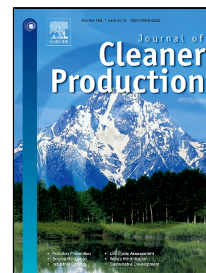


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Distribution of Trace Elements during Coal Gasification : The Effect of Upgrading Method



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1 **5910 words in total**

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3 **Upgrading Method**

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12 **Abstract:**

13 A combination of upgrading and gasification process seems quite promising to cleanly utilize low-  
14 rank coal (LRC). The distribution of trace elements in this process has rarely been researched. In this  
15 study, four upgrading methods for LRC (evaporative drying, pyrolysis upgrading, microwave drying and  
16 hydrothermal dewatering (HTD)) were used and then the upgraded coal (UC) was gasified with  
17 investigation on the distribution and emissions of 13 trace elements (beryllium, vanadium, chromium,  
18 manganese, cobalt, nickel, copper, zinc, arsenic, selenium, cadmium, mercury and lead). The relative  
19 enrichment factors (RE) were introduced to quantitatively compare four different upgrading methods.  
20 The results show that gasification of UC helps controlling trace element of LRC by reducing its contents  
21 in feedstock and enhancing the ash enrichment. Different upgrading methods have their specific effects  
22 on different trace elements, respectively. Microwave drying presents to be best for most trace elements

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