

Disinfection of Instruments & Equipment

Level of Disinfection	When to Use	Disinfectant Active Ingredient(s)	Immersion Contact Times (Approximate)	Advantages	Disadvantages
HIGH Level¹ Kills all microorganisms (bacteria, fungi and viruses) except large numbers of bacterial spores.	Use on semi-critical items. Items that contact mucous membranes or non-intact skin but do not ordinarily penetrate them or enter normally sterile areas. Use on items that hold, manipulate, or contact critical items.	1:10 chlorine bleach solution ² (1 part bleach and 9 parts water).	10 minutes.	Inexpensive, fast acting.	Corrodes metal, may destroy adhesives with prolonged soaking, solution is to be made daily.
		>6% hydrogen peroxide (enhanced action formulation).	20–30 minutes. Follow manufacturer's instructions.	Inexpensive, fast acting, environmentally friendly, no residue.	May be destructive to some metals.
		2% hydrogen peroxide (enhanced action formulation).	5–8 minutes.	Inexpensive, fast acting, environmentally friendly, non-toxic.	May be destructive to some equipment some metals.
		0.55% ortho-phthalaldehyde (OPA).	10 minutes. Follow manufacturer's instructions.	Fast acting, no mixing needed.	Stains proteins, direct contact with the skin may cause temporary staining.
INTERMEDIATE Level² Kills most bacteria, fungi, viruses and mycobacteria (tuberculocidal) but not bacterial spores.	Use on non-critical items that require intermediate level disinfection. Items intended to contact only intact skin but may accidentally come into contact with non-intact skin or mucous membranes or penetrate skin.	70-90% isopropyl or ethyl alcohol only Not to be used for foot baths.	10 minutes. Do not dilute.	Fast acting, leaves no residue.	Can damage rubber and plastics, flammable, evaporates quickly, prepare daily.
		1:50 bleach solution ⁱⁱ (1 part bleach and 49 parts water)	10 minutes.	Inexpensive, fast acting.	Corrodes metal, may destroy adhesives with prolonged soaking, solution is to be made daily.
		0.5% hydrogen peroxide (enhanced action formulation) with efficacy claims against tuberculosis (TB) or mycobacteria.	3–5 minutes. Follow manufacturer's instructions.	Inexpensive, fast acting, environmentally friendly, non-toxic, cleans and disinfects, available in a wipe.	May be destructive to some equipment/metals.

Level of Disinfection	When to Use	Disinfectant Active Ingredient(s)	Immersion Contact Times (Approximate)	Advantages	Disadvantages
LOW LEVEL³ Kills some viruses, bacteria, and fungi but not mycobacteria or spores.	Use on non-critical items and environmental surfaces. Items that do not directly contact the client or contact only hair or intact skin.	1:500 chlorine bleach solution ² (1 part bleach and 499 parts water).	10 minutes.	Inexpensive, fast acting.	Corrodes metal, may destroy adhesives with prolonged soaking, solution is to be made daily.
		3% hydrogen peroxide.	10 minutes.	Inexpensive, fast acting, environmentally friendly.	May be destructive to some metals.
		0.5% hydrogen peroxide (enhanced action formulation).	Follow manufacturer's instructions.	Inexpensive, fast-acting, environmentally friendly, non-toxic, cleans and disinfects, available in a wipe.	May be destructive to some equipment/metals.
		Phenols.	Follow manufacturer's instructions.	Easy to obtain, cleans and disinfects.	Residual phenols on porous materials may cause irritation, for environmental surfaces only.
		Quaternary ammonium.	10 minutes. Follow manufacturer's instructions.	Good cleaning agent for environmental surfaces.	Limited use as disinfectant, not recommended as an antiseptic.

¹ High-level disinfectants (except chlorine bleach) must be approved by Health Canada on Medical Devices Active Licence Listing (MDALL).

² Based on regular household chlorine bleach solution of 5.25% sodium hypochlorite solution. Refer to Public Health Ontario Chlorine Dilution Calculator.

³ Intermediate and low-level disinfectants (except chlorine bleach) must have a Drug Identification Number (DIN) or Natural Product Number (NPN) on the label.

- This chart is not intended to be inclusive of all approved high, intermediate and low-level disinfectants.
- Concentration of disinfectant solutions may be verified using test strips if available and included in the manufacturer's instructions.
- Disinfectants are only to be used as per the manufacturer instructions.
- Dispensed or decanted disinfectants must be kept clearly labelled with the name of product in a covered container.
- Glutaraldehyde is not allowed in PSS because of issues concerning toxicity, disposal, ventilation, and lack of training.

This chart is adapted from the [Public Health Ontario Guide to Infection Prevention and Control in Personal Services Settings](#)

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