



Environmental Health and Safety
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Thorium (Th-230)

Half Life: 75,380 years

Radiation: Alpha decay – decay product is Radium 226 (gamma rays)

Shielding: Thin paper

Dosimetry: Body and ring badges

Detection/Measurement: GM probe (pancake) and wipe tests

General Precautions:

Maintain your occupational exposure to radiation As Low As Reasonably Achievable [ALARA]

All persons handling radioactive material must be properly trained by EHS prior to handling and are listed as a rad worker by EHS department

Plan experiments accordingly to minimize external exposure by reducing exposure time, using shielding and increasing your distance from the radiation source

Monitor yourself and the work area during and after each use of radioactive material

Use the smallest amount of radioisotope possible to minimize radiation dose and radioactive waste

Keep an accurate inventory of all radioactive material including records of all receipts, transfers and disposal – contact EHS for any disposal needs including liquid waste

Perform and record lab surveys as needed (monthly and post experiment)

Avoid generating mixed waste (combinations of radioactive, biological and chemical waste)

Special Precautions:

Use tools to indirectly handle unshielded sources and potentially contaminated containers - no direct hand contact

Ensure that an appropriate, operational survey meter is present in the work area and turned on whenever Th-230 is handled to immediately detect contamination

Shield waste containers as needed to maintain accessible dose rate ALARA

Safe Lab Practices:

Disposable gloves, lab coats, and safety glasses are the minimum PPE required when handling radioactive material

Remove and discard potentially contaminated PPE prior to leaving the lab area where radioactive material is used

Cover all lab bench tops where radioactive material is handled with plastic-backed absorbent paper – change as needed

Handle radioactive solutions in trays large enough to contain the material in the event of a spill

Never eat, drink, smoke, handle contact lenses, apply cosmetics