

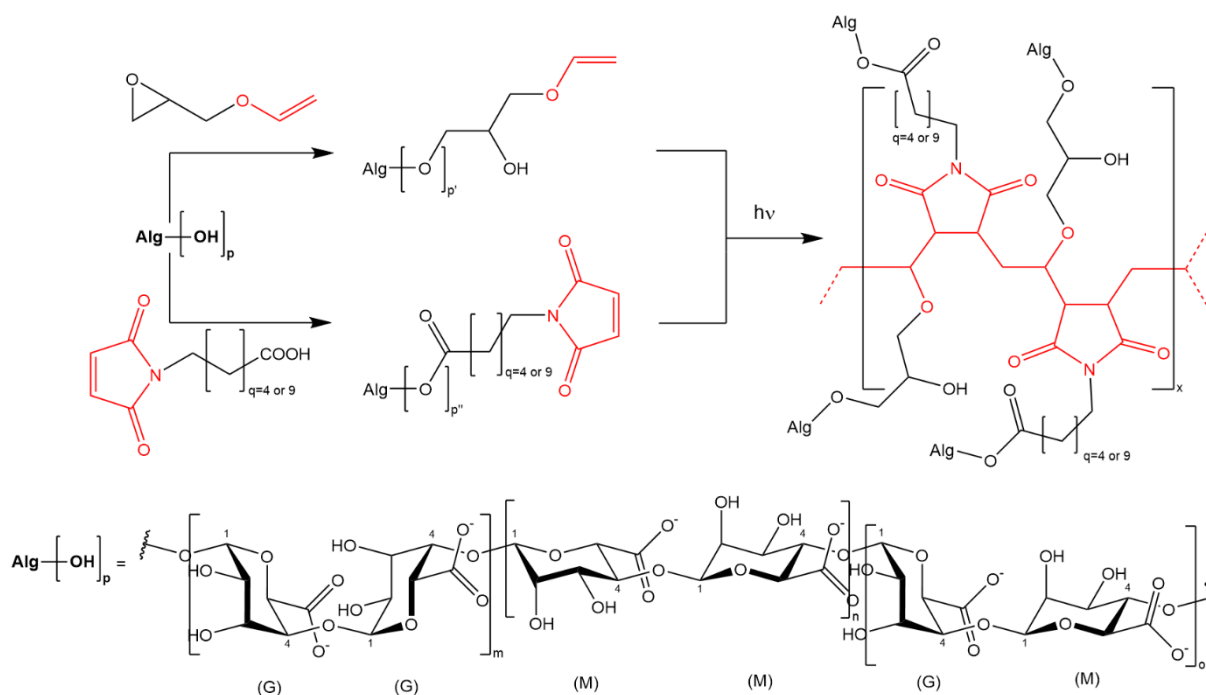
# PHOTOINITIATOR-FREE, ALGINATE-BASED UV COATING

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The increasing number of research studies devoted to the development of bio-based materials reveals their great ability to substitute petrochemical-based materials. Coatings are one of the main applications concerned by this interest. Developing new synthetic routes combining bio-based building blocks and environmentally-friendly processes such as UV irradiation is a very promising emerging field of research. In this study, we present a new approach for the synthesis of bio-based alginate derivatives for photopolymerization without the use of traditional photoinitiators. Their potential adverse effects on human health and the impact on the environment are avoided thanks to this original approach. Alginate, a biopolymer derived from seaweed, is chosen as the primary material for its biocompatibility and sustainability. They are functionalized by vinyl ether or maleimide. Their photocopolymerization without any photoinitiator will be presented (Figure 1). The photocopolymerization step employs maleimide and vinyl ether as a key component of the electron acceptor donor mechanism.



**Figure 1.** Alginate derivatization and photocopolymerization with vinyl ether and maleimide

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