**Ca-45** = 20 protons = 25 neutrons

**Half Life:** 162.7 days  
**Radiation:** Decay Mode: Beta  
**Gamma Constant:** 0 mR/hr per 1 mCi at 30 cm

### 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>0.257</td>
<td>0.077</td>
<td>100</td>
</tr>
</tbody>
</table>

Max. Beta Range in Air : 63 cm  
Max. Beta Range in Water : 0.07 cm  
Average gamma E = 0 MeV

### Intake Data (annual):

- Minimum Ingestion: 2000 µCi equals 5 rem TEDE (WHOLE BODY)  
- Minimum Inhalation: 800 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:** 312 mrad/hr (beta dose)  
- **Disk Source:** 314 mrad/hr (beta dose)

### Shielding Information:

| Maximum Range For Beta | Plastic | 0.07 cm | | Aluminum | 0.03 cm | | Concrete | 0 cm | | Lead | 0 cm |

| Tenth Value Thickness For Average Gamma: | Plastic | 0.07 cm | | Aluminum | 0.03 cm | | Concrete | 0 cm | | Lead | 0 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: 0%  
  - Gamma Counter: 0%

### Action Quantities:

- Bench Top Quantity Must Be Less Than: 8000 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: 4000 µCi