

# RADIONUCLIDE DATA SHEET

[MAGNESIUM]

Mg-28

12protons

16neutrons

**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 µCi equals 5 rem TEDE (WHOLE BODY)

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

## **Doses:**

**Skin Dose:** Reported for 1 µCi over 10 cm<sup>2</sup> 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 µCi
Containers Require Labeling When Greater Than	100 µCi
Rooms Require Posting When There Is Greater Than	1000 µCi
Contamination Lasting More than 24 hrs Require NRC Notification At	3500 µCi