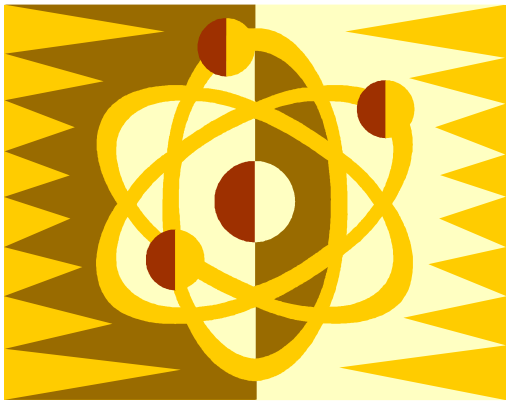
Iodine 125



Characteristics

- Radioactive Half Life : 59.6 days
- Decay mechanism: Electron capture (Gamma & X-ray emission)
- Energy: 27 – 35 keV
- Contamination Monitoring:
  - Thin crystal NaI detector, liquid scintillation counter for wipe surveys.
- Shielding: Thin lead
- Dosimetry: Film badge, TLD ring, thyroid scan

Decay Table

Days	0	1	2	3	4	5	6
0	1000	988	977	966	955	944	933
7	922	911	901	890	880	870	860
14	850	840	830	821	811	802	792
21	783	774	765	756	748	739	731
28	722	714	705	697	689	681	673
35	666	658	650	643	635	628	621
42	614	606	599	593	586	579	572
49	566	559	553	546	540	534	527
56	521	515	509	504	498	492	486

Dose Rate

- The contact dose rate with 1mCi point source is about 1.5 Rem/hr.
- If possible, avoid direct hand contact with vials and sources.
- Use lead to shield quantities of 1 mCi or more.
  - 1 mm of lead will essentially block all the radiation emitted from I-125

Volatility

- Requires special handling techniques to minimize radiation doses.
  - Do not acidify or freeze iodide solutions to prevent formation of elemental iodine.
  - Once bound to a protein, the volatility is greatly reduced.
- Always work in a fume hood
  - With a minimum face velocity of at least 125 fpm
  - Sash open to below breathing zone.
- Avoid opening septum on delivery vials.
  - Remove radioiodine using hypodermic needle and syringe

Detection

- A low energy scintillation detector is preferred (i.e. thin crystal NaI detector) should always be available.
- A wipe survey using liquid scintillation counter should be performed after each use.

Dosimetry

- Film badge should be worn for all radioiodine work.
- Finger rings required when handling 1 mCi or more of I-125.

Waste

- Handle and store your radioactive waste carefully.
- The bottles for liquid waste should be placed in secondary containment to contain spills or leaks.
- Store radioiodine waste in a fume hood.