



# Safety Services

## Decontamination Procedures

All contamination should be removed as soon as possible after it has occurred, except in the following circumstances:-

1. the contaminated item is disposable and can legitimately be put in the solid radioactive waste drum ; and
2. the radionuclide is of such short half-life (no more than a few hours) that, if the contamination was left, it would rapidly decay away.

In the case of (2) above, one is concerned not to unnecessarily expose personnel to hazardous radiations during the cleaning process. Any area left with a high level of contamination should be clearly and prominently marked, to keep people away from it until the radionuclide has safely decayed.

Any decontamination exercise should always start with the mildest cleaning agent, e.g. soap and water, before moving on to harsher treatments. The cleaning process should always commence from the outer extent of the contamination and proceed towards the centre, to avoid spreading the contamination.

## Decontamination of equipment

For glassware, use an alkaline detergent or proprietary decontaminating solutions, or ammonium citrate; or chelating agents such as EDTA (ethylene diamine tetraacetic acid), which are effective in releasing metallic ions from surfaces.

For plastics, treat as for glassware, and in addition, dilute nitric acid is sometimes effective.

For metals, if mild detergent solutions have no effect, use a heavy duty detergent or dilute sulphuric acid; or for stainless steel, use 6% nitric acid with 1% sodium fluoride, or use a mild proprietary abrasive cream.

## Decontamination of work surfaces and floors

For paintwork, a detergent in water should usually suffice. If this proves unsuccessful, a gel type paint stripper should be used.

For cleaning PVC floorcoverings, the protective emulsion coating which these floors should have can be removed with hot water. If hot water or a detergent cleaner does not remove the contamination, then the affected parts may have to be replaced.

For cleaning other floorcoverings which have a waxed surface coating, use a suitable solvent to remove this protective layer, and hopefully the contamination

will be removed. If not, the floorcovering may have to be replaced.

Varnished bench tops can be cleaned as for paintwork, and formica bench tops can be washed with the proprietary cleaning solutions, or if necessary, a mild abrasive cream can be used.

### **Decontamination of personal protective clothing**

If one is using disposable gloves, sleeves or aprons and these become contaminated, they can be disposed of with the radioactive waste, and there is no problem. However, if one's laboratory coat becomes contaminated, the contaminated area should be washed with a proprietary detergent in the laboratory before sending it to the laundry, or it can be left in a safe place for the activity to decay.

**On no account must contaminated clothing be sent to the laundry.**

### **Decontamination of personnel**

For contamination of the skin, e.g. arms, hands etc., the first step is to wash the affected area with soap and water, as normal. If the contamination persists, it should be washed and scrubbed gently with a deep cleansing soft soap or liquid soap, such as 'Clearasil' or 'Dermactyl'. Alternatively, if EDTA soap is available, that may be used. If the contamination is from P-32 a dilute acid (*vinegar or citric acid are ideal*) will remove phosphates from surfaces.

If the contamination persists after several wash and scrub treatments and the contamination is restricted to parts of the hands, these may be cleansed with a saturated potassium permanganate solution. This will remove a superficial layer of skin, and care must be taken to ensure that no undissolved crystals are present. The brown discolouration left by the permanganate can be removed with a 10% solution of sodium metabisulphate. If any other parts of the body are contaminated, the person should report to the Casualty Department at the Northern General Hospital, where a special decontamination room is available for dealing with such instances.

If serious injury, e.g. - cuts and wounds are associated with the contamination, these should be irrigated and first aid measures taken before dealing with the contamination. Body openings, such as eyes, ears, nose and mouth should always be decontaminated first. Decontamination of any 'hot spots' on other parts of the body should be dealt with next. Care should be taken to ensure that washings do not contaminate other areas. If the casualty has to go to hospital for treatment of wounds, only superficial contamination should be removed as a first aid measure, and the injured person should be dealt with fully at the hospital as soon as possible.