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Activated carbons with high nitrogen content by a combination of hydrothermal carbonization with activation



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ABSTRACT

This paper reports the production of carbons materials with a nitrogen content around 8%(w/w) and a well-developed porous structure, with BET surface area and pore volume up to 2130 m² g⁻¹ and 1.12 cm³ g⁻¹, respectively, produced by a combination of hydrothermal carbonization, an environmental friendly method in the production of sustainable tunable carbon materials, with traditional activation methods. The porosity was developed through an activation process according to different routes, namely activation with CO₂ and chemical activation using CaCO₃ and K₂CO₃. The successful production of activated carbons using chitosan as a nitrogen source revealed to be a good alternative to post-synthesis methods.

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