# RADIONUCLIDE DATA SHEET
# Strontium – 90

**Sr – 90** 38 protons 52 neutrons

***Radiation:*** **Decay mode:** Beta

**Major Betas:**

| Max E (MeV) | Avg E (MeV) | # per 100 dis |
|---|---|---|
| 0.546 | 0.196 | 100 |
| 2.284 | 0.935 | 100 (Y-90) |
| | | |

Max. Beta Range in air 1062 cm or 34.84 ft
Max. Beta Range in water 1.1 cm

**Major Gammas:**

| E (MeV) | # per 100 dis |
|---|---|
| | |
| None | |
| | |

**Avg. gamma E** = 0 MeV

***Half – life:*** 29.1 years or 1.06E+04 days

***Gamma constant:*** 0 mR/hr per 1 mCi at 30 cm

***Radiological data:***

**Min. Ingestion ALI:** 30 μCi equals 50 rem CEDE (Bone Surface)
40 μCi equals 5 rem TEDE (Whole Body)
**Min. Inhalation ALI:** 4 μCi equals 5 rem TEDE (Whole Body)

***Doses:***

**Skin Dose:** Reported for 1 μCi over 10 $cm^2$ of skin
0 mrad/hr (gamma dose)
**Point Source:** 547 mrad/hr (beta dose)
**Disk Source:** 548 mrad/hr (beta dose)

***Shielding data:***

| | | | |
|---|---|---|---|
| **Max. range for beta:** | Plastic | = | 1.1 cm |
| | Aluminum | = | 0.52 cm |
| **Tenth Value Thickness for average gamma:** | Concrete | = | 0 cm |
| | Lead | = | 0cm |

***Detection Information:*** Usable Detectors listed with estimated efficiencies
(Use efficiencies listed on instrument when available)

| | | | |
|---|---|---|---|
| **Ludlum 3 with pancake probe at 1 cm:** | 13 % | **Liq. Scint. Counter:** | 90 % |
| **Ludlum 3 with NaI probe near surface:** | <1 % | **Gamma Counter:** | 5 % |

***Action Quantities:***

| | |
|---|---|
| **Bench top quantity must be less than** | 40 μCi |
| **Containers require labeling when greater than** | 0.1 μCi |
| **Rooms require posting when there is greater than** | 1 μCi |
| **Contamination lasting more than 24 hrs require NRC notification when greater than** | 20 μCi |

Updated – 08/02/2005