

Accepted Manuscript

Study on reactivity characteristics and synergy behaviours of rice straw and bituminous coal co-gasification

Juntao Wei, Qinghua Guo, Handing Chen, Xueli Chen, Guangsuo Yu

PII: S0960-8524(16)31254-8
DOI: <http://dx.doi.org/10.1016/j.biortech.2016.08.116>
Reference: BITE 17019

To appear in: *Bioresource Technology*

Received Date: 2 August 2016
Revised Date: 29 August 2016
Accepted Date: 30 August 2016

Please cite this article as: Wei, J., Guo, Q., Chen, H., Chen, X., Yu, G., Study on reactivity characteristics and synergy behaviours of rice straw and bituminous coal co-gasification, *Bioresource Technology* (2016), doi: <http://dx.doi.org/10.1016/j.biortech.2016.08.116>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Study on reactivity characteristics and synergy behaviours of rice straw and bituminous coal co-gasification

Juntao Wei, Qinghua Guo, Handing Chen, Xueli Chen, Guangsuo Yu*

*Key Laboratory of Coal Gasification and Energy Chemical Engineering of Ministry of Education,
Shanghai Engineering Research Center of Coal Gasification, East China University of Science and
Technology, Shanghai 200237, PR China*

Abstract: Co-gasification of rice straw (RS) and Shenfu bituminous coal (SF) was conducted in a thermogravimetric analyzer (TGA) to explore the effects of gasification temperature and blend ratio on reactivity characteristics and synergy behaviours of co-gasification. Moreover, the relationship between the synergy and the K/Ca transformation in co-gasification was studied using flame atomic absorption spectrum (FAAS) and in-situ heating stage microscope. The results showed that the whole reactivities increased with increasing RS proportion and gasification temperature. The transformation of water-soluble and ion-exchanged (*ws-ie*) calcium was enhanced in whole co-gasification and the *ws-ie* potassium transformation was obviously inhibited in mid-late reaction. Hence, synergy behaviours were synthetically determined by the enhancement of Ca deactivation and the strengthening of K catalysis. The inhibiting effect was occurred in initial co-gasification and was converted to the synergistic effect at a characteristic conversion, which decreased with increasing RS proportion and decreasing gasification temperature.

* Corresponding Author. Tel.: +86-21-64252974, Fax: +86-21-64251312
E-mail: gsyu@ecust.edu.cn (G.S.Yu)

Download English Version:

<https://daneshyari.com/en/article/7070146>

Download Persian Version:

<https://daneshyari.com/article/7070146>

[Daneshyari.com](https://daneshyari.com)