

The Irradiator IRR-1 is used for checking the constancy of performance of individual Electronic Personal Dosimeters and to give confidence that an EPD is within its design specification for radiological performance.

EPD[®] Irradiator IRR-1[™]

Permits verification/calibration check of EPD radiological performance in the field



- Compact, bench-top unit
- No need for special shielded facility
- Quick and easy to operate
- Checks β and γ detection performance
- Compatible with both EPD Mk1[™] and MK2[™].



The IRR-1 uses chlorine-36 and americium-241 sources to deliver β and γ radiation for a predetermined time and with excellent repeatability for an individual EPD.

The IRR-1 is supplied with a calibration certificate stating the readings obtained with EPD's calibrated with traceability to national standards, and with a reference EPD which is supplied with the Irradiator.

Procedures for checking the performance of both the irradiator and

EPD's are included in the manual supplied.

With the IRR-1, large numbers of dosimeters can be processed quickly, easily and with no radiation risk to the operator. When the IRR-1 is used in conjunction with the Thermo Scientific EPD Maintenance Database software, records can be maintained for the calibration of individual EPD's. The IRR-1 can also be supplied without sources if required.

EPD Irradiator Specifications

Radiological

Radioactive Sources	γ : Am-241 3.7 GBq (100 mCi) β : Cl-36 100 kBq (2.7 μ Ci)
Irradiator Performance	(15 °C to 25 °C (59 °F to 77 °F) 95% confidence level) Am-241 60 keV γ Statistical accuracy better than \pm 2% (irradiation time 2 min.) Systematic positional error of better than 2% Cl-36 714 keV β (Emax) Statistical and positional accuracy better than +10% (irradiation time)
External Radiation	Radiation dose rate at 50 mm from any surface not greater than 1.5 μ Sv/h (0.15 mrem/h) under normal operating conditions

Environmental

Operating Temperature:	5 °C to 40 °C (41 °F to 104 °F)
Storage Temperature:	-25 °C to 70 °C (-13 °F to 158 °F)
Operating Humidity:	30% to 80% RH non-condensing

Indicators

Indicator Lamps	Power On (yellow)	Start Exposure (yellow)
	Sources Shielded (green)	Sources Exposed (red)

Mechanical

Size:	330 x 230 x 200 mm (max) (13" x 9" x 8")
Weight:	5.7 kg (13 lbs)

Electrical & Safety

Supply Voltage:	100 V \pm 10%, 47 to 63 Hz 120 V \pm 10%, 47 to 63 Hz 220 V \pm 10%, 47 to 63 Hz 240 V \pm 10%, 47 to 63 Hz
Power:	35 W max
Power Supply Interruption:	Unit will operate normally with a supply interruption of <50ms
Fuses:	2 x 250 mA T (time lag), 20 x 5 mm (0.8" x 0.2") dia. @ 220/240V 2 x 500 mA T (time lag), 20 x 5 mm (0.8" x 0.2") dia. @ 100/120V
Power Connector:	IEC320, (local IEC320 mains cord required outside UK)
Safety & EMC Specification:	Equipment for indoor use only IEC 1010-1 Class 1, Installation Category 2, pollution degree 2 BS EN50081-1:1992; BS EN50082-1:1992

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