



RADIONUCLIDE DATA SHEET

Magnesium – 28



Mg – 28 12 protons 16 neutrons

Radiation: **Decay mode:** Beta

Major Betas:

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 or 11.15 ft
 Max. Beta Range in water 0.36 cm

Major Gammas:

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

Avg. gamma E = 0.676 MeV

Half – life: 21.0 hours or 0.9 days

Gamma constant: 9.76 mR/hr per 1 mCi at 30 cm

Radiological data:

- Min. Ingestion ALI:** 700 μ Ci equals 5 rem TEDE (Whole Body)
Min. Inhalation ALI: 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 data:

- | | | | |
|-------------------------------------------------|----------|---|---------|
| Max. 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 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:	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 when greater than | 3500 μ Ci |