Micronization of Ibuprofen using Rapid Extraction of Supercritical Solution(RESS)

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Ibuprofen is a chiral nonsteroidal antiinflammatory drug. It is most often prescribed to treat arthritis, fever and headaches. The required intake of ibuprofen can be minimized by improving its effectiveness in terms of increasing the dissolution rate in the biological environmental. The dissolution rate of a drug in the biological environment can be enhanced by reducing the particle size of the drug. In this study, the rapid expansion of supercritical solution(RESS) process using supercritical carbon dioxide was used to micronize ibuprofen. Experiments are performed to investigate the effects of extraction pressure, temperature, nozzle size and co-solvent. The particle size and morphology were measured using Scanning Election Microscopy and X-ray diffraction.