

Solubility of Carnauba Wax in Supercritical Carbon Dioxide

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Carnauba wax, obtained from the leaves of the Brazilian tropical palm tree, has been extensively used as a binder in metal injection process or powder injection process. Composition of carnauba wax mainly consists of aliphatic esters and cinnamic aliphatic diesters. Carnauba wax removal from the green body with using supercritical CO₂ gives less time and low temperature than other methods such as solvent, thermal and catalytic debinding process. In this research, effects of temperature, pressure and co-solvents on the solubility of carnauba wax were investigated in supercritical CO₂. The solubility of carnauba wax measured at high pressures and relatively low temperatures. Two methods are used in this research, batch method and flow method. Solubility increased when flow method is used, especially when chloroform, ethanol, acetone, or n-hexane was used as a co-solvent. It was also influenced by temperature and pressure.

Acknowledgment: This research is supported by DG Economic Circle Leading Industry R&D Program of the Ministry of Knowledge and Economy (MOKE) (R0001657).