RADIONUCLIDE SAFETY DATA SHEET

NUCLIDE: Cs-137 **FORMS: ALL SOLUBLE**

PHYSICAL CHARACTERISTICS:

HALF-LIFE: 30.17 years

TYPE DECAY: Beta/Gamma
Maximum betas energy 0.512MeV
1.176 MeV (7 %)
gamma: 0.662 MeV (85 %)

Hazard category: C- level (low hazard) 10 uCi to 2000 uCi
B - level (Moderate hazard) : > 2001- 100,000 uCi
A - level (High hazard) : > 100,000 uCi

EXTERNAL RADIATION HAZARDS AND SHIELDING:

The maximum range of the beta ~490 cm in air, and 0.53 cm in lucite.
The gamma exposure rate at 1 cm from 1 mCi is 3400 mR/hr. The exposure rate varies directly with activity and inversely as the square of the distance. The tenth value layer of lead is 2.1 cm.

HAZARDS IF INTERNALLY DEPOSITED:

Cs137 has a biological half-life of 70 days, and an effective half- life of 70 days
The Minium Ingestion ALI: 100uCi equals 5 rem TEDE (Whole Body)
The Minium Inhalation ALI: 200 uCi equals 5 rem TEDE (Whole Body
The Critical Organ is the whole body.

DOSIMETRY AND BIOASSAY REQUIREMENTS:

Film badges and dosimeter rings are required if 5 millicuries are handled at any one time or millicurie levels are handled on a frequent (daily) basis.

Urine assays may be required after spills or contamination incidents.

SPECIAL PROBLEMS AND PRECAUTIONS:

1. Work behind shielding consisting of lucite (inner) and lead (out). Handle stock solution vials in shields or use tongs or forceps. Change gloves often.

2. Segregate wastes to those with half-lives greater than 90 days (but not with H3 and/or C14).

3. Limit of soluble waste to sewer 10 microcuries/ day per lab.

9/03