

SOL-GEL α -Al₂O₃ detectors: TL and OSL response to beta radiation beams

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The dosimetric properties of the SOL-GEL α -Al₂O₃ detectors were studied in beta radiation beams. For the characterization of the detectors, the TL and OSL techniques were used. The detectors showed good dosimetric characteristics, such as good reproducibility; a glow curve with the peak at ~ 230 °C; good linearity of response and high phosphor sensitivity. A thermal treatment study was also performed. Moreover, the calibration factors and the lower detection limits were determined for beta radiation. These characteristics indicate the suitability of SOL-GEL α -Al₂O₃ detectors for the establishment of a transfer system or alternative/complementary method for beta radiation dosimetry.

Keywords: SOL-GEL α -Al₂O₃ detector, beta radiation, TL, OSL.

Conference topic: New radiation sources, techniques & detectors