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Photosensitive Cyclophosphazene and Polyphosphazene

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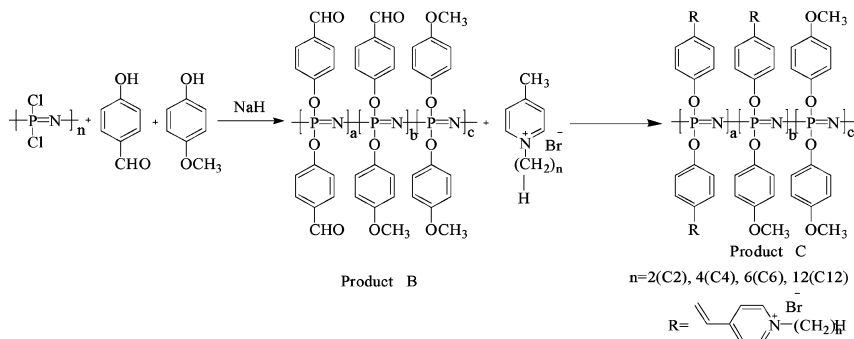
Photosensitive Cyclophosphazene and Polyphosphazene

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Keywords Photosensitive polymer; polyphosphazene; cyclophosphazene; cycloaddi-
 tional

Functional polyphosphazenes, such as fire retardant materials, high-performance rubber, biopolymer, optical materials and tissue engineering scaffold materials, have been attracted many attentions in recent years. A photosensitive polyphosphazene containing pyridinium groups was reported in this article.



SCHEME

The synthesis procedures of preparing photosensitive polyphosphazene with pyridinium unit as side group were shown in following scheme. The M_w and M_n of polymer B and polymer C are $4.05 \times$

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10^6 g/mol and 4.69×10^5 g/mol, respectively. For the Polymer C is highly sensitive to light irradiation, it must be kept under dark.

Comparing the absorption spectra of polymer B and Polymer C, there is a new absorption spectrum appearing at 357 nm in polymer C's curves. It resulted from the formation of conjugated structure. Under UV irradiation, those double bonds underwent cycloaddition reaction to form saturated structure, so the absorption peak at 357 nm decreased with increasing the irradiation time.

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