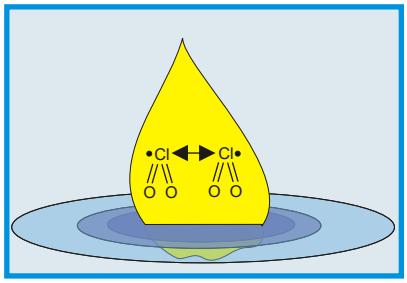
Chlorine Dioxide

Superior Water Disinfectant



- Yellow-orange gas, highly soluble in water
- Sensitive to light, thus produced mainly on-site in generators
- More than 95% produced in the world used as bleaching agent for wood pulp
- Very strong oxidant and disinfectant

- Introduced as a drinking water disinfectant on a large scale in 1956 (Brussels, Belgium)
- Superior to chlorine when operating above pH 7
- Unlike chlorine, does not react with organic substances and ammonia, thus does not produce THMs
- Less corrosive than chlorine
- Superior than chlorine for control of Legionella in hot water tanks
- More effective than chlorine in most circumstances against viruses and bacteria
- Unlike chlorine very effective in destruction of protozoans, including cysts of Giardia and oocysts of Cryptosporidium
- Used in many industrial water treatment applications as biocide in cooling towers, process water and food processing

Components for Automatic Generation

ClO_2 produced out of solutions

Hydrochloric acid (9%) &

Sodium chlorite (7.5%)

Sold in 1 l , 20 l , 200 l and 1,000 l sets

Liquid Set can be Used for Manual Mix

Out of liquid chlorine dioxide sets can be produced any volume of chlorine dioxide with concentrations of 1, 240 mg/l and 2,480 mg/l

80 l set

C US

20 l set

4 l set

C US

All chemicals are NSF/ANSI 60 Certified

- Read the Material Safety Data Sheet before use.
- User Manual for liquid and dry chlorine dioxide generation kits provide very detailed description of applications.

PowerOxide™
Components for Manual Mix

ClO_2 produced out of dry ingredients

Chemical yield >90%

Sold in 1 l , 4 l , 20 l, 55 l & 80 l sets

Drinking Water Safety

Chlorine *vs.* Chlorine Dioxide - A Comparison

	Chlorine	Chlorine Dioxide
Disinfection Power		
bacteria	Yes	Yes
virus	Low	Yes
protozoa	Low	Yes
Required Concentration	Not less than 0.5 mg/L	0.2 mg/L
Typical Total Concentration	2 or more mg/L	0.5 mg/L
Persistence of Disinfectant	Low, rapid decomposition in the distribution system	Very high, decomposition through hydrolysis 10 million times slower than chlorine
Water Taste	"Chlorine taste"	No taste at disinfectant concentrations. Most frequent comment: water tastes "fresh".
Water Smell	"Chlorine smell"	No smell at disinfectant concentrations
Disinfection Byproducts		
THM	Can be very high, frequently exceeding legal limits	Negligible
TAA	Can be very high, often exceeds legal limits	Negligible
Chlorite/Chlorate	Depends on the quality of commercial hypochlorite solution, can exceed legal limits	This is the only byproduct generated in appreciable concentration. Cannot exceed legal limits because it can never be higher than the chlorine dioxide input concentration.
Operational Safety	Low: 1. Greatly varying composition of commercial hypochlorite solution 2. Feed pumps require frequent adjustments because of changing composition of the feed	High: 1. Strict quality control of the disinfection chemicals guarantees consistent disinfectant concentration 2. Automated equipment maintains a constant disinfectant level

Do you require additional information? Can we give a presentation to YOUR council about our Disinfection Technology? Are you interested in an evaluation of the feasibility to use chlorine dioxide in YOUR community?

OSORNO

Osorno Enterprises Inc.
976 Elgin Ave. MB R3E 1B4 Canada
Phone +1 (204) 488-1538 Fax +1 (204) 488-1566
Internet http://www.osorno.ca