RADIONUCLIDE SAFETY DATA SHEET

NUCLIDE: Mo-99 **FORMS: SOLUBLE**

PHYSICAL CHARACTERISTICS:

HALF-LIFE: 66.02 hours TYPE DECAY: beta $^-$
(11.4 % feeding to Tc-99 [2.13 E5 yr.] 88.6 % feeding to Tc-99m [6.02 hrs.]

gamma: 0.778 MeV (4.5 %)
0.740 MeV (12.8 %)
0.181 MeV (6.2 %)
beta: 1.214 MeV maximum and daughter radiations from Tc-99m

Hazard category: C- level (low hazard) : 100 uCi to 10 mCi
B - level (Moderate hazard) : > 10 mCi to 1 Ci
A - level (High hazard) : >1 Ci

EXTERNAL RADIATION HAZARDS AND SHIELDING:

The gamma exposure rate at 1 cm from 1 mCi is 1.03 R/hr (1.80 R/hr including radiations from Tc-99m). The exposure rate varies directly with activity and inversely as the square of the distance. The tenth value of lead for the gamma radiation is 2.55 cm. The range of the 1.214 MeV beta is 0.15 inch in lucite and 0.08 inch in glass.

HAZARDS IF INTERNALLY DEPOSITED:

Mo-00 concentrates in liver, mineral bone and kidney. The annual limit on oral intake (ALI) of Mo-99 is 162 uCi.

DOSIMETRY AND BIOASSAY REQUIREMENTS:

Film badges and dosimeter rings are required.

SPECIAL PROBLEMS AND PRECAUTIONS:

1. The generator should be stored behind lead brick shielding.
2. Generators should be returned to manufacturer for disposal.

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