

## RADIONUCLIDE SAFETY DATA SHEET

**NUCLIDE: Hg203**

**FORMS: ALL SOLUBLE**

### PHYSICAL CHARACTERISTICS:

HALF-LIFE: 47 days

TYPE DECAY: e<sup>-</sup>  
gamma: 0.279 MeV (77.3%)  
x-ray: 0.083 MeV (3.6%)  
0.073 MeV (8.0%)  
0.071 MeV (4.8%)  
0.010 MeV (7.2 %)  
beta: 0.212 MeV maximum

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

### EXTERNAL RADIATION HAZARDS AND SHIELDING:

The gamma exposure rate at 1 cm from 1 mCi is 1300 mR/hr. The exposure rate varies directly with activity and inversely as the square of the distance. The half value of lead for this energy of radiation is 1.5 mm. The beta absorbed dose rate at 1 cm from 1 mCi is 382 R/hr. The range of the 0.212 MeV beta is 0.039 cm in lucite and 0.018 cm in glass.

### HAZARDS IF INTERNALLY DEPOSITED:

The annual limit on oral intake (ALI) of Hg203 corresponding to a whole-body guideline gamma exposure rate of 500 mrem/year is 243 uCi. The critical organ is the kidneys.

### DOSIMETRY AND BIOASSAY REQUIREMENTS:

Film badges and dosimeter rings are required if 5 millicuries are handled at any one time or 1 millicurie levels are handled on a frequent (daily) basis.

### SPECIAL PROBLEMS AND PRECAUTIONS:

1. When 1 millicurie is used, work behind lucite and lead shielding. Survey frequently. Handle stock solution vials in shields or use tongs or forceps. Change gloves often.
2. Segregate wastes to those with half-lives greater than 19days, but less than 65 days.
3. Dilute aqueous wastes may be disposed to the sewer system in amounts of up to 10 uCi daily per lab.