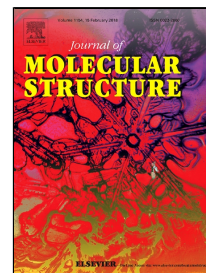


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Taner ÇELİK, Mehmet Fatih COŞKUN



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# Dielectric and thermal properties of the methacrylate polymer bearing chalcone side group

Taner ÇELİK\*, Mehmet Fatih COŞKUN

E-mail:tanercelik76@gmail.com

*Firat University, Faculty of Science, Department of Chemistry, 23119, Elazig/Turkey*

\*Corresponding author: Taner Çelik

Adress: Firat University, Faculty of Science, Department of Chemistry, 23169 Elazig, Turkey, Tel: (+90) 424 2370000/3698, Fax: (+90) 424 2330062.

E-mail: [tanercelik76@gmail.com](mailto:tanercelik76@gmail.com)

## ABSTRACT

The 1-(1-benzofuran-2-yl)-3-(4-hydroxyphenyl)propen-1-one (compound **1**) from the reaction between 1-(1-benzofuran-2-yl) ethanone and 4-hydroxybenzaldehyde was firstly synthesized. And secondly, we synthesized 4-[3-(1-benzofuran-2-yl)-3-oxoprop-1-en-1-yl] phenyl chloroacetate (compound **2**) as the result of the reaction between the compound **1** and chloroacetyl chloride. The monomer was prepared by the reaction of compound **2** and sodium methacrylate. The monomer was polymerized using the free radicalic polymerization method (FRP). The structure characterization of the polymer was determined utilizing  $^1\text{H}$ ,  $^{13}\text{C}$ - NMR and FT-IR techniques. Thermal behavior of the homopolymer was studied by measurements of TGA and DSC. For thermal decomposition kinetics of homopolymer, Flynn-Wall-Ozawa method was applied to thermogravimetry curves. The dielectric measurements were studied using the impedance analyzer technique at a frequency which varied between 100 Hz-20 kHz Hz depending on the alternating current (AC) conductivities. The dielectric parameters such as dielectric constant and dielectric loss are changed with the temperature.

**Keywords:** Free radical polymerization (FRP), dielectric constant, chalcone, Activation energy, Thermal properties.

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