

## **Controlled/living radical polymerization of methyl methacrylate in the presence of 2-bromoethanol as a transfer agent and comparison with cumyl dithiobenzoate as a RAFT agent**

Living polymerization is a process without transfer and termination chain reaction process. It has been developed almost 50 years ago. There are many types of living radical polymerization and the most versatile method is Reversible Addition Fragmentation chain Transfer (RAFT) polymerization. In this study, the controlled/living radical polymerization of methyl methacrylate (MMA) initiated by 2,2'-azobis(isobutyronitrile) (AIBN) in the presence of 2-bromoethanol under different concentration was studied to compare with this established method. Cumyl dithiobenzoate (CDB) was used as a RAFT agent. From the result, in the presence of large amount of 2-bromoethanol, the radical polymerization of MMA is controlled and it is similar with the polymerization using CDB. Furthermore, low molecular weight and relatively narrow molecular weight distributions were also obtained. A fresh feed of MMA was added to the reaction mixtures to observe the living ness in the polymer, which shows that the polymerization was not terminated and still propagated. Typical  $^1\text{H}$  NMR spectrum reveals that the polymers are prepared by radical fashion with the sharp signal peak indicates that the polymer was synthesized in the block fashion.