Xray Dose

benchtop X-ray irradiator

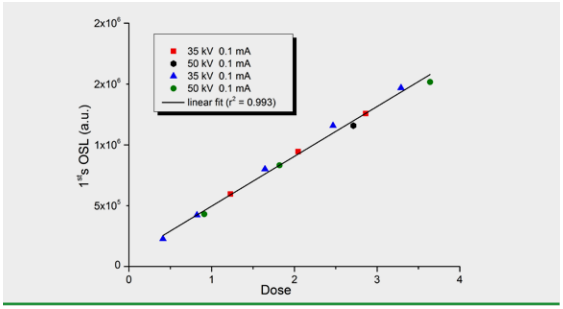
Applications

Dosimetric research | Material research | Food Irradiation
Luminescence dating | ESR dating and more

Features of Xray Dose

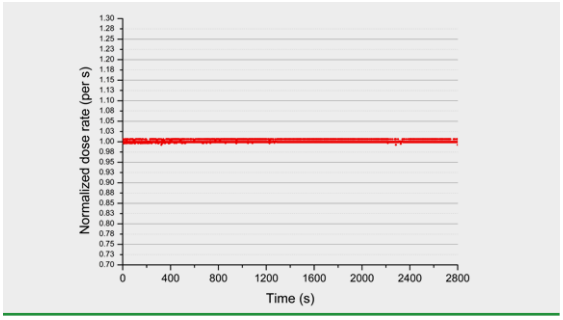
- Portable and easy-to-use design
- Automated ramping to ensure durability of X-ray tube
- Precisely defined sample irradiation
- Real-time monitoring of X-ray flux
- The dose rate can be linearly varied by a factor of ten by simply changing the current (0.1 – 1.0 mA)
- Hardening filter (e.g. Al) can be changed easily
- Compatibility with ESR quartz tubes (Ø = 3 – 6 mm, 135 mm long), petri dish and sample cups/discs
- Interface to MS 5000 ESR spectrometer and lexsyg TL/OSL reader, allows unlimited irradiation and measurement cycles

Application example



OSL-signal (first 1s) response of Al_2O_3:C to different voltage settings and doses. The linear signal response shows the reproducibility of delivered doses by the X-ray under varying dose rate (high voltage, kV) settings. (Richter et al., 2016)

Excellent stability



The temperature stabilization of the X-ray unit ensures stable and constant dose rates over long periods. (modified after Richter et al., 2016)

ESR Version

MS 5000 ESR Spectrometer

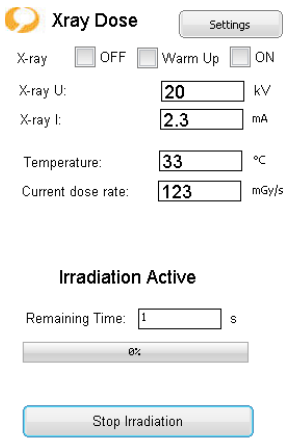
PSLfood version

PSLfood

TLDcube version

TLD cube

Easy operation from touch screen



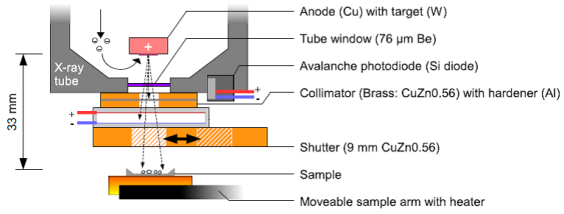
Dose rates on Alanine (tissue equivalent) in Gy/s

Settings	ESR version	
50 kV, 1 mA	*without filter*	*with 200 µm Al filter*
	> 1.1	> 0.3
	PSL version	
	without filter	*with 200 µm Al filter*
	> 1.1	> 0.3
	TLDcube version	
	without filter	*with 200 µm Al filter*
	> 4.5	> 0.4

Xray Dose OEM unit

for lexsyg TL/OSL reader

Module **#L0205**



OEM X-ray unit with collimator, mechanical shutter, software-controlled high-voltage power supply and fail safe interlocks (Richter et al., 2016)

Publications

Richter et.al. (2016) A new fully integrated X-ray irradiator system for dosimetric research. Applied Radiation and Isotopes 112, 122 – 130.

Lei et.al. (2017) Thick Er-doped silica films sintered using CO_2 laser for scintillation applications. Optical Materials 68, 63 – 69.

For more publications, please visit:
http://www.lexsyg.com/company/publications.html
http://www.magnettech.de/company/publications.html

Technical specifications

X-ray tube	Tungsten X-ray tube
Voltage	50 kV
Current	0.1 to 1.0 mA
Typical lifetime	up to 5 years depending on the usage
Exchangeable hardening filter	200 µm Al (default). Other hardening filters available on request
Cooling	air cooled
Power requirement	110 – 240 V AC, 3 A
Dimension	217 x 222 x 435 mm
Weight	ca. 40 kg
Certification	manufactured under ISO 9001 guidelines, CE conform

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VQZ Bonn
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