



# RADIONUCLIDE DATA SHEET

## Silicon



**Si-32** 14 protons 18 neutrons

**Radiation:** Decay mode: Beta

**Major Beta:**

E (MeV)	Avg. E(MeV)	# per 100 dis
0.225	69	100

Max. Beta Range in air 38.78cm or 1.27 ft  
 Max. Beta Range in water 0.05 cm  
 Avg. gamma E = N/A MeV

**Half – life:** 172 years  
**Gamma constant:** N/A mR/hr per mCi at 30 cm

**Radiological data:** **Min. Ingestion ALI:** 3000 $\mu$ Ci equals 5rem TEDE (Whole Body)  
 2000 $\mu$ Ci equals 50rem CEDE (LLI wall)  
**Min. Inhalation ALI:** 100 $\mu$ Ci equals 5rem TEDE (Whole Body)

**Doses:**  
**Skin Dose:** Reported for 1  $\mu$ Ci over 10 cm<sup>2</sup> of skin  
 0 mrad/hr (gamma dose)  
**Point Source:** 239 mrad/hr (beta dose)  
**Disk Source:** 238 mrad/hr (beta dose)

**Shielding data:** **Max. range for beta:** Plastic = 0.04 cm  
 Aluminum = 0.02 cm  
**Tenth Value Thickness for average gamma:** Concrete = cm  
 Lead = cm

**Detection Information:** Usable Detectors listed with estimated efficiencies  
 (Use efficiencies listed on instrument when available)  
**Ludlum 3 with pancake probe at 1 cm:** % **Liq. Scint. Counter:** %  
**Ludlum 3 with NaI probe near surface:** % **Gamma Counter:** %

**Action Quantities:**  
 Bench top quantity must be less than 1000  $\mu$ Ci  
 Containers require labeling when greater than 1  $\mu$ Ci  
 Rooms require posting when there is greater than 10  $\mu$ Ci  
 Contamination lasting more than 24 hrs require NRC notification when greater than 500  $\mu$ Ci