

## Supporting Information

# Kinetics of Coal Char Gasification with Fe-Based Oxygen Carriers under Pressured Conditions

*Xintong Guo, Guozhang Chang, Xiaoli Tan, Xiude Hu, Qingjie Guo\**

State Key Laboratory of High-efficiency Utilization of Coal and Green Chemical Engineering,  
Ningxia University, Yinchuan 750021, China

### Corresponding Author

Tel.: +86-951-2062835

Fax: +86-951-2062323

\*E-mail: qingjie\_guo@163.com

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**Figure S1.** XRD characterization of fresh 40 wt %  $\text{Fe}_2\text{O}_3/\text{Al}_2\text{O}_3$  oxygen carriers.

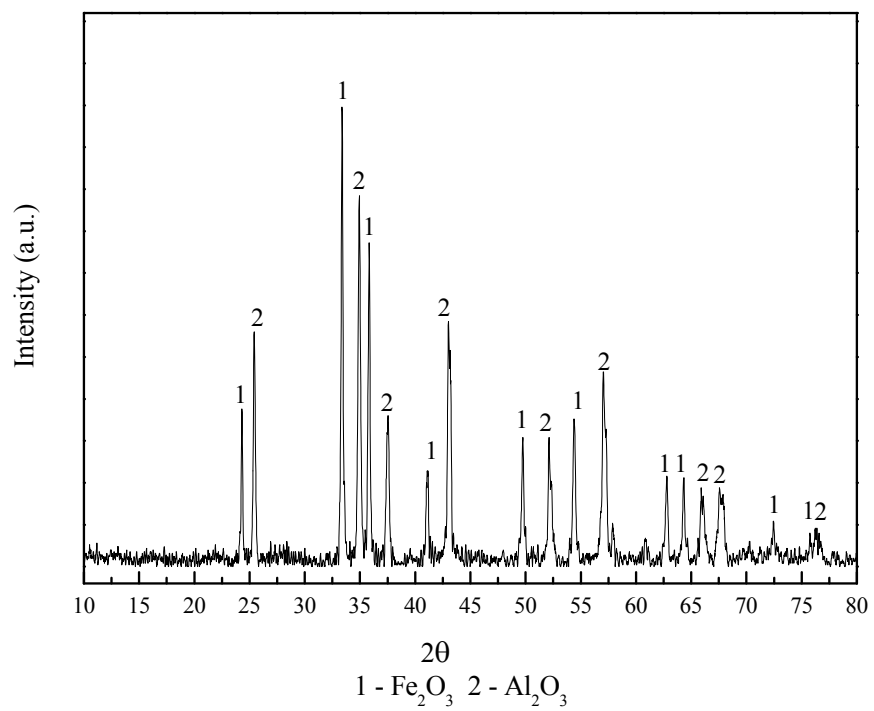
**Figure S2.** The corresponding linear velocities of different coal chars when the influence of external diffusion was overcome.

**Figure S3.** Linear relationship between  $1/r_g$  and  $1/C_{\text{H}_2\text{O},b}$ .

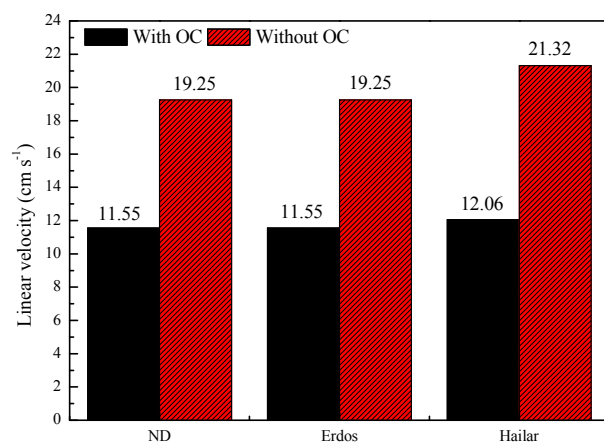
**Figure S4.** Linear relationship between  $\ln(k_i)$  and  $1/T$ .

**Figure S5.** Linear relationship of the oxygen carrier between  $\ln k_{red}$  and  $1/T$ .

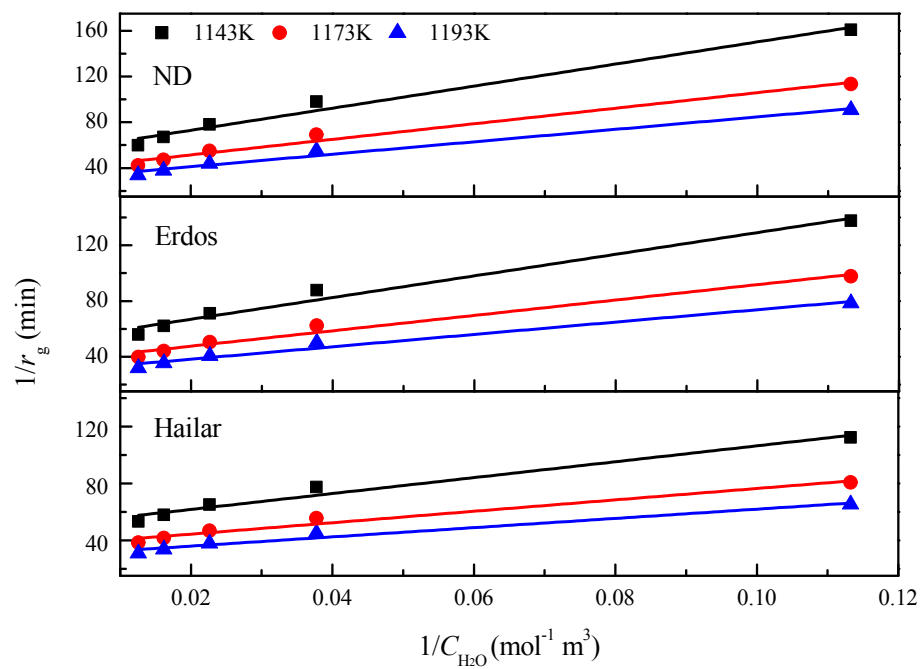
**Figure S6.** Comparison of the gasification rates between experimental values and calculated values.



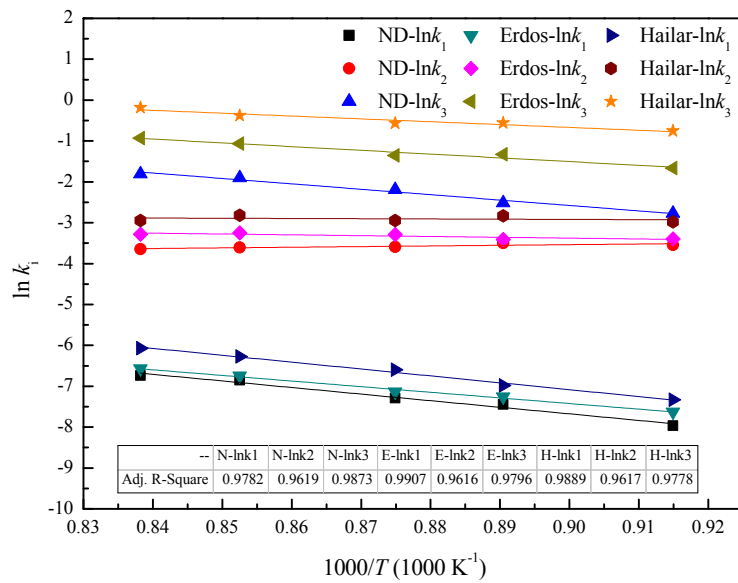
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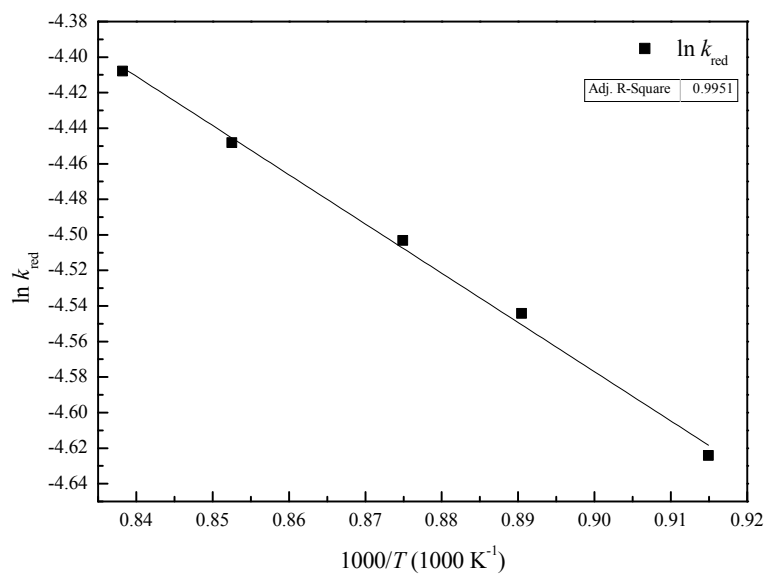
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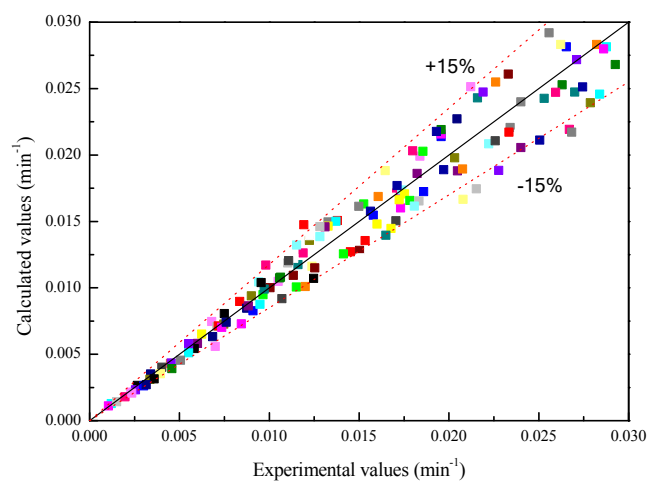
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