especially pronounced for the semi-coking of pre-treated low-reduced coals, increasing the tar and semi-coke yield and decreasing the semi-coking gas yield. During the semi-coking of low-reduced coals most of the sulphur remains in the semi-coke (62%), while up to 23% of it finds way into the tar, and the rest goes into the gas. For the reduced coals as much as 32% of the sulphur remains in the solid products, while up to 63% is transformed into semi-coking gas. The introduction of the AAD and absorber oil results in the desulphurization of the semi-coke. Thus, the sulphur contents in the semi-coke and tar decrease by 8% and 1% respectively, while its contents in the semi-coking gas increase.

Key words desulphurization; coal; thermal destruction

Mercury in coal from the People's Republic of China

Harvey E. Belkin[1], Susan J. Tewalt[1], Robert B. Finkelman[2], Baoshan ZHENG[3], Daishe WU[3], Shehong LI[3], Jianming ZHU[3], Binbin WANG[3]

[1] *U.S. Geological Survey, Reston, VA, USA*

[2] *Department of Geosciences, University of Texas at Dallas, Richardson, TX, USA*

[3] *State Key Laboratory of Environmental Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550002, China*

The Peoples' Republic of China produces and consumes the largest quantity of coal in the world; about 2.19 billion tons of coal were produced in 2005. It is estimated that coal consumption will reach 7 billion tons by 2020. Although the nationwide percentage of electrical production from coal is falling due to increased coal-fired power generation efficiency and alternative sources, China will burn more coal than any other country for the foreseeable future. China also is estimated to be the largest producer of Hg emissions (Dastoor and Larocque, 2004, Atmos. Envirn. 38:147-161). A recent comprehensive study of anthropogenic Hg emissions in China (Streets et al., 2005, Atmos. Envirn. 39:7789-7806) produced a figure of 536 tons of Hg for the year 1999 with coal combustion (all types) accounting for 38% of the total. Atmospheric Hg emission is an international problem as the upper atmosphere provides effective global transport of mercury. Although the estimates vary, China produces about three times more Hg/t of coal burnt than the USA because of the lack of modern technology for pollution control and limited use of cleaned coal. Knowledge of the mercury content, mode of occurrence, and regional distribution in Chinese coal is vital in order to assess the global atmospheric contribution from Chinese coal combustion. We have collected and analyzed 305 coal samples from mines with the highest production from 25 provinces, municipalities, or autonomous regions, which thus reflects much of the coal currently supplied for power generation and industrial use. The method of Hg determination was routine cold-vapor atomic absorption spectroscopy using two methods of sample dissolution. The arithmetic mean, on an as-determined, whole-coal basis, of 305 samples is 0.15×10^{-6} (1 sigma=0.14), with a minimum of $<0.02\times10^{-6}$ and a maximum of 0.69×10^{-6}. All data averaged on a dry basis is 0.16×10^{-6}. Less than 10% of the Hg data is below the detection limit of 0.02×10^{-6}. Duplicate analyses and inter-laboratory comparisons suggest that analytical uncertainties can arise from imperfect sample splitting using a <60 mesh sample size in some samples.

Key words coal; mercury; environment; pollution; geochemistry

Determination of potential hazardous elements in Çan coals (Canakkale-Turkey)-I

Gulbin Gurdal, Alper Baba

Canakkale Onsekiz Mart University, Engineering and Architecture Faculty, Department of Geological Engineering, Canakkale 17020, Turkey

It is known that the increasing use of coal as an energy source led to the growing environmental and health problems. But comprehensive knowledge of coal quality parameters may help to reduce some of these problems. The Çanakkale-Çan coalfield is located in the western part of Turkey, whose reserves are estimated at 69.3 billion tons, mainly used in the industry in the neighboring areas, specifically for the Çan Thermal Power Plant. The aim of this study is to determine the coal quality parameters and examine the origin and distributions of potentially toxic trace elements in lignite which may produce environmental and health hazards in the area. The coal samples were collected from different parts of the coalfield in Can. Proximate and ultimate analyses, sulfur form analyses, X-ray powder diffraction (XRD), inductively coupled plasma-mass spectrometry (ICP-MS), and scanning electron microscopy (SEM) were performed on those samples to determine the geochemical profile of hazardous elements. The Çan lignites