



TECHNOLOGY COMPARISON

Selecting the appropriate dosimetry product is essential in ensuring that workers are safeguarded from the harmful effects of ionizing radiation.

	TLD - Thermoluminescent Dosimetry	OSL - Optically Stimulated Luminescence
How it Works	The TLD absorbs radiation in such a fashion that some of the electrons remain in excited or high energy states for a long time. When the dosimeter materials are heated, they release energy in the form of light, in quantities proportional to their radiation exposure.	OSL is a relatively new technology and differs from TLD in that trapped charges are released using optical rather than thermal energy.
Characteristics	<ul style="list-style-type: none"> Measures exposure to gamma, x-ray and beta radiation. Certain models can also be used for neutron radiation. Durable and can be worn for long wearing periods due to its resistance to environmental factors such as heat and humidity. Reasonably priced and can be reused many times. Long-term proven technology. 	<ul style="list-style-type: none"> Measures exposure to gamma, x-ray and beta radiation. Certain models can also be used for neutron radiation. Allows multiple readouts and re-analysis. Extremely sensitive to light- a small tear in the holder can cause inaccurate readings or a total loss of dose information. Reasonably priced, can only be used one time. New technology.
Client Suitability	<ul style="list-style-type: none"> Versatility to be used in almost all radiation working environments. Users include: first responders, educators, dental and veterinary clinics, diagnostic clinics, private practitioners, National Defence, research, industry and commerce. 	<ul style="list-style-type: none"> Versatility to be used in almost all radiation working environments. Users include: first responders, educators, dental and veterinary clinics, diagnostic clinics, private practitioners, National Defence, research, industry and commerce.

The National Dosimetry Services (NDS) believes that the TLD's proven track record as a reliable and accurate method for measuring occupational radiation makes it the perfect technology to satisfy the diverse needs of its clients. NDS offers a full-line of TLD products, including: whole body, head/neck, and extremity monitors. NDS also offers the latest in Electronic Dosimeters for clients requiring real-time dose rate monitoring.

NDS-NATIONAL DOSIMETRY SERVICES

The following explores five of the most commonly used products on the market today.

Electronic Dosimeter	Film Dosimeter	DIS - Direct Ion Storage
The electronic dosimeter measures radiation exposure on a real time basis and provides immediate dose rate readings. Depending on the environment, parameters can be set on the device to warn individuals that they are approaching a certain limit of exposure.	The film dosimeter is processed in the same way as photographic film. A calibrated light source and sensitive detectors are used to measure the amount of light that can pass through the film. This information determines the quantity and type of radiation exposing the film.	The DIS dosimeter measures radiation by absorbing charges into a miniature (MOSFET) ion chamber. The dosimeter can be instantaneously processed and read by an on-site reader.
<ul style="list-style-type: none"> Measures exposure to gamma, x-ray and beta radiation. Certain models can also be used for neutron radiation. Provides instantaneous dose readings. High level of radiation sensitivity. Built-in alarms provide an audible and visual alert to high radiation levels. Stand-alone device. Somewhat more expensive relative to other technologies. New technology. 	<ul style="list-style-type: none"> Measures exposure to gamma, x-ray and beta radiation. Certain models can also be used for neutron radiation. Provides a permanent record- the film itself- of radiation exposure. Reasonably priced, can only be used one time. Long-term proven technology. 	<ul style="list-style-type: none"> Measures exposure to gamma, x-ray and beta radiation. Certain models can also be used for neutron radiation. Instant and unlimited readouts. Requires an on-site reader. Accumulated dose is not affected by the readout process. Small, durable and waterproof. Moderately priced. New technology.
<ul style="list-style-type: none"> Versatility to be used in almost all radiation working environments. Users include those who require real-time personnel and area monitoring. Example: high risk, emergency and pregnant workers. 	<ul style="list-style-type: none"> Versatility to be used in almost all radiation working environments. Used primarily by medical practitioners or any individual with potential exposure to diagnostic x-rays. 	<ul style="list-style-type: none"> Versatility to be used in almost all radiation working environments. Users include those who require real-time personnel and area monitoring. Example: high risk, emergency and pregnant workers.

If you have any questions in regards to the above mentioned technologies or would like to learn more about the products and services offered by NDS, please call our toll-free customer service line at **1-800-261-6689** or visit us on the web at: www.hc-sc.gc.ca/nds.

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