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## Effect of gamma irradiation on the structural, thermal and optical properties of Makrofol BL 2-4

By: [Nouh, SA](#) (Nouh, S. A.)<sup>[1,2]</sup>; [Abutalib, MM](#) (Abutalib, M. M.)<sup>[3]</sup>

### RADIATION EFFECTS AND DEFECTS IN SOLIDS

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### Abstract

Makrofol BL 2-4 is an extrusion film based on Makrolon polycarbonate. It comprises excellent die-cutting performance combined with high light transmission and moderate light scattering properties. It is a class of polymeric solid state nuclear track detectors which has many applications in various radiation detection fields. In the present work, Makrofol samples were irradiated using different gamma doses ranging from 10 to 350kGy. The structural modifications in the gamma-irradiated Makrofol samples have been studied as a function of dose using different characterization techniques such as X-ray diffraction, intrinsic viscosity, Fourier transform infrared spectroscopy, thermogravimetric analysis, refractive index and color difference studies. The gamma irradiation in the dose range 20-200kGy led to a more compact structure of Makrofol polymer, which resulted in an improvement in its thermal stability with an enhancement in its structural and optical properties.

### Keywords

**Author Keywords:** [polymers](#); [gamma irradiation](#); [structural properties](#); [color response](#); [TGA](#)

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### Author Information

**Reprint Address:** Nouh, SA (reprint author)

+ Taibah Univ, Fac Sci, Dept Phys, Al Madina Al Munawarah, Saudi Arabia.

#### Addresses:

+ [ 1 ] Taibah Univ, Fac Sci, Dept Phys, Al Madina Al Munawarah, Saudi Arabia

+ [ 2 ] Ain Shams Univ, Fac Sci, Dept Phys, Cairo, Egypt

+ [ 3 ] King Abdulaziz Univ, Girls Branch, Coll Sci, Dept Phys, Jeddah 21413, Saudi Arabia

**E-mail Addresses:** [samin273@gmail.com](mailto:samin273@gmail.com)

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