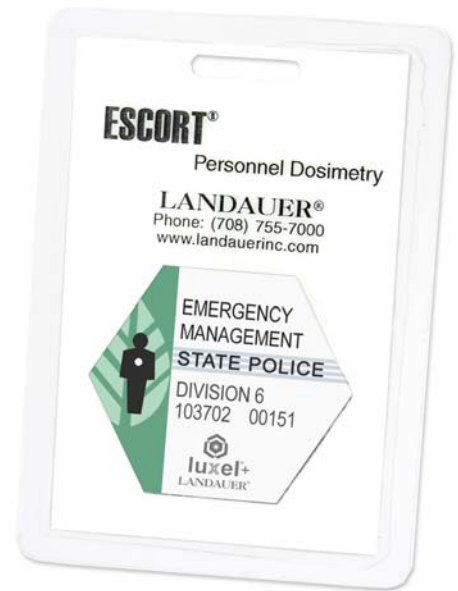


Escort® Emergency Response Dosimeter for X and Gamma Radiation

Landauer's Escort dosimetry service provides radiation monitoring for emergency responders who may accidentally be exposed during a radiation incident. The laminated, wallet-sized card measures radiation exposure with a specially packaged Luxel+ dosimeter using optically stimulated luminescence (OSL) technology. OSL technology is the newest advancement in passive radiation protection dosimetry that improves on the best features of traditional film and TLD technologies.

Escort can be customized to meet the administrative needs of a radiation monitoring program through graphic, color, and packaging design options. In addition to these administrative advancements, Escort offers complete reanalysis, imaging, increased sensitivity, precision with a wide dynamic range of measurement, and long-term stability.

Landauer's comprehensive full service provides automatic exchange out of dosimeters for each wear period, accredited dose of record processing and analysis, data management, reporting of exposure results, and customer service and technical support programs. In addition to Landauer's full range of diagnostic evaluation and reporting services, many ancillary services are available including direct computer access via the Internet to Landauer's database for exposure reports, shipment tracking and account maintenance transactions.

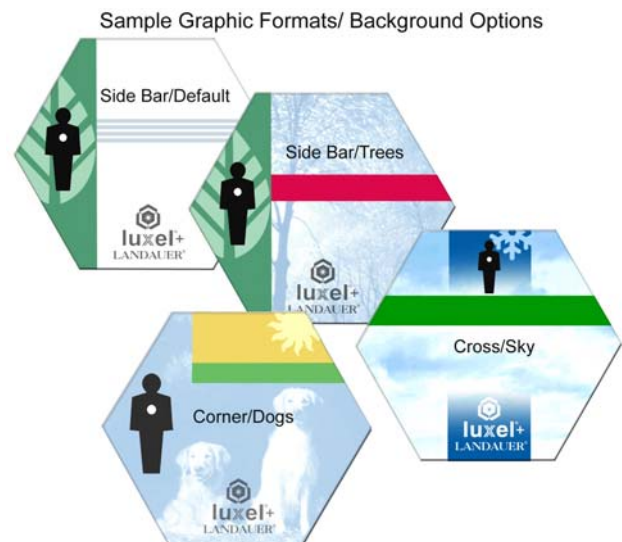


Administrative Design Features

The look of Escort can be specialized through the selection of various combinations of Luxel+ graphic formats and background options to help identify groups and wear dates. Optional features such as department (series) color-coding, company logos, and custom instructions that can further specialize dosimeters are available for an additional charge.

Background and Graphic Format Options

Choose between any combination of four background options and three graphic formats. Background options are no background (default), Dogs, Sky or Trees. Graphic formats are Side Bar (default), Corner or Cross. The graphic formats change in color with each exchange frequency and each season has its own unique icon to help distinguish wear dates.



Department Groupings (Series)

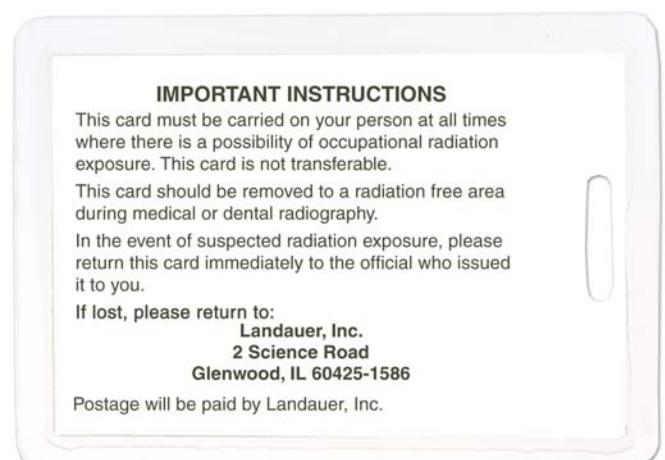
Department groupings within accounts are available for an additional charge. This service segregates departments on dosimetry reports and prints the department name on the face of the dosimeter. The department's name on the face of the Luxel+ dosimeter is printed over a gray line graphic (default) or can be color-coded for easy identification in a choice of six different colors.

Escort Instructions

On the back of the Escort card, there is a set of standard instructions. Customized instructions are available for an additional charge.

Punch for Strap and Clip

Escort cards can also have a punch out for use with a snap-on strap and alligator clip for attachment to clothing. Straps and clips are available for an additional charge.

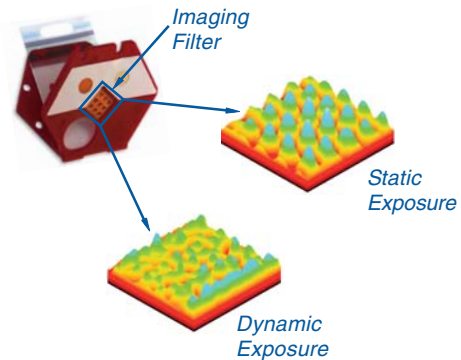
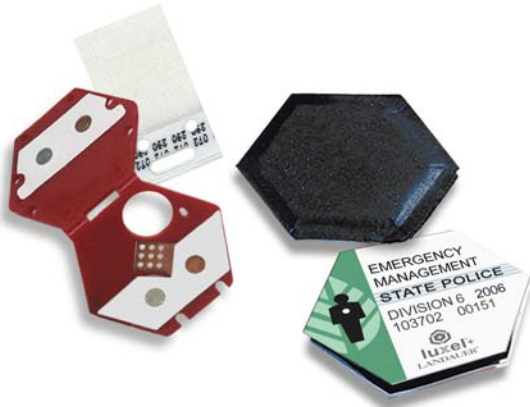


Escort® Emergency Response Dosimeter for X and Gamma Radiation

OSL Technology

Landauer grows the specially formulated aluminum oxide ($\text{Al}_2\text{O}_3:\text{C}$) crystalline detector material. The Al_2O_3 detector is then configured into a thin strip sandwiched within a multi-element filter pack. The filter pack is heat sealed within a laminated, light-tight paper wrapper creating an integrated, self-contained packet that is protected with a durable laminated finish to eliminate possible mishandling, light leakage, or lost detection elements.

Radiation exposure is measured in Landauer's laboratory by stimulating the Al_2O_3 material with selected frequencies of laser light causing it to luminesce in proportion to the amount of radiation exposure. Dose equivalents arising from exposures to photons (x or gamma rays) will have a deep, lens of eye and shallow value reported. Depending on the energy of the x or gamma rays, these values may or may not be equal.



Analysis

The Al_2O_3 detector can be restimulated numerous times to confirm the accuracy of a radiation dose measurement. A full reanalysis is automatically performed for every measurement yielding a dose in excess of 500 mrem (5 mSv).

The filter pack imaging area renders unique filter patterns that provide qualitative information about conditions during exposure. Imaging to identify static, dynamic, or contamination conditions is automatically performed for low-energy photon measurements yielding a dose in excess of 500 mrem (5 mSv). Imaging capabilities are inconclusive at energies exceeding 150 keV.

Reanalysis or imaging at doses less than 500 mrem (5 mSv) can be requested. Imaging is not available for doses less than 50 mrem (500 μSv).

A static exposure image indicates the dosimeter may not have been worn at the time of exposure. This is verified by the distinct grid patterns in the filter pack imaging area. A static exposure implies that an accidental exposure may have occurred with the dosimeter.

A dynamic exposure image indicates the dosimeter was moving at the time of exposure. This is verified by the blurred grid patterns in the filter pack imaging area. A dynamic exposure implies that the dosimeter was worn at the time of exposure, and the reported dose is valid.

Technical Specifications

- Detector: Al_2O_3 (Aluminum Oxide)
- Energies Detected: 5 keV to in excess of 40 MeV
- Dose Measurement Range: 1 mrem to 1000 rem (10 μSv to 10 Sv)
- NVLAP accredited (NVLAP Lab Code 100518-0) for Whole Body (ANSI HPS N13.11-2001) Category IA.
- Escort may be used for up to one year.
- Escort is unaffected by heat, moisture, and pressure when the durable laminated finish is uncompromised.