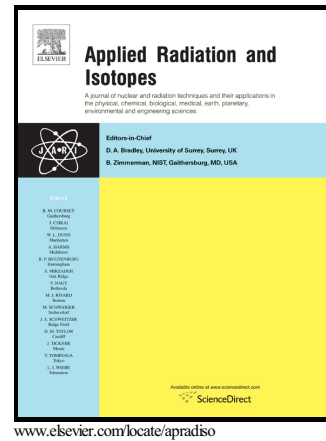


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Thermoluminescence glow curve analysis of natural Onyx from Turkey**Tamer Dogan^{1,*}, Hüseyin Toktamış², Mehmet Yüksel³, Mustafa Topaksu³, A. Necmeddin Yazici²**

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ABSTRACT

In this study, the thermoluminescence (TL) properties of natural onyx were determined after β -irradiation ($^{90}\text{Sr}/^{90}\text{Y}$) at room temperature. The effect of the additive dose and variable heating rate for TL glow peaks of the sample were investigated. Computerized glow curve deconvolution (CGCD) methods were used to determine the number of peaks and kinetic parameters related to the TL glow peaks in natural onyx from Turkey. It was also determined kinetic parameters of onyx by means of the variable heating rate (VHR) method. The sample was exposed to β -irradiation between 2.4 Gy and 2.457 kGy. The CGCD methods showed that the glow curve of sample is the superposition of at least six first order components which were ascribed as P1-P6. The dose responses of some peaks have similar patterns and they follow linearity. The effect of heating rates on the response of dosimetric glow peaks of sample was studied. The maximum TL peak intensities of glow curve are decreasing with increasing heating rate and maximum TL peak intensities at 1 °C/s drops to 20% of the initial value when the sample is read at 6 °C/s.

Keywords: Thermoluminescence, Natural onyx, CGCD, Heating rate

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