

# RADIONUCLIDE DATA SHEET

[**CERIUM**]

Ce-144

58 protons

86 neutrons

**Half Life:** 284.893 days

**Radiation:** Decay Mode: Beta

**Gamma Constant:** 0.444mR/hr per 1 mCi at 30 cm

**Major Betas:**

Max E(MeV)	Avg E (MeV)	# per 100 dis
0.318	0.091	76.5
0.238	0.066	3.9
0.185	0.05	19.6

Max. Beta Range in Air : 65.99 cm

Max. Beta Range in Water : 0.09 cm

**Major Gammas:**

E(MeV)	# per 100 Dis
0.041	0.257
0.08	1.364
0.134	11.09

Average gamma E = 0.130 MeV

**Intake Data (annual):**

Minimum Ingestion: 300  $\mu$ Ci equals 5 rem TEDE (WHOLE BODY)

200  $\mu$ Ci equals 50 rem CEDE (LLI wall)

Minimum Inhalation: 10  $\mu$ Ci equals 5 rem TEDE (WHOLE BODY)

**Doses:**

**Skin Dose:** Reported for 1  $\mu$ Ci over 10 cm<sup>2</sup> of skin

2.05 mrad/hr (gamma dose)

Point Source: 335 mrad/hr (beta dose)

Disk Source: 335 mrad/hr (beta dose)

**Shielding Information:**

Maximum Range For Beta	Plastic	0.07 cm
	Aluminum	0.05 cm
Tenth Value Thickness For Average Gamma:	Concrete	0 cm
	Lead	0 cm

**Detection information:** Usable Detectors listed with estimate efficiencies

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

**Action Quantities:**

Bench Top Quantity Must Be Less Than	100 $\mu$ Ci
Containers Require Labeling When Greater Than	1 $\mu$ Ci
Rooms Require Posting When There Is Greater Than	10 $\mu$ Ci
Contamination Lasting More than 24 hrs Require NRC Notification At	50 $\mu$ Ci