



The University of Sheffield

Safety Services



STORAGE OF RADIOISOTOPES

It is essential that radioactive materials should be kept under conditions that present no radiation hazard, particularly to non-radiation workers. A requirement of the Radioactive Substances Act 1993, also demands that all necessary measures be taken to prevent any person having access to radioactive materials without authority, and that when not in use materials should be securely stored in a locked store.

Anti-terrorist requirements in relation to the storage of radioactive materials also require a high level of control and security. Failure to keep radioactive materials securely stored could result in regulatory action.

In some cases it may be necessary to set aside a purpose built store-room for radioactive materials that is suitably shielded, and if necessary suitably ventilated. This should be constructed so as to minimise the risk from fire or flooding and be set aside solely for the purpose of storing radioactive material. Every effort must be made to prevent sources being damaged, broken open or spilled, and steps must be taken to minimise the effect of any accident that may occur.

Suitable shielding, usually lead, should be sufficient to keep the dose rate on the outside of the store below $7.5 \mu\text{Sv h}^{-1}$ and if reasonably practicable, below $2.5 \mu\text{Sv h}^{-1}$.

Under certain circumstances it may be necessary to store materials at reduced temperatures. Such materials may be stored in suitable refrigerators or deep-freeze units which, whenever possible, must be set aside solely for this purpose and be fitted with locks. Materials stored in this fashion must be stored in polythene or other suitable plastic containers and glass vessels must not be used for this purpose. The only exception to this regulation will be those cases where the radioactive material has been supplied by the manufacturers in a glass container. As an additional precaution the vessels themselves should be kept in unbreakable containers.

The number of cupboards, refrigerators, or other approved places of storage must be kept to the minimum consistent with safe working. The siting of a central store, or stores, in positions which involve excessive transportation of material between store and place of use is to be discouraged however, and it is also recognised that under certain circumstances it may be safer practice to leave a source within the laboratory in which it is normally used rather than to return it to the store. The advice of the Departmental Radiation Protection Supervisor or Safety Services can always be sought upon such matters.

Any room, cupboard, refrigerator, or other unit used for the storage of radioactive materials, must be indicated by the International Radiation Symbol and if possible the levels of activity and the nature of the isotope so stored should be made clear.

If a source is set-up in an experiment or out on the bench for an experiment a warning sign should be displayed and the room must be kept locked whenever the experiment is left unattended.
