Disinfecting Surfaces

Environmental Health & Safety

Common Definitions

Disinfection – the use of (liquid/chemical) antimicrobial agents on inanimate objects to destroy or irreversibly inactivate all infectious fungi and bacteria but not their spores. Disinfectants can be "general" or "hospital' grade. Chemical disinfectants are used to render a contaminated material safe for further handling. It is important to choose a disinfectant that has been proven effective against the material(s) or agent(s) being used and at the appropriate concentration.

Contact time – the duration of exposure required for a disinfectant to effectively destroy or irreversibly inactivate a biological agent.

-cidal – kills or inactivates an agent or material. (e.g., bactericidal, fungicidal, sporicidal, tuberculocidal, virucidal, etc.)

-static – repression of growth or multiplication of an agent in its presence. (e.g., bacteriostatic, fungistatic, etc.)

- Chemical disinfectants are not intended for use on skin. Do not apply surface disinfectants, such as Lysol, to ANIMATE objects (i.e., yourself or clothing); you need an antiseptic (skin disinfectant) for this purpose.
- Chemical disinfectants are not intended to be mixed together; more (chemicals or concentration) is not better - most importantly avoid mixing anything with bleach.
- Properly use, store and dispose of chemical disinfectants per the manufacturer's instructions on the label. The label will list the type of active ingredient in the disinfectant which will allow you to use the table below.
- Keep disinfectant and paper towels (if needed) close to the locations that need frequent cleaning.

Basic Steps to Proper Disinfection

1. **Clean** away debris and organic matter first.
2. **Prepare** fresh disinfectant according to the manufacturer guidelines for concentration and frequency of preparation.
3. **Evenly apply** the disinfect to the surface to be decontaminated and allow the surface to **remain wet** for the duration of the required contact time. Reapply if needed.
4. Wipe to dry if needed AFTER contact time.

What to Disinfect

Disinfect shared equipment before using and after using the equipment with an appropriate disinfectant. It is prudent to disinfect commonly touched surfaces prior to the conclusion of your work shift. Surfaces can include, but are not limited to:

- Doorknobs and handles, light switches, countertops
- Sink faucets, soap and hand sanitizer dispensers
- Shared equipment (e.g., copiers, laboratory equipment)
- Electronics (phone, keyboard, mouse, controls, hand-held devices)
- Vehicle steering wheel, shift lever, door handle, radio and air conditioner buttons

CHARACTERISTICS OF COMMON DISINFECTANTS

	Sodium Hypochlorite (Bleach) 5.25%	Phenols	Quaternary Ammonium Compounds (Quats)	Hydrogen Peroxide	Alcohols	Iodophors
Usable Concentration	1% to 20%	As directed	As directed	3%-8%	60-80%	As directed
Shelf Life	Unmixed: Expiration on container Mixed: 24hours	Check expiration on container	Check expiration on container	Check expiration on container	Check expiration on container	When solution is pale yellow to colorless
Inactivated by Organic Matter	YES	YES	YES Except 4th-generation quats	YES	NO	YES
Irritant	YES	YES	YES	YES, >6%	YES	YES
Other Health Concerns & Hazards	REFER TO SDSs					
Corrosive	YES			YES, >10% Not appropriate for use with certain metals.	NO	YES
Residue	YES	YES	YES	NO	NO	YES
Protective Controls	PPE and ventilation.					
Toxicity	Toxic to aquatic organisms.	Toxic to all animals including aquatic organisms. Remains persistent in the environment. Subject to disposal restrictions.	Toxic to aquatic organisms.			Toxic to aquatic organisms.

Disinfection chart adapted from Cleaning for Health. http://www.cleaning-for-health.org/disinfectant-chart/ and the CDC Guideline for Disinfection and Sterilization in Healthcare Facilities. 2008.