

Environmental Health and Safety
2220 Circle Drive
Cleveland, Ohio 44106
P: (216) 368-2906
F: (216) 368-2236
cwruehs@case.edu

Uranium (U-238)

Half Life: 4.5 billion years

Radiation: Alpha, Beta and Gamma Rays

Shielding: 3.5 cm lead for gamma, 9 mm of plastic will absorb all emissions. Bremsstrahlung may be created and require additional shielding

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 [A1(Lo)-5(w)3(As)5()] 792 reWB/F2 14.04 T

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

Special Precautions:

Shielding is typically not required for depleted uranium.

Depleted uranium is often used as shielding material for other radionuclides and sources of radiation. Natural uranium sources greater than 5 mCi (7 kg) should be stored in a lead container or contained within lead bricks

In general, uranium compounds are considered more chemically toxic as a heavy metal than as radiotoxic. Care should be taken to prevent ingestion through good hygiene and use of fume hoods or glove boxes.

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 U-238 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

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