

Effects of operating conditions on recrystallization and agglomeration of Cefpodoxime Proxetil (CPD) particles in supercritical anti-solvent process

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Cefpodoxime Proxetil (CPD) is an orally-absorbed prodrug of cefpodoxime. Bioavailability of Cefpodoxime Proxetil (CPD) is limited by its low solubility in aqueous solution. The objective of this work is to make fine CPD particles and then enhance its bioavailability. The size of processed CPD particles was reduced compared with original particles and particle morphology was changed uniformly like spherical type. But CPD particles were agglomerated after process. The properties such as particle size, morphology and particle size distribution are affected by this agglomeration. The effects of process parameter such as temperature, pressure, concentration and process time on agglomeration are investigated in this research. Particles were highly agglomerated at high temperature in high pressure. It is inferred that CO₂ of high temperature and pressure causes the fusion of contact surface of particles, which leads to agglomeration. And the degree of agglomeration was reduced using high ratio of CO₂ weight to solution weight.