



THERMAL NEUTRON DOSIMETRY

The whole body dosimeter for thermal neutron radiation is constituted by an ABS shell, thin, lightweight, shock resistant and weatherproof.

The dosimeter needs to be worn in the right direction because there are applied **two different kind of filtrations, one for the front and another for the rear.**

Inside the shell are located **two sensitive elements** LiF (Mg, Cu, P) series GR200: **the GR-200A**, consisting of the natural isotopic mixture of element Li is sensitive to both gamma and neutron radiation field; **the GR-207A**, enriched in ^7Li is insensitive to neutron radiation.

From the combination of the results of the two detectors is possible to estimate the exposure to neutron radiation in terms of Hp (10).

Dosimeter NOT symmetrical, it must be worn with the orientation as described on the label.





PERFORMANCE OF A WHOLE BODY FILM TLD DOSIMETER (THERMAL NEUTRON RADIATION)

Measured quantities	Hp (10) H*(10) if used as environmental dosimeter	
Detector (Number and Type)	1 element LiF(Mg, Cu, P) GR-200A 1 element LiF(Mg, Cu, P) GR-207A	
Filtration	1 mm Al (about 290 mg/cm ²) on both the sensing elements - source side; 1 mm Cd on both the sensing elements - operator side;	
Result range in energy (n)	Thermal Neutron with E < 0,4 eV	
Dependency of response relative to Hp (10) in the range of energy	< 20%	
Dependency of response relative to Hp (10) according to incidence angle (max 60°)	NA	
Minimum Detectable Dose (intended as Critical Level with 95% assurance) in routine procedures	Not bigger of 20 microSv	
Minimum Detectable Dose (intended as Detection Limit with 95% assurance) in routine procedures	Not bigger of 50 microSv	
Error in dose valuation	0,05 mSv ≤ H < 0,40 mSv	25% Hp(10)
	0,40 mSv ≤ H < 0,85 mSv	20% Hp(10)
	0,85 mSv ≤ H	20% Hp(10)
Additional information	Dosimeter not symmetrical , it must be worn respecting the orientation shown on the label.	