LABORATORY DISINFECTANT 'CHEAT SHEET'

For common disinfectants used at Flinders University

Disinfectant	Notes	Recommended application(s)
Bleach, chlorine, sodium hypochlorite	A final active chlorine concentration of 1% is recommended for decontamination of cellular waste, blood, and serum products. See note 1(a) on page 3 of this document regarding varying concentrations of active chlorine in bleach and sodium hypochlorite products. A wet-contact time of 10 minutes is required for decontamination of biological spills. Chlorine is not recommended for decontamination of stainless-steel and other metal surfaces as it causes corrosion or rusting. Avoid use for decontamination of biological safety cabinets. Do not autoclave materials containing bleach as hazardous vapours may be formed.	Disinfection of cell culture waste, and blood and bodily fluid spills.
Cavicide	Use at manufacturer's recommended concentration and contact time. Surface disinfectant only. Not to be used for disinfection of liquid waste.	See manufacturer's recommendations for efficacy against different microorganisms: https://www.metrex.com/en-us/cavicide#list-of-uses
Ethanol	80% v/v concentration is suitable for disinfection of laboratory surfaces, including stainless-steel biological safety cabinets and sinks. Wet contact time of 10 minutes required for decontamination of biological spills or contaminated surfaces. Surface disinfectant only. Not to be used for disinfection of liquid waste.	Routine decontamination of surfaces in PC facilities handling vegetative bacteria and lipid-containing viruses.

	Due to flammability, within biological safety cabinets use a squeeze bottle rather than a spray bottle to apply.	
F10Sc	Use at manufacturer's recommended concentration and contact time. Broad-spectrum veterinary disinfectant. Surfaces must be relatively clean for this product to work. Heavily soiled surfaces should be cleaned before application of disinfectant. Surface disinfectant only. Not to be used for disinfection of liquid waste.	Surface decontamination within animal facilities. F10 'foggers' may be used for room disinfection within animal facilities. This disinfectant will not be suitable for some specific projects involving sporulating bacteria or certain fungi.
Hydrogen peroxide vapour	Concentration and application time varies by use setting. Relative humidity must be controlled during application.	University-preferred disinfectant for decontamination of biological safety cabinets and 'gaseous' decontamination of rooms.
Virkon S	1% solution – follow manufacturer's directions for dilution of pre-formulated tablets. Surface disinfectant only. Not to be used for disinfection of liquid waste. Product leaves residue on surfaces that can cause corrosion over time. Wipe stainless-steel surfaces with sterile water or ethanol after use. Not recommended for use in floor mopping where vinyl is present.	Typically used for surface disinfection in virology labs and labs handling lentiviral vectors. See manufacturer's recommendations for efficacy against different microorganisms: https://virkon.us/wp-content/uploads/sites/15/2017/11/VirkonTM-S-EPA-Label-Efficacy-NA-Landing-Webapge-rev.pdf

Remember that the following variables impact disinfectant efficacy:

1. **Concentration of active components of the disinfectant**
    a. Stock disinfectants may be produced with different concentrations of active ingredients. For example, household bleach typically has 4-5% active chlorine concentration whilst laboratory-grade bleach may start with up to 12.5% active chlorine. Take care when diluting these solutions to ensure the correct final working concentration of chlorine is achieved.
    b. Many disinfectants become less active over time, or are impacted by evaporation. Ensure that both the stock and any diluted solutions of disinfectants are within the expiry date and label all solutions that you make with an expiry date.

2. **The type of microorganisms you are working** with will determine which disinfectant you need to use. Different microorganisms are susceptible to different products. Check the literature if in doubt.

3. **Effective period of contact time differs for different disinfectants.** If in doubt, check the manufacturer's specifications.

4. **Presence of organic matter or cellulosic or synthetic materials**
    a. Some disinfectants are more affected by organic matter than others. For example, the active chlorine in bleach is rapidly degraded in the presence of organic matter, and so you may need a higher concentration of bleach to disinfect cell culture waste.
    b. For decontamination of surfaces, dust can impact disinfectant efficacy. Remember to clean with disinfectant and follow this up with a second application of disinfectant to ensure the surface is decontaminated.

5. **Temperature, pH and relative humidity** can affect different disinfectants. Check the manufacturer's specifications to determine suitability for your application.

6. **Some equipment or surfaces can be damaged by certain disinfectants**
    a. Stainless steel can become corroded from regular application of bleach – ensure that you wipe all stainless steel surfaces with sterile water or ethanol after applying bleach to prevent this.