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## **Titanium (Ti-44)**

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**Half Life: 60 years**

**Radiation: Electron Capture**

**Shielding: 3 cm lead for gamma emission**

**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:**

**Store Ti-44 behind adequate lead (Pb) shielding (minimum 3cm lead)**

**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 Ti-44 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, or take medicine in the lab - keep food, drinks, and cosmetics out of the lab entirely**

**Never pipette by mouth**

**Never store food and beverages in refrigerators/freezers used for storing radioisotopes – ensure that isotopes are secured at all times**

**Avoid any skin contact with skin-absorbable solvents containing radioactive materials**

**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**