

# The Synthesis and Photostability of Some New 1,8-Naphthalimide Derivative for Fluorescent Polymers

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Fluorescent polymers are functional macromolecules with very important applications<sup>1</sup>. One of the traditional methods for their synthesis is by copolymerization of traditional monomers with fluorescent monomers (unsaturated fluorescent dyes). Among them, naphthalimide derivatives are attracting much attention due to their excellent stability, photophysical, thermal, electrochemical and electroluminescence properties<sup>2</sup>.

Three new polymerizable 1,8-naphthalimide fluorophores containing residue of an amino acid in the fourth position of the naphthalimide ring (Figure 1) have been synthesized. Their copolymers with methyl methacrylate were obtained.

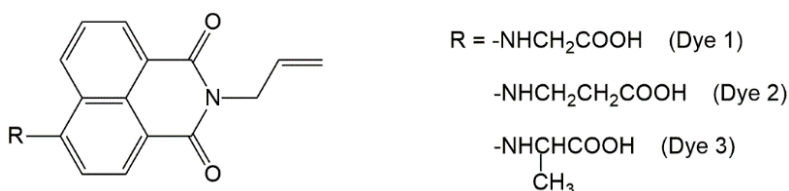


Figure 1. Chemical structure of the investigated naphthalimide dyes

The optical properties of the prepared polymer films from the CIE Lab colour space have been examined. The photostability of the dyes and copolymers in solution of dimethylformamide have been investigated and an increase of the photostability of dyes included in polymer with 15-25 wt.% was observed.

**Keywords:** 1,8-naphthalimide dyes, fluorescent polymers, photostability

## References

1. Ahumada, G.; Borkowska, M. Fluorescent Polymers Conspectus, *Polymers*. 2022, 14, 1118. DOI: 10.3390/polym14061118
2. Dodangeh, M., Grabchev, I., Staneva, D., Gharanjig, K. 1,8-Naphthalimide Derivatives as Dyes for Textile and Polymeric Materials: A Review, *Fibers Polym.* 2021, 22(9), 2368-2379 DOI: 10.1007/s12221-021-0979-9