

RADIATION MONITORING EQUIPMENT

Table 5. Dosimeters

Dosimeters	
Instrument	Capability and Limitations
Self-Reading Ionization Chamber Dosimeter	<p>Reusable device for measuring exposure to X rays and gamma radiation.</p> <p>May provide false positive readings due to charge leakage and sensitivity to mechanical shock.</p>
Non-Self- Reading Ionization Chamber Dosimeter	<p>Reusable device for measuring exposure to X rays and gamma radiation.</p> <p>May provide false positive readings due to charge leakage and sensitivity to mechanical shock. Requires separate reading device.</p>
Film Badge	<p>Provides measurement and permanent record of beta and gamma doses over a wide dosage range. Special neutron films are available. 10 percent dose accuracy depending on quality control (QC) during development.</p> <p>Sensitive to light, humidity, aging, and exposure to X rays. Delay between exposure and dose reading due to processing time.</p>
Thermo-Luminescent Dosimeter (TLD)	<p>Measures gamma radiation dose equivalents up to 10,000 rem. Accurate to within a factor of two when the energy of the neutrons is unknown.</p> <p>After long periods of exposure, damaged or bent cards delay processing, static electric discharge causes spurious readings, and temperatures greater than 115°F reduce sensitivity. Delay between exposure and dose reading due to central processing of TLDs.</p>
Electronic Personal Dosimeter	<p>Detects and measures gamma, beta, and X-ray radiation. Most have an audible alarm as well as a digital readout.</p> <p>There are many models available on the market. Specifications vary from system to system.</p>