

**Photocrosslinking of ethylene-vinyl acetate  
(EVA)–polyethylene-octene (POE) copolymer  
containing halogen-free flame retardants**

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Photocrosslinking of polymers for industrial applications show undoubted advantages related to the mild conditions needed and the economical equipment. However, some issues include: the use of (i) mercury lamps as light sources, which poses concerns about safety and energy consumption, (ii) typical additives, such as halogen-free flame-retardant fillers (HFFR) are powdered materials, which can scatter UV photons and avoid a deep penetration of the light. In this study, we explore the UV-curing of an innovative EVA-POE blend containing hydrotalcite and aluminum hydroxide as HFFR in the presence of a 370-nm UV LED, namely Ekopren® XI1321, a plastic used as coverage for electric cables. Two commercially available photoinitiators (benzophenone and ethyl Michler's ketone) were analyzed as well as two crosslinking coagents widely used in industry, that is, triallyl cyanurate and trimethylolpropane trimethacrylate. A comparison with pure EVA and LDPE was performed to show a higher cross-linked content of the proposed blend, even in the presence of light scattering mineral fillers at high concentration

## References

1. G. Morselli, M. Villa, P. Ceroni, L. Medici, F. Tarlazzi, S. Dossi, P. Matteucci, A. Galanti, A. Magrì, *Polym. Eng. Sci.* **2023**, 63(6), 1761. <https://doi.org/10.1002/pen.26322>