Radiation Safety Series

3H

Radionuclide Safety Reference Sheet Tritium, 3 Hydrogen





β

Beta Energy: 5.7 keV average

(18.6 keV max)

Range in air: 0.25 inches

Range in lucite: insignificant

Shielding: none required



Critical Organ: body water or tissue

Exposure Routes: inhalation, ingestion,

skin absorptionion

Dosimetry: none required

Bioassay:1 Urine



Detection & Measurement

GM Pancake: no response

Liquid Scintillation Counting—smear test required



Half Life Physical: 12.3 years Biological: 10-12 days Effective: 10-12 days

Special Precautions:

- ▲ Analyze surface and hand smears by LCS for removable contamination;
- ▲Portable survey meters cannot detect laboratory quantities of tritium;
- ▲Tritium compounds may penetrate gloves and skin—handle these materials remotely (ie tongs);
- ▲Use double gloves and change the external pair often;
- ▲Tritium spreads easily and is difficult to detect--report all spills to the RSO.

Personal Protective Equipment





Disposal: Segregate from <90 day T $_{1/2}$ waste. Do not comingle with 'decay in storage' wastes.