

SYNTHESIS OF END-FUNCTIONALISED OLIGO(VINYL ETHER)S VIA ALKYLATION OF SILYL ENOL ETHERS IN AN AB INITIO CATIONIC POLYMERISATION

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Abstract

Oligo(methyl vinyl ether)s were synthesised by ab initio cationic polymerisation in dichloromethane solvent at -15°C and -78°C . Hydrogen chloride-isobutyl vinyl ether (HCl-IBVE) adduct in conjunction with titanium tetrachloride (TiCl_4) was used as the initiating system. Oligo(isobutyl vinyl ether)s were also synthesised following the above procedure at -78°C with HCl-IBVE adduct in conjunction with tin tetrachloride (SnCl_4) as the initiator in the presence of a difunctional silyl enol ether as the end-capping agent. Silyl enol ethers were used to alkylate the propagating carbocationic chain end. A series of ab initio end-capping reactions were carried out by varying the end-capping agent (mono and difunctional) to monomer concentration. The functionalised oligomers, thus obtained, could be used to make amphiphilic block copolymers.

Keywords: Vinyl Ethers, Silyl Enol Ethers, Alkylation, Cationic Polymerisation