

## Phase Behavior of 2,4-pentanediol in Carbon Dioxide at High Pressure

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We previously demonstrated the phase behavior of 2,2-dimethyl 1,3-propanediol in carbon dioxide. The phase behavior can be interpreted with two factors, energetic and entropic contribution to mixing. We will present the pressure-temperature and pressure-concentration diagram between 60 and 130 °C and up to 200 MPa. Comparing the phase boundary of 2,2-dimethyl 1,3-propanediol with other C5-diol such as 2,4-pentanediol, it will be clarified how the phase behavior is influenced by the location of hydroxyl group in C5-diols. The both diol can have hydrogen bonding, but the degree of the intramolecular hydrogen bonding is expected greatly different between 2,2-dimethyl 1,3-propanediol and 2,4-pentanediol. In addition, difference in the molecular structure between the two diols induces different mixture behavior in carbon dioxide.