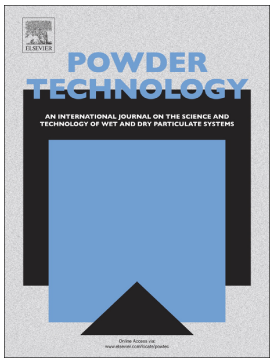

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Electrostatic coated controlled porosity osmotic pump with ultrafine powders

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Abstract: In the present study, novel controlled porosity osmotic pump were formed by an electrostatic coating technology with ultrafine powders. Containing film forming polymer (cellulose acetate, CA) and pore former, ultrafine coating powders were electrostatically deposited onto the surface of osmotic pump cores with an electrostatic spray gun, followed by a curing step to allow those deposited ultrafine particles to coalesce and form a continuous coating film. Colloidal silicon dioxide was found to be efficient in increasing the flowability of the ultrafine coating powders, leading to a higher coating powder adhesion rate and more uniform coating film. Longer curing time and/ or higher curing temperature resulted in a better and more continuous coating film. The results of dissolution tests and the modeling of the drug release profiles showed that the drug release from the electrostatic coated controlled porosity osmotic pump followed a zero-order drug release kinetics. A desirable drug release rate could