

AbstractID: 1861 Title: Absorption Spectra of Improved GafChromic Film Types

The introduction of radiochromic dye-cyanide films has solved some of the problems associated with conventional 2D radiation detectors. The high spatial resolution, low energy dependence and near tissue-equivalence of radiochromic films (RCF) make them ideal for measurement of dose distributions in radiation fields with high dose gradients. Precise knowledge of the absorption spectra of these detectors can help to develop more suitable optical densitometers and potentially extend the use of these films to other areas such as the measurement of the radiation beam spectral information. The goal of this study is to present results of absorption spectra measurements for the new GafChromic film, HS type exposed to 6 MV photon beam in the dose range from 0 to 25 Gy. Spectroscopic analysis reveals that in addition to the two main absorption peaks, centered at 617 nm and 675 nm, the absorption spectrum in the spectral range 500 nm to 800 nm contains three more absorption bands. Comparison of the absorption spectra for the early HD-810, MD-55, and MD-55-2, as well as for HS shows that the GafChromic sensitive layer base material, has remained the same, and that the increased sensitivity of subsequent types of GafChromic film has been achieved by increasing the thickness of the sensitive layer.