

## **148s The Solubility, Compressed Liquid and Saturation Density of Phenol in Supercritical CO<sub>2</sub>**

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Phenol has been used as herbicide. It is a common pollutant of soils and residual industrial water. Phenol has health effects even at very low concentration. Remediation of polluted soils and residual water can be made using supercritical fluid technology. Some previous information about phase equilibria and volumetric properties is necessary. In this work, the solubility of phenol was measured using an apparatus based on the static-synthetic method connected to a vibrating tube densitometer. The compressed liquid density and the saturation density can be measured with this apparatus. The apparatus was tested previously with the CO<sub>2</sub> + naphthalene system [1]. Measurements were carried out at temperatures from 313 to 333 K and pressures up to 25 MPa. The determination of the saturation density can be used to improve the correlation of the solubility using semi-empirical models [1]. Solubility data were correlated using an expression based on the dilute solution theory.

Keywords: Solubility; Phenol; Saturation; Density; CO<sub>2</sub>

[1] Zúñiga-Moreno, L. A. Galicia-Luna, L. E. Camacho-Camacho. "Simultaneous measurements of solid solubilities and volumetric properties of naphthalene + carbon dioxide mixtures by a vibrating tube densitometer." Accepted at Fluid Phase Equilib. 2005.