

University of California, Merced
Institutional Animal Care and Use Committee Policy

Version No 1.

Policy 122

Cleaning and Disinfecting Research Equipment

I. Purpose: This document outlines the procedures and responsibilities to assure proper sanitation of equipment used in animal studies that cannot be processed through a mechanical cage wash.

II. Background: This guidance document outlines general methods to clean and disinfect research equipment. Inappropriately cleaned and disinfected laboratory equipment can contaminate animals or harbor various infectious agents that may negatively impact animal health and research findings. Many animal diseases are sub-clinical, with the animals demonstrating no outward signs of illness. Animal disease may be caused by viral, bacterial, fungal, or parasitic agents. The sole evidence a disease may occur after the quarterly health monitoring or when unexpected research results occur, in either case, an infectious agent could have been affecting an animal or group of animals for several months. This guidance document is designed to minimize the introduction and spread of infectious agents to research animals. Generally, this guidance applies to those items that cannot undergo cage wash and/or autoclaving.

Animals may be exposed to infectious agents when they are handled outside the cage change station or biosafety cabinet (BSC) or when a cage change station or BSC is not disinfected before and after every use. Research equipment such as scales, X-ray irradiator (unit elements and 'pie plate'), restraint devices, euthanasia/anesthesia induction chambers, gloved hands, etc. which might be used on multiple cages of animals can cross contaminate a large number of cages. It is important to clean and disinfect equipment entering the vivarium beforehand. Additionally, use heightened precautions between animal cages to minimize the likelihood of spreading disease from an infected cage to subsequent cages.

It is important to use cleaning and disinfection practices that render equipment safe for the animals without damaging equipment.

Not all items can be cleaned and disinfected, in these instances replace these materials when soiled.

Provide heightened gloved-hand and equipment (e.g. scissors) cleaning between cages when handling multiple cages of animals. This action can break the spread on an infectious disease.

Cleaning: Cleaning alone can remove over 90% of microorganisms. Conduct cleaning prior to disinfection, as organic material decreases disinfectant effectiveness. Because cleaning alone is particularly effective, we request individuals wash their hands before and after working with animals. Generally, cleaning should follow these 4 basic steps:

- **Dry cleaning** to remove bedding, feces, hair, dust, and other organic material, which significantly depletes disinfectant effectiveness.
- **Wash** (where practical and acceptable) an item with water (preferably hot) and a detergent.
- **Rinse** (where practical and acceptable) the item with ample water to remove the detergent as detergents and soaps deplete disinfectant effectiveness.
- **Dry** items prior to applying disinfectants as residual moisture dilutes disinfectants and depletes their effectiveness.

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Clean frequently used equipment of gross contamination at least daily.

Disinfectants are compounds applied to inanimate surfaces to destroy or eliminate microbial growth, they are often ineffective against bacterial spores. Selecting an appropriate disinfectant depends on the label information, environmental factors (temperature, pH), safety, and contact time to inactivate a specific organism. Some disinfectants may require an appropriate rinse, especially to minimize animal exposure to the compound; in this case, completely dry items before animal use. *It is important to read and follow all product label instructions to ensure the product is used in a safe and effective manner for animals and people.* Individuals using disinfectants are to read, understand, and keep the compound's Safety Data Sheets (SDSs). Some disinfectants may require the individual to wear PPE.

Disinfection selection begins with identifying a target microorganism. It is easier to select a product or protocol for a single microorganism, although this is not always feasible in daily practice.

Document cleaning and disinfection as these records may be reviewed during semiannual IACUC inspections. Maintain the compound's SDS.

Storage: Store disinfected material in a manner maintaining its cleanliness (e.g., clean covering, wrap). Additionally, store infrequently used equipment covered and in a low traffic area.

In addition to the table below, one may contact EHS or DARS for disinfection recommendations.

Disinfectant	Active Ingredient	Contact Time	Notes
Virkon	Potassium monopersulfate	10 minutes	Generally safe on most surfaces.
Dilute Bleach	Sodium hypochlorite	15 minutes	1:10 of 5.25% bleach solution Corrosive on metals, must be made fresh
MB-10	Sodium chlorite	1-60 minutes	Corrosive on metals
Hydrogen Peroxide	Hydrogen peroxide	1-10 minutes	Generally safe on most surfaces.

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