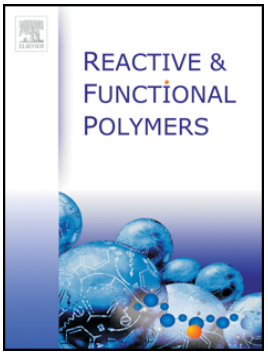

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RING-OPENING REACTIONS OF BACKBONE EPOXIDIZED POLYOXANORBORNENE

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ABSTRACT

In this article, we report the synthesis of poly(oxanorbornene imide) (PONB) with internal epoxy groups (epoxidized-$PONB_{30}$) and its ring-opening reactions with various nucleophiles, such as amine, azide, and thiols. The ring-opening reactions with amines yielded the amine-hydroxyl PONBs in the range of 36–95% of functionalization depending upon the amine content per epoxy. An allylamine-hydroxyl functionalized PONB was further functionalized efficiently with 1-octanethiol by radical thiol-ene reaction. The ring-opening reaction of the main chain epoxy using thiols resulted in a lower functionalization than amines with a similar functional group (e.g., allyl). In addition, sodium azide together with NH_4Cl, was employed