

20 - 60 g/hr eChem Chlorine Dioxide Generators



Secondary Disinfection for Healthcare Facilities



Recycled Water for Industry



Food and Beverage Processing



Cooling Towers





Fruit and Vegetable Processing



Bleaching and decontamination



Oil Refineries, Downhole and Produced Water



Potable Water and Wastewater



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The OxiMax eCD Series is designed to produce a powerful pure Chlorine Dioxide solution, safely, efficiently, reliably and economically, using only Sodium Chlorite, water and power as the raw materials. Acid is not required.



Chlorine Dioxide

The Chlorine Dioxide molecule is relatively small, volatile, and very energetic – a free radical. It is stable in dilute solution, but unstable in concentrated form. Thus, chlorine dioxide is almost always used as a dissolved gas in water in concentrations that range from 50 to 5,000 ppm. Because transportation of concentrated chlorine dioxide is not safe, chlorine dioxide is almost always produced on site.

CIO2 is a highly effective biocide that kills bacteria, viruses, algae, fungi and protozoa.

Used properly, CIO2 has little or no effect on human, animal or fish cells and is safe to use.

ClO2 is unsurpassed in its disinfection capabilities throughout water systems, also in "dead end" areas. For this reason, ClO2 is often used to disinfect chilled water, municipal water systems and hot and cold water systems in hospitals and health care facilities, where bacteria such as Legionella can prove to be stubbornly resistant to other biocides, chlorine in particular.

Furthermore, chlorine dioxide does not affect taste or form toxic chloramines or haloforms (THM). This is a characteristic that makes ClO2 ideal for flavor sensitive applications such as wine and brewing.

2 NaClO2 + 2 H2O → 2 ClO2 + 2 NaOH + H2



The Process

The single precursor eChem Chlorine Dioxide generation process electrolytically converts Sodium Chlorite to Chlorine Dioxide gas in the patented OxiMax CDE cell. This gas is then stripped from the solution in the patented vClone and then dissolved in water to be stored in the Solution Tank at a level of up to 2,000 ppm.

Recirculation of solutions optimises efficiency and minimises power consumption to allow outstanding performance from a compact machine.

The process is safe, reliable and is controlled by a microprocessor, which continuously monitors the performance of the machine, makes the appropriate decisions and displays the status via the LEDs and on an LCD screen.

The eCD Series

The OxiMax eCD Series is a range of patented, leading edge technology, continuous, high efficiency "Chlorine Dioxide Generators", suitable for a wide range of water treatment applications. They are designed to be compact and wall mounted to allow a minimum footprint and ease of maintenance.

A 99.5% pure, pH neutral, 2,000 ppm Chlorine Dioxide solution is produced automatically on demand, ensuring optimum oxidising effectiveness in a range of water treatment applications.

Three eCD Models are available, with outputs up to 3 ppd (60 g/hr) and our larger ACD Models are available for higher outputs. All OxiMax CD machines use a single chemical precursor, either 25% or 31% Sodium Chlorite, with no acid or chlorine needed.

The heart of the eCD Series is the patented CDE Cells, which consist of computer optimised waterways, Titanium cathodes and long life Titanium SCRX anodes. Aluminium Plates are used on each side of the cell to give strength and ensure optimum cooling.

SMS communication, dosing pumps, dosing control equipment and a range of options allow each machine to be customized to suit the particular application.

OxiMax and Distributor Managed packages are available, allowing simple, efficient and reliable operation and maintenance of each machine.

Il Chlorine Dioxide Acid-Chlorite Systems

Chlorine Dioxide **versus** Chlorine

	Traditional Acid-Chlorite Systems		Chlorine Dioxide	Chlorine
	Chlorine Dioxide yield cannot		Removes biofilm at comparatively low concentrations for cleaning of tanks & pipes.	Requires very high concentrations to remove biofilm.
	exceed 80%.		Does not form chlorinated organic by- products.	Produces unwanted by-products including carcinogens (THM's and HAA's).
	sodium hydroxide (caustic) may be used to correct the water due to lowering of pH.		Is rapidly replacing chlorine in many parts of Europe and USA.	Already banned in certain parts of these areas.
s k of (p a ls. ir	Hydrochloric acid & Sodium chlorite (pre-diluted) chemicals are incompatible; there is a risk of producing chlorine dioxide gas if		Is not pH dependent (<ph10).< td=""><td>Is pH dependent and very ineffective above pH8.</td></ph10).<>	Is pH dependent and very ineffective above pH8.
			A very broad spectrum kill including Cryptosporidium and Giardia.	Is ineffective against Cryptosporidium and Giardia.
lution ration	Produces chlorine dioxide at 2% (20 g/L). This solution concentration can produce gas concentrations which are explosive under certain		Destroys phenols (without forming chlorinated by-products) and reacts with Sulphides to form sulphate only (no sulphur). Destruction of wide range of chemical contaminants.	Limited oxidative effect against various chemical contaminants. Forms chlorinated phenols.
	conditions.		Because no unwanted by-products are formed, and will have a lower residual after	Neutralisation required before dumping to the foul drain.
at the F rrection a V	Produces chlorine dioxide at pH 0 and a 250% molar excess of acid. When added to low alkalinity water, pH may drop significantly which can		use, no neutralisation normally required.	
			Cost savings in labour and use efficiency outweighs the additional chemical costs.	Increased disinfection time and more service work required to combat high bug counts.
m	Multiple dosing points require multiple generators or a batching system addition to the generator.		Can be used in RO feed water to prevent biofouling (without neutralisation). Does not oxidise membrane. Longer run cycles between chemical cleans.	Cannot be used in RO membrane feed water. Must be removed with MBS. Therefore, biofouling occurs more readily in membrane requiring more frequent chemical cleaning and downtime.
chlorine, ner roducts.	hlorine, er by chlorite or chlorine gas as a feed chemical will always produce chlorine dioxide with chlorine or an excess of chlorite present. These systems will always put chlorate into the treated water.		Generated on demand. No storage of chemical required on site. Only feed chemical OxiMate™ required to be stored.	Bulk storage of chemical required with associated risks of transportation and chemical storage.
		Generated on demand. No degradation or dissociation of chemical will occur.	Sodium hypochlorite concentration degrades quickly in storage, requiring higher dose over time.	

OxiMax Model	eCD1	eCD2	eCD3
Output (lb/day)	1.0	2.0	3.0
Output (g/hr)	18.90	37.80	56.70
Quantity of water treated to 1 ppm (litres/day)	453,597	907,194	1,360,791

25% Sodium Chlorite Flow (litres/hr)	0.091	0.182	0.275
31% Sodium Chlorite Flow (litres/hr)	0.072	0.144	0.218
Chlorine Dioxide Strength (ppm)	1890	1890	1890
Storage Tank Capacity (litres)	29.0	29.0	29.0
Water Required (litres/min)	0.165	0.330	0.500
Water Pressure (kPa)	2 - 5	2 - 5	2 - 5
Power Supply Voltage	85 - 265 AC	85 - 265 AC	85 - 265 AC
Power Supply Frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Electrolyser Operating Power (Watts)	53	106	160
Electrolyser AC Power Consumption (kWh/ kg)	3.12	3.12	3.12
Hydrogen Generated (litres/hr)	4.60	9.21	13.95
Effluent Flow (litres/hr)	0.66	1.33	2.01
Machine Dimensions (I x w x h) (mm)	915 x 400 x 1220	915 x 400 x 1220	915 x 400 x 1220
Machine Weight (kg)	32	35	37

Our Product Range

Water Engineers – The Company

Water Engineers is a global company, focused on water treatment solutions for a range of applications. While we are primarily a Research and Development company, we design and manufacture a range of innovative products aimed a specific market segments and we hold several Patents covering the unique features of our machines. We are certified to ISO 9001-2008.

Our Head Office and main factories are in Queensland, Australia and we also have factories in Nagpur, India. We have company offices in Singapore and Dubai, along with associated offices throughout the world.

Our team of 92 includes chemical, electrical and mechanical engineers, along with a skilled and experienced production team. Our initial work in the fields of Electrolysis and Electrochlorination goes back over 25 years and we are considered world leaders in several of our fields of operation.

OxiMax United

OxiMax United is a US based partner company to Water Engineers. OxiMax United specializes in the design and construction of eChem Chlorine Dioxide equipment and we provide a full range of services. We are rapidly becoming considered "world leaders in our field" and our team includes technical, production and sales specialists. We manufacture a range of eChem Chlorine Dioxide machines with outputs ranging from 1-2,000 ppd and we offer full installation and service backup.

Series	Disinfectant	Key Applications	Output Range	
OxiMax CD Series	Chlorine Dioxide	Drinking water, waste water, recycled water, cooling towers, RO systems.	20 g/hr – 30 kg/hr	
OxiMax MM Series	Hypochlorite	Disinfection of water for villages, communi- ties, remote locations, particularly developing countries.	5 – 1,000 g/hr	
OxiMax MA Series	Hypochlorite	Cooling towers, power stations, potable water for cities.	1 – 400 kg/hr	
OxiMax MT Series	Hypochlorite	Resort swimming pools, water features.	80 – 2,000 g/hr	
OxiMax MC Series	Hypochlorite	Power stations, refineries, large pools.	2 – 400 kg/hr	
OxiMax MV Series	Hypochlorite	Offshore platforms, hazardous areas.	300 g/hr – 20 kg/hr	
OxiMax HSH Series	Hypochlorite	Cooling towers, indoor swimming pools.	100 g/hr – 30 kg/hr	
OxiMax MG Series	Hypochlorite + Chlorine Dioxide	All of the above + waste water.	100 g/hr – 30 kg/hr	
OxiMax Clear	Contaminant removal	Removal of Fluorides, Arsenic, Iron, Nitrates from drinking water using resins and/or Electrocoagulation.		
Marine Electro- Clean	Copper Oxide	Prevents barnacle growth on yachts and boats in seawater.		







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