



Environmental Health and Safety
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Plutonium (Pu-239)

Half Life: 24,110 years

Radiation: Alpha

Shielding: Alpha emitters can be very biologically effective internally but are hardly able to pass through a few centimeters of air outside the body.

Dosimetry: Body and ring badges

Detection/Measurement: GM tube with thin window. Wipe tests required.

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:

The main threat to humans comes from inhalation. While it is very difficult to create airborne dispersion of a heavy metal like plutonium, certain forms, including the insoluble plutonium

Fume hoods and biological safety cabinets for use with non-airborne radioactive material must work properly and be inspected annually by the EHS department

Do not take any radioactive material off site or use in any ways not approved by the Radiation Safety Officer