



RADIONUCLIDE DATA SHEET

Fluorine – 18



F – 18 9 protons 9 neutrons

Radiation: **Decay mode:** Electron Capture

Major Positrons:

Max E (MeV)	Avg E (MeV)	# per 100 dis
0.633	0.250	97

Max. Positron Range in air 178 cm or 5.67 ft

Max. Positron Range in water 0.02 cm

Major Gammas:

E (MeV)	# per 100 dis
0.511	194

Avg. gamma E = 0.511 Mev

Half – life: 109.74 minutes or 1.83 hours

Gamma constant: 7.72 mR/hr per 1 mCi at 30 cm

Radiological data:

Min. Ingestion ALI: 50000 μ Ci equals 5 rem TEDE (Whole Body)

Min. Inhalation ALI: 70000 μ Ci equals 5 rem TEDE (Whole Body)

Doses:

Skin Dose: Reported for 1 μ Ci over 10 cm² of skin
177 mrad/hr (gamma dose)

Point Source: 5,400 mrad/hr (positron dose)

Disk Source: 5,400 mrad/hr (positron dose)

Shielding data:

Max. range for positrons: Plastic = 0.17 cm

Aluminum = 0.1 cm

Tenth Value Thickness for Concrete = 11.5 cm

average gamma: Lead = 1.37 cm

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

Ludlum 3 with pancake probe at 1 cm: 9 % **Liq. Scint. Counter:** 85 %

Ludlum 3 with NaI probe near surface: 1 % **Gamma Counter:** 25 %

Action Quantities:

Bench top quantity must be less than 500000 μ Ci

Containers require labeling when greater than 1000 μ Ci

Rooms require posting when there is greater than 10000 μ Ci

Contamination lasting more than 24 hrs require NRC notification when greater than 250000 μ Ci