Radiation:

Decay mode: Beta

Major Betas:

<table>
<thead>
<tr>
<th>Max E (MeV)</th>
<th>Avg E (MeV)</th>
<th># per 100 dis</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.710</td>
<td>0.251</td>
<td>100</td>
</tr>
</tbody>
</table>

Max. Beta Range in air: 270 cm or 8.86 ft
Max. Beta Range in water: 0.28 cm

Major Gammas:

<table>
<thead>
<tr>
<th>E (MeV)</th>
<th># per 100 dis</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

Avg. gamma E = N/A

Half – life: 301,000 years or 1.1E+08 days

Gamma constant: 0 mR/hr per 1 mCi at 30 cm

Radiological data:

Min. Ingestion ALI: 2000 µCi equals 5 rem TEDE (Whole Body)
Min. Inhalation ALI: 2000 µCi equals 5 rem TEDE (Whole Body)

Doses:

Skin Dose: Reported for 1 µCi over 10 cm² of skin
0 mrad/hr (gamma dose)

Point Source: 529 mrad/hr (beta dose)
Disk Source: 529 mrad/hr (beta dose)

Shielding data:

Max. range for beta: Plastic = 0.28 cm
Aluminum = 0.13 cm
Concrete = 0 cm

Tenth Value Thickness for average gamma: Lead = 0 cm

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

Ludlum 3 with pancake probe at 1 cm: 20 %
Liq. Scint. Counter: 85 %
Ludlum 3 with NaI probe near surface: 1 %
Gamma Counter: 1 %

Action Quantities:

Bench top quantity must be less than 20000 µCi
Containers require labeling when greater than 10 µCi
Rooms require posting when there is greater than 100 µCi
Contamination lasting more than 24 hrs require NRC notification when greater than 10000 µCi

Updated – 08/02/2005