

Relationship between Hg and sulfur in coal from Huaibei coalfield, China

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Many authors have reported that Hg in coal can exist in solid solution within pyrite. Correlations between sulfur and Hg are often attributed to this mode of occurrence and are most common in coals that are extremely enriched in Hg.

The result of this study shows that coal samples from the Huaibei coalfield have relatively low sulfur values (average 0.59%). The correlation coefficient between ash and sulfur is -0.08, indicating that sulfur in the Huaibei coals has an intermediate (organic and inorganic) affinity. In a study of 29 coal samples from the Huaibei coalfield, We observed that organic sulfur is the dominant sulfur form when the total sulfur is near 0.5%. Some literatures report that organic sulfur compounds can capture Hg and result in the enrichment of Hg in coals.

The conclusion shows the relationship between Hg and sulfur in all 29 coal samples that we examined; note that the correlation coefficient is only 0.17 (n=29). Interestingly, and it shows a significant positive correlation between Hg and sulfur (n=21, R=0.64, p<0.05) is obtained by excluding the eight samples from the No. 5 and 7 coal seams, which were influenced by a magmatic intrusion. This suggests that the magmatic intrusion not only increased the concentration of Hg in seams 5 and 7, but also changed the mode of Hg occurrence in these seams. The significant, positive correlation between Hg and sulfur in coals from the No. 3, 4, and 10 seams suggests that Hg in these coal seams is bound to both organic sulfur moieties and within sulfide minerals.

Rb-Sr isochron age of gold-rich quartz veins in the Lingqueshan gold deposit, Shandong Province in China

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Mineralogenetic matter, mineralogenetic liquid, and mineralogenetic age are three core problems in mineral deposit Research. Among them mineralogenetic age is a important aspect in mineral deposit research. To ascertain the mineralogenetic age of a mineral deposit has significance in ascertain the relation between the mineralogenetic function, regional tectonics function, metamorphic function and magma function, and has significance in research of mineralogenetic matter, mineralogenetic liquid, and mineralogenetic cause of formation. Now direct determination to the mineralogenetic age method mainly are K-Ar method, Ar-Ar method, fluid inclusion Rb-Sr isochrone method, Sm-Nd method, Pb-Pb method, and so on. Since in 80th in 20 century the method of fluid inclusion Rb-Sr isochrone was used in mineralogenetic age research, many domestic and overseas scholars did attempts in this aspect, and some scholar put forward some oppugn with the lack and dependability of this method. The paper has determined the Rb-Sr isochron age of Gold-rich quartz veins in the Lingqueshan gold deposit, and discusse the mineralogenetic age.

The Zhao-Ping fracture zone is the master gold metallogenic zone in China, but the study on the gold deposit lays in the hanging wall of the Zhao-Ping fracture zone is very rudimental. The Lingqueshan gold deposit lays in the hanging wall. In order to know the timing of the gold deposition, so the Rb-Sr isochron dating methods have been adopted to date deposit, the result indicates that the age of the Lingqueshan gold deposit is 118±9.4Ma. It is consistency with the age of Jiaodong gold deposits concentration zone (120±10Ma). That is to say, the large-scale metallogeny of the Zhao-Ping fault zone hanging wall took place in early cretaceous occurred in north western Jiaodong Peninsula.