

**Poster SCF8**

**Phase Equilibria of Two Binary Systems of Diethyl Fumarate / CO<sub>2</sub> and Propylene Glycol/CO<sub>2</sub> at Different Temperatures**

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In this work the preliminary research has been done to ensure a good background for processing of Poly(Propylene Fumarate) (PPF) by using a supercritical carbon dioxide (SC-CO<sub>2</sub>). PPF is the viscous linear polyester based upon fumaric acid, a natural component of the citric acid (Krebs) cycle, found in mammalian cell metabolism. PPF is synthesized from diethyl fumarate and propylene glycol and could be used as an important biodegradable and cross-linkable polymer designed for bone tissue engineering applications.

In present work the high pressure liquid-vapour phase equilibrium data (P-T-x-y) of the binary mixture of diethyl fumarate-CO<sub>2</sub> have been investigated at temperatures of (125, 150 and 180)° C in the pressure range from (25 to 230) bar using a static-analytic method. The measurements for the propylene glycol-CO<sub>2</sub> system have been investigated at temperatures of (125, 150 and 180)° C in the pressure range from (25 to 500) bar using a static-analytic method. The goal was to determine the equilibrium composition of liquid (heavy) and gaseous (light) phase. Measurements were performed by using an optical high pressure cell.