

THE TEN GOLDEN RULES WHEN WORKING WITH UNSEALED RADIOACTIVITY

1 Understand the nature of the hazard and get practical training

Never work with unprotected cuts or breaks in the skin, particularly on the hands or forearms. Never use any mouth operated equipment in any area where unsealed radioactive material is used. Always store compounds under the conditions recommended. Label all containers clearly indicating nuclide, compound, specific activity, total activity, date and name of user. Containers should be properly sealed.

2 Plan ahead to minimise time spent handling radioactivity

Carry out a dummy run without radioactivity to check your procedures. The shorter the time the smaller the dose.

3 Distance yourself appropriately from sources of radiation

Doubling the distance from the source quarters the radiation dose (Inverse Square Law).

4 Use appropriate shielding for the radiation

0.6 mm Perspex (Plexiglas) will stop most beta particles, but beware "Bremsstrahlung" from high-energy beta emitters. Use lead acrylic or a suitable thickness of lead for X and gamma emitters (1mm for ^{125}I and several cm for ^{131}I).

5 Contain radioactive materials in defined work areas

Always keep active and inactive work separated as far as possible, preferably maintaining rooms used solely for radioactive work. Always work over a spill tray and work in a ventilated enclosure. These rules may be relaxed for small (a few tens of kBq) quantities of ^3H , ^{35}S , ^{14}C and ^{125}I compounds in a non-volatile form in solution.

6 Wear appropriate protective clothing and dosimeters

Laboratory overalls, safety glasses and surgical gloves must be worn at all times. However, beware of static charge on gloves when handling fine powders. Local rules will define what dosimeters should be worn: for example, body film badge, thermoluminescent extremity dosimeter for work with high-energy beta emitters etc.

7 Monitor the work area frequently for contamination control

In the event of a spill - follow the prepared contingency plan.

- i) verbally warn all people in the vicinity
- ii) restrict unnecessary movement into and through the area
- iii) report the spill to the Radiation Protection Supervisor/Adviser
- iv) treat contaminated personnel first
- iv) follow clean-up protocol.

8 Follow the local rules and safe ways of working

Do not eat, drink, smoke or apply cosmetics in an area where unsealed radioactive substances are handled. Use paper handkerchiefs and dispose of them appropriately. Never pipette radioactive solution by mouth. Always work carefully and tidily.

9 Minimise accumulation of waste and dispose of it by appropriate routes

Use the minimum quantity of radioactivity needed for the investigation. Disposal of all radioactive waste is subject to statutory control. Be aware of the requirements and use only authorised routes of disposal.

10 After completion of work - monitor yourself, wash and monitor again

NEVER FORGET TO DO THIS - report to the local Radiation Protection Supervisor if contamination is found.