SAFE WATER FOR POTABLE, MUNICIPAL, SEWAGE, RECREATIONAL AND GENERAL INDUSTRIAL APPLICATIONS

With an emphasis on process design and a
commitment to research and development.



CUMBERLAND



1 WHY CUMBERLAND?

NATCHLOR™

The World population has increased exponentially over the last decades and is forecast to continue to do so.

This population growth fires the demand for good quality drinking water, for recycling and treated sewage effluent and for safe and reliable source of recreational water. Such a requirement for water requires technology suitable for safely disinfecting that water to protect life and maintain community health and welfare. There have been various methods of disinfecting water over the course of time but hypochlorite (bleach) as long proven to be the most effective, safest and cost effective solution for disinfection of such process waters.

Cumberland's NATCHLOR™ cells and systems are designed specifically for operation on artificial brine sources, i.e. using food grade salt to create the feedstock. These products and process are used extensively on potable water applications where the requirement for minimisation of disinfection by products (DBP's) is paramount and on treated sewage effluent where recycling of wastewater for irrigation is used to save valuable resource.

Cumberland has a heritage in electrochemical processes since 1912 when Elliott Cumberland established The Cumberland Engineering Company to provide corrosion and scale control in industrial boilers and in 1916 launched cathodic protection systems for locomotive engines. Cumberland is one of the Worlds leading electrochlorination manufacturers. With an emphasis on electrochemical process design and a commitment to research and development in our field we have been at the leading edge of electrolyser technology since our formation in 1949.

Our World-renowned NATCHLOR™ brand of electrochlorinators and systems are installed in hundreds of locations throughout the World. Our new generation cell technology is the culmination of our dedication to continuing product development, engineering excellence and quality assurance. Today Cumberland offer a range of standard brine based products together with our project based bespoke construction systems all offered under the common NATCHLOR™ brand

There are many advantages to having a NATCHLOR™ generator on site:

- On demand, on site production of sodium hypochlorite
- No, transportation, handling or storage of hazardous chemicals
- No dependency on bulk supplier deliveries
- Minimal space requirements
- Low risk assessment requirements
- Minimal maintenance requirements
- Low capital costs
- Low operating costs
- Low consumables usage

Cumberland Electrochemical design and supply a full range of standard products for use where industries require on-site disinfection such as remote potable water stations, desalination permeate, sewage treatment, leisure and swimming pools.



SYSTEM DESCRIPTION

With production capacities of less than 100g/hr The MP RANGE of electrochlorinator provides an effective means of producing a sodium hypochlorite from salt, water and electricity for the disinfection of water in a wide range of applications. The wall mounted compact system can generate 0.7g/l concentration of sodium hypochlorite on-demand which flows freely from the system enabling it to be stored in a suitably sized tank.

The fully automatic system produces sodium hypochlorite by passing an electrical current through a low concentration brine solution. The flow of brine is carefully controlled by metering saturated brine solution into an adjustable soft water flow. The system monitors the current in the cell to ensure the correct ratio of brine and water are being used. Mixed Metal Oxide coated titanium electrodes are used to provide the most efficient chemical reactions. As the sodium hypochlorite is produced it flows from the electrolytic cell into the degassing chamber where the hydrogen is naturally ventilated to atmosphere and the sodium hypochlorite exits the system into the storage tank. The process is automatically started and stopped by either level switches fitted to the sodium hypochlorite tank or level sensors which feed a 0-10V signal back to the electrochlorinator.

Cumberland's mid range electrochlorinators with capacities between 100 and 400 g/hr



SYSTEM DESCRIPTION

The MPX electro-chlorinators provides an effective means of producing a sodium hypochlorite from salt, water and electricity for the disinfection of water in a wide range of applications. The wall mounted compact system can generate 0.7g/l concentration of sodium hypochlorite on- demand which flows freely from the system enabling it to be stored in a suitably sized tank.

The fully automatic system produces sodium hypochlorite by passing an electrical current through a low concentration brine solution. The flow of brine is carefully controlled by metering saturated brine solution into an adjustable soft water flow. The systems monitors the current in the cell to ensure the correct ratio of brine and water are being used. A Mixed Metal Oxide coated titanium electrodes are used to provide the most efficient chemical reactions. As the sodium hypochlorite is produced it flows from the electrolytic cell into the degassing chamber where the hydrogen is naturally ventilated to atmosphere and the sodium hypochlorite exits the system into the storage tank. The process is automatically start and stopped by either level switches fitted to the sodium hypochlorite tank or level sensors which feed a 0-10V signal back to the electrochlorinator.

A colour Touchscreen HMI provides operators with access to various screens allowing them to monitor the status of the systems, check the trending screen and access the help menus in case of an issue.

Cumberland's largest standard products with capacities up to 5kg/hr



SYSTEM DESCRIPTION

The MPI systems are a range of polypropylene skid mounted electrochlorinators which produces sodium hypochlorite from salt, water and electricity for the disinfection of water in a wide range of applications. The floor standing system can generate typically 0.8g/l concentration of sodium hypochlorite on-demand.

The fully automatic system produces sodium hypochlorite by passing electrical current through a low concentration brine solution through a single horizontal electrolytic cell. The flow of brine is carefully controlled by metering saturated brine solution into an adjustable soft water flow. The systems monitors the current in the cell to ensure the correct ratio of brine and water are being used. A Mixed Metal Oxide coated titanium electrodes are used to provide the most efficient chemical reactions. As the sodium hypochlorite is produced it flows from the electrolytic cell into the degassing tank which is sealed within a force air ventilated enclosure for ultimate safety. The process automatically controlled by level switches fitted to the degassing tank. A transfer pump operating under level control then fills the remote storage tank as the sodium hypochlorite level drops.

A colour Touchscreen HMI provides operators with access to various screens allowing them to monitor the status of the systems, check the trending screen and access the help menus in case of an issue.

In addition to the standard product range offered, Cumberland Electrochemical process and design teams will offer a project based service for bespoke custom design plant and systems. With installations around the World upto 300kg/hr and drawing on the extensive experience and know how of our in house process, project management and engineering teams associated with our World-renowned seawater systems. Our brine range resides under our product brand NATCHLOR™



SYSTEM DESCRIPTION

When client capacity demand exceeds our standard plant range of products, Cumberland will design a bespoke, stand-alone systems specific to the clients' requirements and specification using our own in-house cell design. This system is branded NATCHLOR X as in theory there is no limit to the capacity we can design. Currently our largest brine installation is for a sewage treatment application where we have installed a plant capable of 272kg/hr.

The NATCHLOR X brand will also be used for customised special projects such as containerised systems, where all equipment can be housed in ISO shipping containers for remote areas, or for rental units, for modular systems or just to reduce capital costs

All bespoke NATCHLOR X systems include all plant necessary for correct and safe operation of the system, including bulk salt and brine handling systems, pre-treatment (filtration, carbon, softening, chillers etc), degassing tank and blowers, dosing systems, power, control, instrumentation and monitoring systems. Cumberland are able to offer full turn-key design and build project capability as well as a full after sales service and maintenance

ENGINEERED SYSTEM

NATCHLOR™



A selection of Cumberland NATCHLOR™ Brine and brine enhanced Bespoke Systems

NACHLOR™

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