



Environmental Health and Safety
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Iron (Fe-59)

Half Life: 44.5 days

Radiation: Beta and gamma rays

Shielding: Thin glass or 0.2 cm plexiglass for beta. 6 cm lead for gamma. Bremsstrahlung may be created and require additional shielding

Dosimetry: Body and ring badges. Urine assays may be required after spills or contamination incidents.

Detection/Measurement: GM with pancake probe. 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:

Store Fe-59 behind 6 cm lead shielding when working with. 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 Fe-59 is handled to immediately detect contamination

Shield waste containers as needed to maintain accessible dose rate ALARA