



Chlorine Disinfection

Most chlorine based compounds are fast acting microbicides but their effectiveness is pH dependent with an optimum range between pH 5 – 8 although this is reduced in the presence of organic compounds

Chlorine dioxide in alkaline media is more efficient than gaseous chlorine and less sensitive to pH changes; this is mainly determined by the concentration & temperature.

Hypochlorites are quite unstable and are inactivated by atmospheric carbon dioxide & should be stored in cool places, shielded from sunlight. Their effectiveness is optimal at pH 7 to slightly alkaline solutions; at low (acidic) pH they are destroyed quickly.

Chloramines are characterized in having protracted microbicidal action that can be enhanced with ammonium salts. Their effectiveness is also dependent on pH change but much less so than gaseous chlorine. Organic dichloramines have optimum effectiveness at pH 7; organic monochloramines have their optimum at slightly acidic pH.

For dichloroisocyanuric derivatives, their effectiveness is not influenced by pH in the 6 – 10 range but low temperature (2-4°C) decreases it.

Using these disinfectants in their recommended temperature range together with the correct concentration and exposure time will ensure maximum effectiveness for these products for their designated application.

For example, recommendations for sodium hypochlorite based products are:

Concentration	Temperature	Exposure	Usage
1 – 2%	60 – 70°C	10 – 20 min.	Tubing in food industry
1%	50°C	10 – 20 min.	- " -
0.50%	40 – 60°C	10 – 20 min.	- " -
0.4 – 2%	50 – 80°C	1 - 5 h.	- " -
5 – 25%	N/A	30 min.	Surfaces in food industry
1%	50 – 60°C	10 – 20 min.	- " -

Buy [sodium hypochlorite-chlorine bleach test strips](#) from Indigo® Instruments