Radiation:

Decay mode: Beta

<table>
<thead>
<tr>
<th>Major Betas</th>
<th>Major Gammas</th>
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</thead>
<tbody>
<tr>
<td>Max E (MeV)</td>
<td>Avg E (MeV)</td>
</tr>
<tr>
<td>0.318</td>
<td>0.096</td>
</tr>
<tr>
<td>1.333</td>
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</tbody>
</table>

Max. Beta Range in air 74 cm or 2.43 ft
Max. Beta Range in water 0.1 cm

Avg. gamma E = 1.25 MeV

Half – life: 5.27 years or 1.92E+03 days

Gamma constant: 15.2 mR/hr per 1 mCi at 30 cm

Radiological data:

Min. Ingestion ALI: 200 µCi equals 5 rem TEDE (Whole Body)
Min. Inhalation ALI: 30 µCi equals 5 rem TEDE (Whole Body)

Doses:

Skin Dose: Reported for 1 µCi over 10 cm² of skin
41.7 mrad/hr (gamma dose)
Point Source: 377 mrad/hr (beta dose)
Disk Source: 380 mrad/hr (beta dose)

Shielding data:

Max. range for beta:
Plastic = 0.1 cm
Aluminum = 0.04 cm
Concrete = 17 cm
Lead = 3.3 cm

Tenth Value Thickness for average gamma:

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: 1 % Gamma Counter: 15 %

Action Quantities:

Bench top quantity must be less than 300 µCi
Containers require labeling when greater than 1 µCi
Rooms require posting when there is greater than 10 µCi
Contamination lasting more than 24 hrs require NRC notification when greater than 150 µCi

Updated – 08/02/2005