

DIS-1

Direct Ion Storage Dosimeter



*detection
monitoring
radiation*

KEY FEATURES

- Direct measurement of Hp(10) and Hp(0.07) over the entire energy range
- Instant readout
- Extremely easy readout process
- Passive operation
- Not sensitive to EM and RF interferences
- Operation at high dose rates
- Operation at pulsed fields
- Complies with: IEC 61066, 62387:2012, 17025:2005, PTB



Nuclear
Power



Homeland
Security
& Defense



Industrial and
Manufacturing



Healthcare



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Education

OVERVIEW

The Mirion DIS-1 personal dosimeter is based on an ionization chamber combined with a modern electronic Direct Ion Storage (DIS) memory cell. The Ion Chamber is widely used as a reference detector in radiation detection and is now available in everyday dosimetry applications.

The DIS-1 dosimeter could be described as a passive electronic TLD or Film badge, which can be read instantly and non-destructively without any loss of dose information. This unique feature allows the user of the DIS-1 to read his/her accumulated doses whenever necessary.

The DIS-1 dosimeter has a small, lightweight, rugged and watertight construction, which makes the DIS-1 dosimeter reliable and easy to use.

The radiological range of the DIS-1 covers the entire Hp(10) and Hp(0.07) photon and beta energies without any compromises.

DIS-1 Direct Ion Storage Dosimeter

PHYSICAL CHARACTERISTICS

- Detector type: three TMDIS (Direct Ion Storage) detectors and two MOSFET detectors
- Sensitive to gamma, X-ray and beta radiation
- Insensitive to neutrons (<5 %)

	Hp(10)	Hp(0.07)
Calibration accuracy		
	±5 % at 1 mSv ¹³⁷ Cs	±10 % at 10 mSv ¹³⁷ Cs
Instant readout of ICRU dose equivalents		
	1 µSv to 40 Sv (0.1 mrem to 4000 rem) ¹⁾	Hp(0.07) 10 µSv to 40 Sv (1 mrem to 4000 rem) ¹⁾
Energy response in the dose range up to 1 Sv / Photons		
	±30 % from 15 keV to 9 MeV ²⁾	±30 % from 6 keV and higher (to 9 MeV)
Energy response in the dose range up to 1 Sv / Beta		
		(0.07) -20...+35% from 0.24 MeV to 0.80 MeV (E _{mean})
Angular response for photons		
	±20 % up to 60° at 65 keV	±20 % up to 60° at 65 keV

¹⁾ When calibrated after every 10 Sv of accumulated dose

²⁾ PTB approved up to 7 MeV

FUNCTIONAL CHARACTERISTICS

- Recording of official Hp(10) and Hp(0.07) doses
- Memory:
 - Calibration date
 - Dose reset dates
 - User identification

MECHANICAL CHARACTERISTICS

- Size: 41 x 44 x 12 mm, with holder 47 (95 with strap) x 49 x 13 mm (1.61 x 1.73 x 0.47 in , with holder 1.85 (3.74 with strap) x 1.93 x 0.51 in)
- Weight: 25 g (0.88 oz) , with holder 43 g (1.52 oz)
- Beta window: aluminized PI (app. 7 mg/cm²)
- Holder: anodized aluminum

ENVIRONMENTAL CHARACTERISTICS

- Temperature range from - 10°C to +50°C (14°F to 122°F)
- Enclosure class: IP 67 (waterproof)



DIS Dosimetry System

The wide dose and energy range, the ability to operate in pulsed fields and the performance at high dose rates make DIS-1 an ideal device for all kinds of radiation dosimetry applications. The DIS-1 allows for the detection of heavy, high-energy ions and its immunity to any external interference is unequalled. There are no deviations in the dose readings even at very high EM or RF fields.

The DBR-1 and DBR-2 Readers are designed to read DIS-1 Dosimeters assembled in the DDH Snap-in Dosimeter Holders. To obtain the most recent dose value, the user simply plugs the dosimeter into the reader and the dose values are displayed in a few seconds.



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