

Study on the synthesis and purification process of polymer using dimethyl ether as a solvent

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Polymer synthesis using compressed liquid dimethyl ether (DME) was conducted. The synthesized polymers were purified via Soxhlet extraction using liquid DME. After the synthesis and purification, DME was removed by opening the venting valve because DME is an easily removable gas at the room temperature. Unlike the general organic solvents, the additional separation processes were not required. The liquid phase of DME is an excellent solvent with unique solvency power for both polar and apolar substances which overcomes the drawbacks of scCO<sub>2</sub>. In addition, DME has the advantage that the cost of equipment and operation can be decreased because the operating pressure of DME is much lower than that of scCO<sub>2</sub>.