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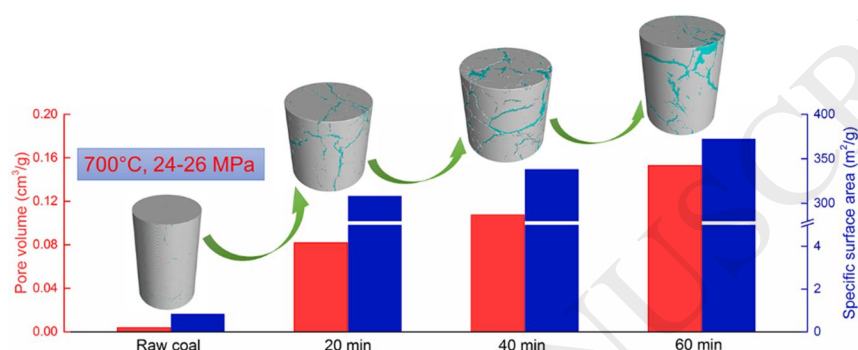
1 **Evolution of Pore Structure and Produced Gases of Zhundong Coal Particle**
 2 **during Gasification in Supercritical Water**

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6 Graphical Abstract



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9 **Abstract**

10 Supercritical water gasification technology provides a promising way for the efficient
 11 and clean utilization of high-sodium Zhundong coal. Pore structure evolution rules of
 12 char in the gasification process can provide important information for the heat and mass
 13 transfer in char particles and the optimization of kinetic models. In this work,
 14 supercritical water gasification experiments of Zhundong coal were conducted and the
 15 increase of temperature was found to promote the hydrogen production and gas yield
 16 increasing. Residual chars were characterized using techniques of nitrogen adsorption
 17 at 77 K, mercury intrusion porosimetry and micro-computed tomography. The results
 18 indicated that pores mainly appeared in two regions of 1.7-2 nm and 600-2000 nm. The

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