# Geochemistry of trace elements in high-sulphur coals from Weibei Coalfield, Ordos Basin, China

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In order to investigate the geochemical characteristics of trace elements in the high-sulfur coal of late Paleozoic in Weibei, 15 bench samples (including 12 coals, two partings and one floor) were collected from the No.11 coal seam of Sangshuping Mine, Weibei Coalfield, Ordos Basin, China. The trace elements were determined by ICP-MS, Atomic Fluorescence Spectroscopy (As and Se), Atomic Absorption Spectrometry (Hg), Ion Selective Electrode (F), and the occurrence of trace elements were then analysed based on statistics.

The results show that the No.11 coal seam from Sangshuping Mine is a ultra low-volatile bituminous coal, low moisture, medium-ash, high-sulphur. The organic sulfur is the main type of sufur in coal, accounting for 77% of total sullfur. With respect to the average world coals [1], Weibei high-sulphur coal are significantly enriched in Li (320.42 μg/g); slightly enriched in Zn (51.26 μg/g), Ga (13.98 μg/g), Sr (447.53 μg/g), Pb (20.39 μg/g), Th (8.45 μg/g), Zr (86.06 μg/g), Hf (2.49 μg/g), Se (4.35 μg/g), Hg (0.30 μg/g), F (213 μg/g).

The concentration of REY (REE+Y) in the No.11 coal of the Sangshuping Mine range from 19.58μg/g to 472.14 μg/g, with an average of 168.23μg/g, which is higher than that in normal Chinese coal (135.89 μg/g) [2] and world hard coal (68.47 μg/g) [1]. The REY distribution patterns for most of coal benches in the No.11 coal are L-REY type. The negative anomaly value of Ce indicates that seawater had obvious influence on the coal swamps. The negative anomaly value of Eu and the negative correlation between ∑REY and CaO indicate the sediment environments were acidic reducing environment. The REY distribution patterns in coal, partings and floor seam samples are similar, indicating that they had the same and stable material supply during the coal formation.

[1] Ketris & Yudovich (2009) *International Journal of Coal Geology* **78,** 135-148. [2] Dai *et al*. (2012) *International Journal of Coal Geology* **94,** 3-21.