

## BACTERIA

Effectiveness of hypochlorous acid (free available chlorine) against a range of water-borne bacteria

ORGANISM	pH	Temp. °C	Exposure Time	Available Chlorine mg/L	Biofouling Result	Ref.
Campylobacter jejuni	8.0	4	1 min	0.1	>99.9%	2
Escherichia coli	7.0	20-25	1 min	0.055	100%	1
Salmonella dysenteriae	7.0	20-25	3 mins	0.055	100%	1

## BACTERIA

Effectiveness of *HiClean* against 3 strains of methicillin resistant staphylococcus aureus (MRSA) under clean conditions and dirty conditions (5% horse serum)

MRSA STRAIN	AV Chlorine	Temp. °C	Exposure Time	Reduction Clean Condit.	Reduction Dirty Condit.	Ref.
Epidemic strain 15 (PHLS)	1000 ppm	20	2 mins	>99.9%	>99.9%	7
Fresh clinical isolate (Preston PHL)	1000 ppm	20	2 mins	>99.9%	>99.9%	7
NCTC 12493	1000 ppm	20	2 mins	>99.9%	>99.9%	7

## BACTERIA

Effectiveness of *HiClean* against bacteria using a modification of EN 1040 under clean and dirty conditions (50% bovine serum)

BACTERIA	AV Chlorine (ppm)	Temp. °C	Exposure Time	Reduction Clean Condit.	Reduction Dirty Condit.	Ref.
Bordetella bronchiseptica	2.8	1100	1100	>99.9%	>99.9%	6
Enterobacter cloacae	2.8	1100	1100	>99.9%	>99.9%	6
Erysipelothrix rhusopathiae	2.8	1100	1100	>99.9%	>99.9%	6
Listeria monocytogenes	2.8	1100	1100	>99.9%	>99.9%	6
Pasteurella multocida	2.8	1100	1100	>99.9%	>99.9%	6
Pseudomonas aeruginosa	2.8	1100	1100	>99.9%	>99.9%	6
Yersinia enterocolitica	2.8	1100	1100	>99.9%	>99.9%	6
Candida albicans	2.8	1100	1100	>99.9%	>99.9%	6

## VIRUSES/FUNGI

Effectiveness of hypochlorous acid (free available chlorine) against a range of water borne viruses

ORGANISM	pH	Temp. °C	Exposure Time	Available Chlorine mg/L	Biofouling Result	Ref.
Adenovirus (type 3)	7.8	22	5 mins	0.5	>99.9%	3
<b>Enteroviruses:</b>						
Poliovirus (type 1)	7.8	22	5 mins	0.5	>99.9%	3
Coxsackievirus (type A9)	7.8	22	5 mins	0.5	>99.9%	3
Coxsackievirus (type B5)	6.0	5	13.2 mins	0.5	>99.9%	4
Poliphages MS2	6.0	5	1.2 mins	0.5	>99.9%	4
Coliphages Cx174	6.0	5	0.5 mins	0.5	>99.9%	4
Echovirus (type 7)	7.8	22	5 mins	0.5	>99.9%	3
Renovirus (type 3)	7.8	22	5 mins	0.5	>99.9%	3
Hepatitis A	7.0	5	3.6 mins	0.5	>99.9%	4
Infectious hepatitis	6.8	Room	30 mins	3.25	*Note 1	1
Simian rotavirus SA11	6.0	5	15 secs	0.11-0.67	100%	5
<b>ORGANISM</b>	<b>AV Chlorine</b>	<b>Temp. °C</b>	<b>Time</b>	<b>Inactivation</b>	<b>Ref.</b>	
HBV	1000 ppm	20	2 mins	100%	9	
HIV-1	100-120 ppm	20	5 mins	100%	9	
<b>ORGANISM (FUNGI)</b>	<b>pH</b>	<b>Temp. °C</b>	<b>Exposure Time</b>	<b>Available Chlorine mg/L</b>	<b>Biofouling Result</b>	<b>Ref.</b>
Aspergillus fumigatus conidia	7.0	23-27	10 mins	10 ppm	100%	8
Aspergillus niger conidia	7.0	23-27	60 mins	3 ppm	100%	8
Cladophorium sp. conidia	7.0	23-27	30 mins	2 ppm	100%	8
Cryptococcus laurentii cells	7.0	23-27	10 mins	2 ppm	100%	8
Rhizotorula glutinis cells	7.0	23-27	30 mins	2 ppm	100%	8
Rhodotorula rubra cells	7.0	23-27	30 mins	2 ppm	100%	8

\* Note 1: Protected all 12 volunteers

References: 1. Dschida, G.R., 2. Blazer, M.J., Smith, P.F., Wang, W.L. and Hoff, J.C., 3. Liu, O.C., Senalathas, H.R., Akin, E.W., Brashnar, D.A., Katz, E.L. and Hill, J.W., 4. Schweg, M.D., Fujl, T. and Shields, P.A., 5. Berman, D. and Hoff, J.C., 6. Wilson, D.C., 7. Coates, D., 8. Rosenzweig, W.D., 9. Mrogh, H.A. and Pines, W.O., 9. Hernandez, A., Beldi, F.J. and Col.

**Convenient** - Simply add tablet to clean water and dissolve. Warm water will speed tablet dissolution time

**Stable** - Tablets can be stored for up to 5 years and always yield the stated minimum level of available chlorine if stored correctly.

**Safe** - Liquid bleach (sodium hypochlorite) is caustic and corrosive. Preparing dilutions can be hazardous, splashes can cause chemical burns and bleach clothing. Tablets do not spill, splash or leak and exhibit a near neutral pH of c.6.5, which means reduced risk of accident or personal injury.

**Greater Biocidal Effect** - Strength for strength, tablets are more biocidal than liquid bleach because of their pH effect.



**Greater Resistance to Organic Load** - *HiClean* has 50% free available and 50% combined chlorine. This 'reservoir' effect creates an equilibrium that makes tablets more resistant to organic load than liquid bleach.



**Economic** - *HiClean* provides an easy to use dilution system that eradicates over-dosing commonly associated with liquids and powders and more importantly, minimises under-dosing potential.

**Less Corrosive** - Comparative tests with *HiClean* have shown that nearly all metals in common use are more readily corroded by liquid bleach.

1.7g NaDCC - Packed 100 tablets\*

Manufactured by **HYDRACHEM** Hydrachem Ltd., Billingshurst, Sussex, England, RH14 9EZ. Tel: +44 (0)1403 787722 www.hydrachem.co.uk

# HiClean Effervescent Chlorine Tablets



The safe alternative to liquid bleach

- disinfecting
- sterilising
- protecting

## SUMMARY OF PROPERTIES OF *HiClean* DISINFECTANT TABLETS

FEATURE	<i>HiClean</i>	Unbuffered hypochlorites	Biquarolates (Chlorox)	Phenolics (clear soluble)	QAC's (quaternary ammonium compounds)	Iodine and Iodophors	Hydrogen peroxide & peroxygen compounds
Bactericidal Gram +ve	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Bactericidal Gram -ve	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Virucidal	★★★★	★★★★	★★★★	★★	★★ variable	★★ variable	★★★★
Sporicidal	★★	★★	nil	★★	nil	★★	★★ variable
Mycobactericidal	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★ variable
Fungicidal	★★	★★	★★	★★	★★	★★	★★★★
Resistance to inactivation by organic load	★★	★★	★★	★★	★★	★★	★★
Compact storage, cost of distribution	★★★★	★★	★★	★★	★★	★★	★★
Stability in working solution	★★	★★	★★	★★	★★	★★	★★
Metallic corrosion resistance	★★	★★	★★	★★	★★	★★	★★
Ease of preparation	★★★★	★★	★★	★★	★★	★★	★★

★ POOR ★★ GOOD ★★★ EXCELLENT

It is good practice to renew disinfectant daily

*HiClean* is a brand of: **Medinostic Health Care (Pvt.) Ltd.**  
www.hiclean.co



## *HiClean* Dilution instructions for Disinfection Tablets

Disinfection of:	Required concentration of available chlorine	DILUTION RATES (dilute with clean potable/tap water)				Additional instructions
		0.5g NaDCC tablets	1.7g NaDCC tablets	2.5g NaDCC tablets	5.0g NaDCC tablets	
<b>Body fluid spills (for urine spills, use <i>HiClean</i> Granules to absorb &amp; disinfect)</b>	10,000 ppm	10 tablets in 300ml	10 tablets in 1 litre	7 tablets in 1 litre	9 tablets in 2.5 litres	Pour over spill, minimum contact time 2 mins. Using gloves wipe up with disinfectant saturated disposable cloth.
<b>Pipette jars*, laboratory discard jars</b>	2,500 ppm	8 tablets in 1 litre	5 tablets in 2 litres	7 tablets in 4 litres	8 tablets in 10 litres	Immerse overnight.
<b>General laboratory / environmental use*</b>	1,000 ppm	4 tablets in 1 litre	1 tablet in 1 litre	2 tablets in 3 litres	1 tablet in 3 litres	Wipe down surfaces with disinfectant saturated disposable cloth, minimum contact time 15 mins.
<b>Clean stainless steel instruments</b>	600 ppm	2 tablets in 1 litre	3 tablets in 5 litres	2 tablets in 5 litres	1 tablet in 5 litres	Immerse for 1 hour.
<b>WCs, drains</b>	400 ppm	1 tablet in 750ml	2 tablets in 5 litres	1 tablet in 3.5 litres	1 tablet in 7.5 litres	Pour in solution in quiet periods
<b>Food preparation surfaces, floors, tiles</b>	200 ppm	1 tablet in 1.5 litres	1 tablet in 5 litres	1 tablet in 7.5 litres	1 tablet in 15 litres	Soak for 3 mins, then air dry, or use disposable paper towels.
<b>Baby bottles/teats, porcelain, glassware, rubber &amp; plastic tubing</b>	125 ppm	1 tablet in 2.4 litres	1 tablet in 8 litres	1 tablet in 12 litres	1 tablet in 24 litres	Clean thoroughly ensuring all traces of milk are removed. Immerse for 30 mins minimum.
<b>Dishcloths, mops etc.</b>	60 ppm	1 tablet in 5 litres	1 tablet in 16 litres	1 tablet in 25 litres	1 tablet in 50 litres	Soak to bleach, clean and deodorise. Do not soak overnight.

\* Howie Code requirements for laboratory use. A 1% compatible detergent should also be added (not cationic). Do not immerse animal fibres such as silk due to strong proteolytic action. Avoid prolonged contact with stainless steel.

**Warning:** Rate of chlorine generation is accelerated in acid conditions.

The safe alternative to liquid bleach. disinfecting, sterilising & protecting