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عنوان مقاله:

Synthesis of new polyurethanes based on ۵, ۶, ۷, ۸ – tetrabromo – ۲, ۳ – dihydro – ۱, ۴ – phthalazine dione

محل انتشار:

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خلاصه مقاله:

In this work, ۵,۶,۷,۸-Tetrabromo-۲,۳-dihydro-۲,۳-bis(۲-hydroxyethyl)phthalazine-۱,۴-dione is synthesized by the reaction of ۵,۶,۷,۸-tetrabromo-۲,۳-dihydrophthalazine-۱,۴-dione with ۲-bromoethanol in the presence of triethylamine. The obtained monomer was polymerized with different diisocyanates, including hexamethylenediisocyanate (HMDI), tolylene-۲,۴-diisocyanate (TDI), isophoronediisocyanate (IPDI), ۱,۴-phenylene diisocyanate (p -PDI) and ۴,۴'-methylenebis (phenyl isocyanate) (MDI), to obtain polyurethanes. The measured viscosity for these polymers is in the range of ۰.۵-۰.۶ dlg-۱. The structure of the synthesized polymers was analyzed by infrared (IR), ۱H-NMR spectroscopy methods, viscometry measurements, thermal gravimetric analysis (TGA/DTG), as well as elemental analysis. All the polyurethanes showed very good solubility in common aprotic polar solvents. The good solubility of the polyurethanes can be due to presence of bulky pendant group as side group. The inherent viscosity of the polyurethanes in the range of ۰.۵ – ۰.۶ dL/g indicated the relatively high molecular weight. The diol synthesized here is reported for the first time, and data from different spectra analyses were used to confirm the structures of all compounds. Besides, the analysis suggests that not only the synthetized polymers have favorable polymer properties such as acceptable viscosity range and high thermal resistance, but also these polymers, due to the presence of phthalazine nucleus in their structure, may have medical applications as well.

کلمات کلیدی:

Diol, Polyurethanes, inherent viscosity, Solubility, IR-spectroscopy, ۱HNMR-spectroscopy, Thermal Gravimetric Analysis

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