

Chlorine Comparison

Chlorine has been used as a water disinfectant for many decades, and many people are familiar with its use in water disinfection systems - so why change? We list below a number of advantages that chlorine dioxide treatments have over chlorine based systems:

Chlorine		Chlorine Dioxide	
Does not remove biofilm	◆	Will remove biofilm and thus clean tanks and pipes	◆
Produces unwanted by-products including carcinogens	◆	Does not form chlorinated by-products	◆
Is corrosive and unpleasant to handle	◆	Is much less corrosive than chlorine. Does not hydrolyse to form an acid	◆
Already Banned in certain parts of Europe and the USA	◆	Is rapidly replacing chlorine in many of these areas	◆
Is pH Dependent and very ineffective above pH 7	◆	Is not pH dependent (<pH 11)	◆
Is ineffective against complex organisms (e.g.: Cysts & Protozoa)	◆	A very broad spectrum kill *	◆
Limited oxidative effect against various chemical contaminants. Forms chlorinated phenols	◆	Destroys phenols (without forming chlorinated phenols) specific destruction of Hydrogen Sulphides. Destruction of a wide range of chemical contaminants #	◆
Neutralisation required before dumping to the foul drain	◆	Because no unwanted by-products are formed, and will have a lower residual after use, no neutralisation normally required	◆
Cannot be used at temperatures above 40°C due to the release of chlorine gas	◆	Effective at higher temperatures - does not disassociate as rapidly as chlorine	◆
Increased disinfection time and more service work required to combat high bug counts	◆	Cost savings in labour and use efficiency outweighs the additional chemical costs	◆

* Includes aerobic, non-aerobic, gram positive & gram negative bacteria, spores, viruses, fungi, cysts and protozoa

Includes iron, manganese and other metallics, phenols, trichlorophenols, Hydrogen Sulphides and Sulphides. Refer to Scotmas's ClO₂ reactivity booklet for further information and for specific reactivity rates for particular contaminants