LUXEL+™

Trust the world leader in dosimetry

Luxel+® dosemeter provides X and gamma rays, and beta radiation monitoring with Optically Stimulated Luminescence (OSL) technology.

Luxel+ can be used for occupational, area/environmental and emergency response monitoring, in any kind of facilities. More than 1.8 million people in the world are monitored with OSL LANDAUER dosemeters.

Luxel+
dosemeter

Luxel+ backview with
Neutrak® dosemeter

LUXEL+, THE STATE-OF-THE-ART

- Rereading of the dosemeters
- Identification at a glance
- Tamper-proof, compact and lightweight
- All-in-one dosemeter: optional Neutrak® detector inside (CR-39)

Online with myLDR.com

Our web based account management service enables you to:

- efficiently manage your entire dosimetry program online
- provide individuals access to their personal dose information
- go paperless (opt out of receiving paper dosimetry reports)

myLDR.com is offered at no charge to LANDAUER customers as part of our service.

You can easily register and obtain an ID and unique security password for access.

LANDAUER | +44 (0) 1865 373008 | admin@landauer.co.uk | www.landauer.co.uk

LUXEL+®, the reference in passive dosim

More customisable, more practical, more efficient

FULLY PERSONALISED AND CUSTOMISABLE

The look of Luxel+ can be specialised through a selection of various combinations of graphic formats and background options to help identify groups and wear dates. Optional features such as department (series) colour-coding and company logos that can further specialise dosemeters 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, prints the department name on the face of the dosemeter and a series code on the back of the dosemeter. The department's name on the face of the dosemeter is printed over a gray line graphic (default) or can be colour-coded for easy identification in a choice of six different colors.

Dosemeter placement icons

Icons on the face of the dosemeter identify the correct placement of the dosemeter, and a written description is included on the back of the dosemeter for verification. Icons include all whole body and extremity use, area monitoring, and a special icon designed for fetal monitoring.

Holder

When you receive your dosemeter, you should discard the cellophane wrapper and the communicator card and snap the dosemeter into a holder.

The standard holder has an alligator clip for secure fastening to clothing. In MRI units where metals are not permitted, an all-plastic clip is available.

Area monitor holders can have Velcro® tabs with adhesive backing for easy surface placement.

Other holders are available on request.

Packaging

Luxel+ can be packaged for personnel monitoring, area monitoring, emergency response or other specialised services.

Standard packaging ships each dosemeter individually wrapped in cellophane along with a card containing account and worker information that can be customised with a message to the entire account, a department (series) or a specific worker.


Snowflake


Flower Petals


Maple Leaf

Hot Sun


Autumn Tree


Green Leaf

LANDAUER, a service accredited by HSE in the UK and by the Ireland's Environmental Protection Agency.

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LUXEL+, SIMPLY MORE EFFICIENT

LANDAUER grows the specially formulated aluminum oxide (Al_2O_3:C) crystalline detector material. The 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 RF (radio-frequency) sealed inside a tamper-proof plastic blister pack to eliminate possible mishandling, light leakage or lost detection elements.

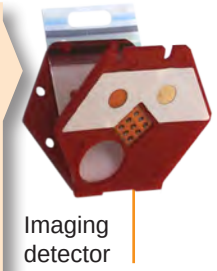
Confirmation of the radiation dose measurement

The Al_2O_3:C detector can be reanalysed 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 5 mSv. The filter pack Imaging area renders unique filter patterns that provide qualitative information about conditions during exposure.

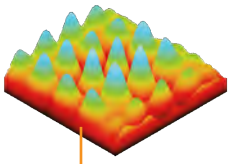
*i*maging, proof in pictures

The Luxel+ has an additional OSL detector, called Imaging. This detector is placed inside the Luxel+ case. It enables the production of 3D graphs.

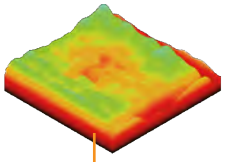
Imaging shows whether the relative position of the Luxel+ has been fixed or mobile in relation to the source. It provides additional proof of whether or not the dosimeter was worn, by a wearer during exposure. Imaging is analysed systematically for dosimeters whose dose equivalent $H_p(10)$ exceeds 5 mSv.



Imaging detector



Static Exposure



Dynamic Exposure

Optional Neutrak® detector inside dosemeter (CR-39)

Luxel+ is designed to include a Neutrak detector for neutron measurement, avoiding the need to wear an additional badge. Our dosimeters thus take up less room and are more comfortable to wear!

Neutrak is sealed inside the Luxel+ plastic blister pack to eliminate possible mishandling or lost detection elements. The CR-39 is laser engraved for permanent identification to assure chain-of-custody. The Neutrak is a CR-39 (allyl diglycol carbonate) based, soliestate nuclear track detector that measures exposure due to neutrons. It is not sensitive to X, Beta or Gamma radiation, and is sealed inside the Luxel+ plastic blister pack to eliminate possible mishandling or lost detection elements. tha CR-39 is laser engraved for permanent identification to assure chain-of-custody.

TECHNICAL PERFORMANCE

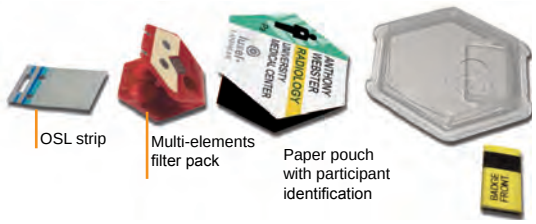
Type of measured radiation	Result of the Luxel dosemeter	
	Photons	Beta
Personal dose equivalent	$H_p(10)$ and $H_p(0.07)$	$H_p(0.07)$
Dose range	0.01 mSv to 10 Sv	0.1 mSv to 10 Sv
Measurement reproducibility	< 5 %	
Energy response (mean energy)	$H_p(10)$: **5 keV to 6 MeV**	$H_p(0.07)$: **240 keV to 800 keV**

ENVIRONMENTAL RESISTANCE CHARACTERISTICS

Operating and storage temperature	-10 °C to 40 °C
Humidity	0 % to 90 % Our laboratory reads regulary dosemeters after a shift in the washing machine
Light exposure	Tested up to 1,000 W/m² - Compliant with the standard requirements.

GENERAL CHARACTERISTICS

Manufacturer	LANDAUER
Types of measured radiation	Photons (X and gamma rays) and beta
Detector	Luxel+
Materials	Aluminium oxide doped with carbon, Al_2O_3:C
Filters	multi-elements
Dimensions without clip	50 mm x 45 mm x 5 mm



MEASUREMENT METHOD

The Luxel+ dosemeter measures radiation exposure due to X and gamma rays, and beta with Optically Stimulated Luminescence (OSL) technology.

The OSL radiation detector is a thin strip of specially formulated aluminium oxide Al_2O_3:C crystalline material. During the analysis, the Al_2O_3:C strip is stimulated with selected frequencies of light causing it to luminescences in propotion to the amout of radiation exposure and the intensity of the stimulating light source.

The optical stimulation keeps more than 99% of the information in the detector making possible multiple readings and the archivings of the dosemeter for later investigation.

Note: The aluminium oxide, Al_2O_3:C, used in our dosemeters is produced by LANDAUER.

COMPLIANCE WITH STANDARDS

- Accredited by NVLAP® (LAB CODE 100518-0) in subcategory general and in all categories including V1 when neutron component is added.

QUALIFICATIONS OF OUR LABORATORY

- Participation in national and international inter-comparisons.
- In the UK: HSE Approved Dosimetry Services (ADS) for whole body, extremity and skin dose assessment and record keeping under the Ionising Radiations Regulations 2017 (IRR17).
- In Ireland: Environmental Protection Agency (EPA) Approved Dosimetry Services (ADS) in pursuance of S.I. 125/2000.