



### TLD BADGE TECHNICAL INFORMATION

The Troxler TLD badge provides estimates of dose received at the three tissue depths (7 mg/cm<sup>2</sup>, 300 mg/cm<sup>2</sup>, and 1000 mg/cm<sup>2</sup>) which correspond to shallow, lens of eye, and deep dose equivalent. The badge is suitable for monitoring personnel in medical, industrial, and other nuclear applications. The minimum reportable dose is 10 millirem for gamma radiation and x-rays. This is the smallest dose that can be measured reliably and accurately.

The TLD badge is capable of measuring beta, gamma, x-ray, or neutron radiation over a wide range of energies. The normal energy ranges for various types of radiation are shown in the table below. For monitoring needs which fall outside the normal ranges, please contact Troxler Radiation Monitoring Services for advice.

Radiation Type	Energy Ranges
Gamma ray & X-ray	Photon calibration is based on Cs-137. The badge may be used to monitor photon radiation over the energy range from 30 keV to 1.25 MeV. At higher energies, special calibration factors may be needed for more accurate results.
Beta	Beta calibration is based on Tl-204 and Sr-90/Y-90. The badge may be used to monitor beta radiation over the energy range from 0.267 to 0.565 MeV.
Neutron	Accurate neutron dose assessment requires use of source-specific calibration factors. The standard calibration factor is based on fast neutrons from Am-Be source. Calibration factor for moderated Cf-252 may be used if requested by customer.

Troxler Radiation Monitoring Service is accredited under the National Voluntary Accreditation Program (NVLAP) in all ANSI N13.11 - 2001 test categories shown in the table below.

### ANSI N13.11- 2001 Test Categories

Test Category	Test Range
IA Accidents, photons	10 – 500 rad
IIA Photons, general	0.03 – 10 rem
IIIA Betas, general	0.15 – 10 rem
IVA Photon Mixtures	0.06 – 10 rem
VAA Beta/Photon Mixtures (Category IIA + Category IIIA)	0.20 – 10 rem
VICB Neutron/Photon Mixtures (Cf-252 + Category IIA photons)	0.15 – 5 rem