GlobalEx Water and Air Technology

Potable Water Treatment - Chlorine Dioxide

Potable Water Treatment - Potable water is water that is fit for human consumption i.e. drinking water.

Chlorine dioxide (ClO_2) is approved and recommended by the United States Environmental Protection Agency (US EPA) as an environmentally friendly drinking water additive to replace chlorine (which is known to form carcinogenic by-products) for both the pre-treatment and final disinfection of potable waters.

With minimal contact time chlorine dioxide is highly effective against many pathogenic organisms including Escherichia coli (e coli) and other coliforms, Listeria, Staphylococcus aureus, Giardia cysts, algae, Salmonella, bacterial spores, Legionella, Tuberculosis, MRSA, VRE, amoebal cysts, and Cryptosporidium.

Chlorine dioxide has also consistently been shown to be the best molecule for eradicating the causative organism of Legionnaires' disease. It also effectively removes hard water components i.e. iron and manganese, it promotes flocculation, and aids in the removal of turbidity.

Chlorine dioxide does not combine with organics to form suspected carcinogens such as THM's or haloacetic acids (HAA's). It also provides a lasting residual throughout the distribution system to reduce or eliminate the subsequent growth of bacteria, viruses, and algae.

Chlorine dioxide is excellent for use in the treatment of industrial waters and community purification plants. It is also ideal for smaller water supplies such as water tanks and hospital water systems.

Technical support and advice

Globalex works closely with a diverse range of organisations involved in the treatment of potable and drinking waters; intelligently combining advanced treatment technologies with practical solutions to resolve complex issues. If you have a project you would like to discuss with us, or require technical support and assistance; or if you simply have a question about one of our chlorine dioxide technologies please contact one of our specialist advisors

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Most Important Comparisons of Drinking Water Specifications

Parameters	WHO Guidelines of Drinking Water Quality 1999	USA USEPA National Primary Drinking Water Regulations	EU European Communities Drinking Water Regulations 2000
Colour	15 TCU*	15 Colour Units	Acceptable to consumers and no abnormal change
Odour	No guideline	3 Threshold Odor Number	Acceptable to consumers and no abnormal change
Taste	No guideline	—	—
Turbidity	5 NTU*	NA	Acceptable to consumers and no abnormal change
Chlorine	No guideline	4 mg/L as Cl_2 Maximum Residual Disinfectant Level	Not mentioned
PH	No guideline	6.5 – 8.5	6.5-9.5
TDS	1000 mg/L*	500 mg/L	Not mentioned
Total Hardness as $CaCO_3$	No guideline	Not mentioned	Not mentioned
Calcium as Ca	No guideline	Not mentioned	Not mentioned
Magnesium as Mg	No guideline	Not mentioned	Not mentioned
Alkalinity	No guideline	Not mentioned	Not mentioned
Chloride	250 mg/L *	250 mg/L	250 mg/L
Fluoride	1.5 mg/L	4.0 mg/L	1 mg/L
Nitrate	50 mg/L as NO3	10 as N_2 / 44.44 as NO3	50 mg/L
Nitrite	3(P)	1 as N_2	0.50 mg/L
Sulphate	250 mg/L*	250 mg/L	250 mg/L
Iron	0.3 mg/L *	0.3 mg/L	0.2 mg/L
Ammonia	1.5mg/L*	Not mentioned	0.3 mg/L
Aluminum	0.2mg/L*	0.05 – 0.2 mg/L	0.2 mg/L
Arsenic	0.01 mg/L (P)	0.01 mg/L	0.05 mg/L

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Antimony	0.005 mg/L (P)	0.006 mg/L	0.01 mg/L
Asbestos	No guideline	7 MFL	Not mentioned
Barium	0.7 mg/L	2 mg/L	Not mentioned
Beryllium	No guideline	0.004 mg/L	Not mentioned
Brass	No guideline	Not mentioned	Not mentioned
Boron	0.3 mg/L	Not mentioned	1 mg/L
Bromate	0.025 mg/L (P)	Zero	0.01 mg/L
BOD	No guideline	Not mentioned	Not mentioned
Cadmium	0.003 mg/L	0.005 mg/L	0.005 mg/L
Chromium	0.05 mg/L (P)	0.1 mg/L	0.05 mg/L
Copper	2 mg/L (P)	1.3 mg/L	Zero
Cyanide	0.07 mg/L	0.2 mg/L	0.05 mg/L
Dissolved Oxygen	No guideline	Not mentioned	Not mentioned
Hydrogen sulphide	No guideline	Not mentioned	Not mentioned
Lead	0.01 mg/L	0.015 mg/L	0.01 mg/L
Manganese	0.5 mg/L (P)	0.05 mg/L	0.05 mg/L
Mercury	0.001 mg/L	0.002 mg/L	0.001 mg/L
Molybdenum	0.07 mg/L	Not mentioned	Not mentioned
Nickel	0.02 mg/L	Not mentioned	Zero
Selenium	0.01 mg/L	0.05 mg/L	0.01 mg/L
Silver	No guideline	0.1 mg/L	Not mentioned
Sodium	200 mg/L	Not mentioned	200 mg/L
Potassium	Not mentioned	Not mentioned	Not mentioned
Thallium	Not mentioned	0.0005 mg/L	Not mentioned
Zinc	3 mg/L	5 mg/L SS	Not mentioned
Anionic detergents	Not mentioned	—	Not mentioned
Poly nuclear aromatic hydrocarbon	Not mentioned	Zero	0.0001 mg/L

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Poly chlorinated bi phenyl	Not mentioned	Not mentioned	Not mentioned
Phenolic compounds	Not mentioned	Zero	Not mentioned
Total Trihalomethanes	—	Zero	0.1 mg/L
Trihalomethanes (bromoform)	0.1 mg/L	Not mentioned -	Not mentioned -
Trihalomethanes (chloroform)	0.2 mg/L	Not mentioned	Not mentioned
Acrylamide	0.0005 mg/L	Zero	0.0001 mg/L
Benzene	0.01 mg/L	Zero	0.001 mg/L
Benzo pyrene	0.0007 mg/L	Zero	0.00001 mg/L
1,2 dichloro ethane	0.03 mg/L	Zero	0.003 mg/L
Epichlorohydrin	0.0004 mg/L (P)	Zero	0.0001 mg/L
Tetra chloro ethane	0.04 mg/L	Zero	0.01 mg/L
Trichloroethane	0.07 mg/L	Zero	0.01 mg/L
Vinyl chloride	0.005mg/L	Zero	0.0005 mg/L
Carbon tetra chloride	0.002 mg/L	Zero	Not mentioned
Dichloroethane	0.05 mg/L	Zero	Not mentioned
Xylene	0.5 mg/L	10	Not mentioned
Toluene	0.7 mg/L	1 mg/L	Not mentioned
Carbofuran	Not mentioned	0.004 mg/L	Not mentioned
Chlordane	Not mentioned -	Zero	Not mentioned
Chlorobenzene	0.3 mg/L	0.1 mg/L	Not mentioned
Ethyl benzene	0.3 mg/L	0.7 mg/L	Not mentioned
Styrene	0.02 mg/L	0.1 mg/L	Not mentioned
Dibromo chloromethane	0.1 mg/L	Not mentioned	Not mentioned
Bromodichloromethane	0.06 mg/L	Not mentioned	Not mentioned
Monochloramine & di & trichloramine chlorine	3	Not mentioned	Not mentioned
Dichloramine & Trichloramine chlorine	5	Not mentioned	Not mentioned

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Pesticides	Not mentioned	Not mentioned	mg/L Total Pesticide 0.0005mg/L)
1) Lindane	0.002 mg/L	0.0002 mg/L	Not mentioned
2) Endrin	—	0.002 mg/L	Not mentioned
3) Diquate	—	0.02 mg/L	Not mentioned
4) Glyphosphate	—	0.7 mg/L	Not mentioned
5) Heptachlor	0.00003 mg/L	Zero	Not mentioned
6)Heptachlorepoxide	0.00003 mg/L	Zero	Not mentioned
7) Picloram	—	0.5 mg/L	Not mentioned
8) Simazine	0.002 mg/L	0.004 mg/L	Not mentioned
9) Toxaphene	—	Zero mg/L	Not mentioned
10) 2,4,5 TP (Silvex)	—	0.05 mg/L	Not mentioned
11) Endothall	—	0.1 mg/L	Not mentioned
12) Alachlor	0.02 mg/L	Zero	Not mentioned
13) Atrazine	0.002 mg/L	0.003 mg/L	Not mentioned
14) DDT	0.002 mg/L	Not mentioned	Not mentioned
15) Aldrine/Dieldrin		Not mentioned	Not mentioned
16) Endosulphan		Not mentioned	Not mentioned
17) Chlorpyriphos		Not mentioned	Not mentioned
18) Malatheon		Not mentioned	Not mentioned
19) 2,4 D	0.03 mg/L	0.07 mg/L	Not mentioned
20) Isoproturon	0.009 mg/L	Not mentioned	Not mentioned
21) Alpha HCH		Not mentioned	-
22) Beta HCH	Not mentioned	Not mentioned	Not mentioned
23) Delts HCH	Not mentioned	Not mentioned	Not mentioned
24 Monocrotophos	Not mentioned	Not mentioned	Not mentioned
25) Ethion	Not mentioned	Not mentioned	Not mentioned
26) Phorate	Not mentioned	Not mentioned	Not mentioned

27) Butachlor	Not mentioned	Not mentioned	Not mentioned
Radioactive material Alpha, Beta, Radium 226 Radium 228 & Uranium	0.1 Bq/L for Alpha and 1 Bq/L for Beta	Zero	Tritium-100 Bq/Lb
Bacteria – Coliforms	Zero	Zero	Zero
Bacteria – E.Coli	Zero	Zero	Zero
Enterococci	No guideline	No guideline	Zero
HPC-colony	Not mentioned	Not mentioned	Zero
Clostridium perfringens (spores)	Not mentioned	Not mentioned	Zero
Virus	No guideline-	Zero	Not mentioned
Protozoa-Cryptosporidium	No guideline	Zero	Not mentioned
Protozoa-Gairdia	No guideline	Zero	Not mentioned