

EPR dosimeter material properties of potassium tartrate hemihydrate

ABSTRACT

The ability of potassium tartrate hemihydrate as a radiation sensitive material for electron paramagnetic resonance (EPR) dosimetry was investigated. The samples were subjected to different doses, in the range of 169 Gy of ^{60}Co gamma rays at room temperature. The EPR spectra were investigated through variation of signal intensity with respect to absorbed dose, magnetic field modulation amplitude, microwave power and time stability. The results indicate that the sensitivity of potassium tartrate hemihydrate is about 30% higher than that of alanine. However, the EPR signal is timely less stable within the first two weeks after irradiation.

Keyword: Potassium tartrate hemihydrate; EPR dosimetry; Gamma radiation