

RADIONUCLIDE DATA SHEET

[MAGNESIUM]

Mg-28

12 protons

16 neutrons

Half Life: 21.0 hours

Radiation: Decay Mode: Beta

Gamma Constant: 0.338E-4 mR/hr per 1 mCi at 30 cm

Major Beta:

Max E(MeV)	Avg E (MeV)	# per 100 dis
0.212	0.056	5
0.459	0.156	95
0.860	0.319	0.2

Max. Beta Range in Air : 340 cm

Max. Beta Range in Water : 0.36 cm

Major Gammas:

E(MeV)	# per 100 Dis
0.031	66
0.941	38
1.342	53

Average gamma E = 0.676 MeV

Intake Data (annual):

Minimum Ingestion: 700 μ Ci equals 5 rem TEDE (WHOLE BODY)

Minimum Inhalation: 1000 μ Ci equals 5 rem TEDE (WHOLE BODY)

Doses:

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

Point Source: 508 mrad/hr (beta dose)

Disk Source: 511 mrad/hr (beta dose)

Shielding Information:

Maximum Range For Beta	Plastic	0.36 cm
	Aluminum	0.17 cm
Tenth Value Thickness For Average Gamma:	Concrete	13 cm
	Lead	1.8 cm

Detection information: Usable Detectors listed with estimate efficiencies

Ludlum 3 w/ pancake probe at 1 cm	9%	Liq. Scint. Counter	85%
Ludlum 3 w/ NaI probe near surface	5%	Gamma Counter	70%

Action Quantities:

Bench Top Quantity Must Be Less Than	7000 μ Ci
Containers Require Labeling When Greater Than	100 μ Ci
Rooms Require Posting When There Is Greater Than	1000 μ Ci
Contamination Lasting More than 24 hrs Require NRC Notification At	3500 μ Ci