

Radioactive Material Decontamination Procedures

From the [EHS Radiation Safety Training Manual](#)

PERSONNEL

Removal of skin contamination (excluding wounds or near body openings) can be accomplished by using a wide variety of methods. The simplest and safest technique is with ordinary soap and cool water. It is important to thoroughly monitor affected areas prior to cleaning to determine the effectiveness of decontamination activities. The soap should be worked into a good lather to wash the affected areas for several minutes. After rinsing and drying, the area should be monitored to determine progress. This process should not be repeated more than 3 times, but a soft brush can also be used. Caution should be exercised to prevent spread to noncontaminated areas and to prevent defating of the skin. More aggressive methods can be employed while under supervision of the RSO.

Decontamination of the eyes, ears, nose and mouth or wounds is a more sensitive procedure and should be done in the presence of medical personnel as well as the RSO. Flushing with water is the most acceptable means of decontaminating the body openings and wounds.

EQUIPMENT

A number of decontamination techniques can be used to clean equipment. The two basic types of decontamination methods are corrosive and noncorrosive. Corrosive techniques are less desirable because surface removal is often caused. This results in a surface that is harder to decontaminate in the future. The size of equipment, extent and chemical form of contamination and construction of equipment can dictate the technique used. If short half-life isotopes are used, storage of contaminated equipment for 7-10 half lives can be an effective decontaminant especially when radiation levels pose a hazard.

Washing equipment with a special decontaminating solution (e.g. Radiacwash, Count-off, Lift-away) is recommended. A several hour to 24 hour soak in this solution can often remove more stubborn contamination. After the equipment has been cleaned, it must be dried before a final survey can be performed. The use of sprays such as Fantastik or Windex may be an effective decontaminant.

Organic solvents such as ethanol could be used by wiping the equipment. Harsher methods involve soaking in dilute acids or bases. One additional method uses abrasives such as steel wool or sandpaper. Abrasives usually remove the surface layer which will increase the difficulty of future decontamination efforts. When the equipment cannot be cleaned below the limits, disposal as radioactive waste is necessary.

AREAS

Any areas such as bench tops or floors that become contaminated must be cleaned up promptly. Initially, a detailed survey must be performed to determine the extent of contamination. The

affected area can be outlined with a wax pencil or magic marker. For very small areas with dry contamination, masking or duct tape pressed on the area and removed may decontaminate effectively. For larger areas cleanup is best accomplished by applying a decontamination solution to the area and working from low activity areas to high activity areas. If scrubbing with towels or sponges aren't sufficient, a brush should be used. Other methods involve organic solvents, acids, bases, and abrasives in a similar fashion to equipment cleaning. These later steps must be performed under RSO supervision only. Widespread contamination or high activities must be cleaned under RSO supervision. Area contamination must be cleaned to below the limits. Removal of surfaces such as floor tile may be necessary if contamination cannot be cleaned