Ceramic Injection Molding by using Binary Supercritical Fluid Mixture (Carbon dioxide + Propane)

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Supercritical fluids extraction has used widely as a method for removal because of its many advantages of low waste production, rapid extraction and powerful extraction efficiency for removal. The Ceramic Injection Molding (CIM) process requires the use of the properties such as cohesion, flexibility and workability in the green state. In CIM process, debinding is a key step for successful CIM. In this work, we used supercritical CO_2 and CO_2 + propane as a solvent in order to remove paraffin wax from CIM Parts. The weight percent of propane in supercritical state is 10wt%, 20wt% and 50wt%, respectively. The experimental results lead us to conclude that supercritical CO_2 and CO_2 + propane debinding might offer a short debinding time and safety working environment alternative to the current conventional debinding methods.