

Dosimetric characteristics of LKB: Cu, Mg Solid thermoluminescence detector

ABSTRACT

We present the main thermoluminescence characteristics of a newly borate glass dosimeter modified with lithium and potassium carbonate (LKB) and co-doped with CuO and MgO. An enhancement of about three times has been shown with the increment of 0.1mol% MgO as a co-dopant impurity. The effects of dose linearity, storage capacity, effective atomic number and energy dose response are studied. The proposed dosimeter shows a simple glow curve, good linearity up to 103 Gy, close effective atomic number and photon energy independence. The current results suggest using the proposed dosimeter in different dosimetric applications.

Keyword: Thermoluminance; Lithium and potassium carbonate; CuO; MgO; Dosimeter