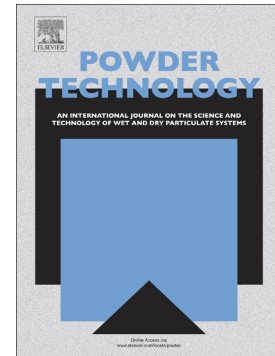


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Green synthesis and influence of calcined temperature on the formation of novel porous diatomite microspheres for efficient adsorption of dyes

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Abstract:

The novel porous diatomite microspheres were prepared by spray drying and subsequent calcination. Effects of calcined temperatures on the microstructure, specific surface area and adsorption properties of the microspheres were investigated systematically. Results showed that the porous microspheres exhibited spherical characteristic with both macropore and mesoporous features. The phases of the microspheres kept amorphous at 800 °C and crystallized into cristobalite at 1000 °C. The microspheres after calcined at 600 °C showed removal efficiency of 95.6% with the dosage of 20 g/L under the starting concentration of 100mg/L. The adsorption process of methylene blue onto microspheres followed the pseudo-second-order kinetic model and Langmuir equation. The dye solutions could be easily fil-

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