Dose response of polyvinyl alcohol films dyed by methyl red under gamma irradiation

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Abstract: Polyvinyl Alcohol (PVA) films containing Methyl Red (MR) were prepared by the cast drying of an aqueous solution of the constituents. Irradiation was performed in air at room temperature with ^{60}Co gamma rays at a dose rate of 0.9 kGy/h. The characteristics of the films were analysed by a spectrophotometer and densitometer. The dose response of the films was described by the energy transfer model. The sensitivity of the films was determined. The film is recommended for use in gamma dosimetry, gamma radiation protection and accident analysis. ?? 2009 Inderscience Enterprises Ltd.

Author Keywords: Absorbance; Dose response; Energy transfer model; Optical density; PVA film; Radiation protection

Index Keywords: methyl red; polyvinyl alcohol; absorption spectrophotometry; article; densitometry; dose response; dosimetry; energy transfer; film; gamma irradiation; radiation dose; radiation protection; room temperature

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