

RADIONUCLIDE SAFETY DATA SHEET

NUCLIDE: Ca45

FORMS: ALL SOLUBLE

PHYSICAL CHARACTERISTICS:

HALF-LIFE: 163 days

TYPE DECAY: beta⁻
maximum energy 0.257 MeV

Hazard category: C- level (low hazard) : 0.01 to 1 millicurie
B - level (Moderate hazard) : > 1 mCi to 100 mCi
A - level (High hazard) : > greater than 100 mCi

EXTERNAL RADIATION HAZARDS AND SHIELDING:

Millicurie quantities of Ca45 do not present a significant external radiation hazard because the low energy betas emitted barely penetrate rubber gloves and the outer skin layer.

The dose rate to the basal cells of the skin from the deposition of one microcurie per cm² is 3200 mrad per hours.

Maximum ranges of these betas are 20 inches in air, about 0.02 inches in plastic and
only 0.009 inches in glass.

HAZARDS IF INTERNALLY DEPOSITED:

The Annual Limit of Intake which would deliver an effective dose equivalent of 500
mrems to the whole body is 160 uCi. (Based on ICRP)

DOSIMETRY AND BIOASSAY REQUIREMENTS:

Film badges and/or dosimeter rings are not required because of the low energy betas emitted. When handling quantities of 5 millicuries or more finger rings could be used during initial use so as to establish any significant dose to the fingers.

Urine assays may be required after spills or contamination incidents.

SPECIAL PROBLEMS AND PRECAUTIONS:

1. Routinely survey work area using a survey instrument and smear techniques. 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 is 10 microcuries/ day per lab.