

Carbon -14 (^{14}C) Handling Procedures

Physical Data:

Beta (β) energy	156 keV (max) 49 keV (average)
Physical Half-Life ($T_{1/2}$)	5730 years
Biological Half-Life ($T_{1/2}$)	12 days
Effective Half-Life ($T_{1/2}$)	12 days
Maximum β range in air	24 cm.
Maximum β range in tissue/water	0.28 mm.
Maximum β range in plexiglass	0.25 mm

Radiological Data:

Radiotoxicity	Moderate
Exemption Quantity (EQ)	1×10^6 Bq
ALI	34 MBq/yr
Critical Organ	Fatty tissue
Routes of entry	Ingestion, inhalation, absorption
External exposure	Dose to basal cells from contamination = 14 mSv/hr/: ci/cm^2
Internal exposure	Primary concern

Decay Table:

Because of the 5730 year half-life a decay table has not been provided.

Survey Instrumentation:

GM survey meter (pancake probe)	3.75 % @ 1 cm. 2.25 % (probe protected with saran wrap) 0.06 % (probe protected with parafilm)
Liquid Scintillation Counter	

Required PPE:

Lab coat

Disposable latex or plastic gloves (double gloving is recommended)

^{14}C Handling Procedures:

1. Designate an area for handling ^{14}C and clearly label.
2. Prohibit eating, drinking and mouth pipetting.
3. Use transfer pipettes, spill trays, and absorbent coverings to confine contamination.
4. Promptly return stock solutions to storage areas.
5. Maintain contamination control by regularly monitoring and promptly cleaning contaminated areas.
6. Isolate waste in clearly labelled containers and arrange for disposal with the RSO.
7. Maintain cleanliness and good housekeeping in the work area.