



RADIONUCLIDE DATA SHEET

Potassium – 42



K – 42 19 protons 23 neutrons

Radiation: Decay mode: Beta

Major Betas:

Max E (MeV)	Avg E (MeV)	# per 100 dis
1.684	0.701	0.3
1.996	0.822	18
3.521	1.564	82

Max. Beta Range in air 1505 cm or 49.4 ft
 Max. Beta Range in water 1.8 cm

Major Gammas:

E (MeV)	# per 100 dis
0.313	0.3
1.525	18

Avg. gamma E = 1.500 MeV

Half – life: 12.36 hours or 0.515 days

Gamma constant: 1.59 mR/hr per 1 mCi at 30 cm

Radiological data:

Min. Ingestion ALI: 5000 μ Ci equals 5 rem TEDE (Whole Body)
Min. Inhalation ALI: 5000 μ Ci equals 5 rem TEDE (Whole Body)

Doses:

Skin Dose: Reported for 1 μ Ci over 10 cm² of skin
 4.35 mrad/hr (gamma dose)
Point Source: 738 mrad/hr (beta dose)
Disk Source: 736 mrad/hr (beta dose)

Shielding data:

Max. range for beta:	Plastic	=	1.8 cm
	Aluminum	=	0.82 cm
Tenth Value Thickness for average gamma:	Concrete	=	19 cm
	Lead	=	3.9 cm

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

Ludlum 3 with pancake probe at 1 cm:	16 %	Liq. Scint. Counter:	85 %
Ludlum 3 with NaI probe near surface:	1 %	Gamma Counter:	7 %

Action Quantities:

Bench top quantity must be less than	50000 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	25000 μ Ci