

IRR99 Requirements

HSE NOTIFICATION LEVEL: for work **10 MBq**
 for inadvertent release or spill **10 GBq**
 for loss or theft **100 MBq**

CONTROLLED AREA needs to be considered if activity exceeds **222 MBq**
 (see below for consideration of supervised area limits)

SUPERVISED AREA will be required if activity exceeds **100 MBq**

Supervised Area Limits

Grade C lab - non-volatile work - up to 888 MBq
 - volatile work in FC - up to 222 MBq

Grade B lab - non-volatile work - up to 8.9 GBq
 - volatile work in FC - up to 2.2 GBq

ANNUAL LIMIT OF INTAKE (ALI) **7.4 MBq**
 (equivalent to dose of 20 mSv)

Special Considerations and Monitoring

As Ca-45 is easily shielded by ordinary glassware and plasticware, and because gloves, clothing and the dead layer of skin will stop most of the betas, it can be argued that the instantaneous dose rates can always be kept below 7.5 μSv^h⁻¹ for the whole body and 75μSv^h⁻¹ for the hands considering the small quantities likely to be used in the University. To guard against contamination when dispensing stock material work should be carried out behind a perspex screen.

With the non-volatile material usually used, up to 888 MBq will be permitted in a supervised area provided the work is carried out behind a screen. This level equates to a dose constraint of 0.2mSv for the internal hazard in a Grade C lab (NRPB model M443*).

All areas where radioactive work takes place, including non-designated areas, must be registered with Safety Services. Irrespective of the amounts being handled, precautions must be taken, as there is the responsibility to keep doses as low as reasonably practicable. In order to meet this requirement, strict adherence to the laboratory rules is essential, and monitoring for contamination should be performed on a regular basis to ensure that contamination is being kept below 70 Bq cm⁻². Expected monitor responses at this level are as follows:-

Approx	Old Mini E	New E	EL	EP15
Counts above bg				
(70Bq cm ⁻²)	33	56	123	101

* NRPB-M443 Categorisation and designation of working areas in which unsealed radioactive materials are used. AP Hudson and J Shaw