LANDAUER®

Saturn™ TLD Ring

An innovative extremity dosimeter designed to maximize hygiene and comfort

- Flexible fit for unequalled comfort
- Precise reading - minimum reportable dose of 10 mrem
- A hygienic ring
- 2D Barcode for easy scanning into myLDR.com

LANDAUER's ring dosimetry service provides comprehensive extremity radiation monitoring for workers required to manually manipulate or work in close proximity to radioactive materials and radiation producing equipment. The Saturn™ Thermoluminescent Dosimetry (TLD) Ring is an extremity dosimeter recently introduced as an improved alternative to the original LANDAUER standard TLD ring dosimeter.

The Saturn Ring measures exposure due to x, beta, and gamma radiation with thermoluminescent technology. The TLD is the highest efficiency dosimeter made with natural lithium fluoride.

Advanced Design

With this design, the TLD is safely encapsulated underneath the ring cap which is ultrasonically welded to the ring base. Under even the most rigorous working conditions, it's difficult to remove the ring cap from the ring base, so the chain of custody between the chip and the wearer is always maintained. The cap and TLD are independent of the ring base.

The identification on the cap is laser engraved, preventing the print from smearing, peeling, or washing off. Rings can be worn in dry or wet working conditions. Smooth edges allow rings to slide and fit inside surgical gloves without risk of tearing.

TLD Technology

During analysis in our laboratory, the TLD chip is heated causing it to emit light in proportion to the amount of radiation exposure. The luminescence is measured and a report of exposure results is generated. The glow curve of the readout permits a more conclusive evaluation of radiation exposure and can be retrieved and analyzed before the exposure report is generated if any anomaly appears.

The sum of the high energy beta, gamma and x radiation is reported as a shallow dose. If the ring dosimeter is exposed to radiation other than x-ray or if the gamma ray energy is between 17 keV and 150 keV or low-energy beta, then a special correction factor may be required to determine radiation exposure. LANDAUER will furnish, on request, adjustment factors for any specified energy level.

Analysis Assurance

Rings are scanned before processing using optical character recognition to accurately identify and track each dosimeter from receipt to report. The TLD is read by stimulating with a laser and counting the light emitted with a photomultiplier tube (PMT). The process is overseen by skilled technicians.

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Display Information on the cover includes:

- Wearer's name
- Ring serial number
- Begin wear date
- Left or right hand
- Exchange frequency
- 2D barcode for scanning

Configuration Options

Rings are available in three adjustable sizes: small/medium; large; and extra large to comfortably fit any user. The ring base colors are completely configurable down to the individual level and available colors are blue, green, and orange.

TECHNICAL SPECIFICATIONS	
Highest efficiency dosimeter of all natural lithium fluoride - one TLD per ring	
Energy Range	Photon (x or gamma ray) - greater than 15 keV Beta particle expressed as average energy - greater than 200 keV
Dose Measurement Range	Photon (x or gamma ray) - 10 mrem to 1,000 rem (100 µSV to 10 SV) Beta particle - 10 mrem to 1,000 rem(100 µSV to 10 SV) Detection outside these ranges can be requested
Accreditation	NVLAP (LAB CODE 100518-0) accredited in dosimetry categories IB, IC, IIC, IID, IIIB, IIIC, IIID, and IVBB. Tested per standard ANSI N13.32 and IEC 62387

Control Dosimeters

Control ring dosimeters can be distinguished by the yellow cover and red base.

Control ring dosimeters should not be worn. They should be kept in an area that is representative of the wearer's work environment.

To learn more, contact your Regional Sales Manager or **custserv@landauer.com**