

The Use of SMD-473 as a Potential X-ray Accidental Dosimeter through the Thermoluminescence Properties

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In study of emergency dosimeters to be used in case of accidental radiation exposure of the population, retrospective dosimetry is one of the most important for dose measurement in contaminated areas. In this paper discusses the thermoluminescence (TL) properties of alumina porcelain substrates of thin film chip resistors removed from computer circuit boards. X-ray photon energy 160 keV was used to irradiate samples in the dose range of 10 to 80 mGy. The results of this work demonstrate that Surface Mount Devices (SMD resistors) can be used as low dose accidental dosimetry, the dose response of the chip resistor is linear from 10 to 80 mGy, proper glow curve peaks, the fading of TL signal remained about 60% even after one month at room temperature and the minimum detectable dose is very low estimated 0.2 mGy.

Summary

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