

Investigation of the rules about elements distribution and migration in coal during the artificial process

JIANYE YANG¹, SHAONI WEI²

1. College of Material Science and Engineering, Xi'an University of Science and Technology, Xi'an 710054, Shaanxi, China (yjxust@163.com)
2. College of Geology and Environment, Xi'an University of Science and Technology, Xi'an 710054, Shaanxi, China (weishaoni03@163.com)

Experimental results show that the elements in coal, especially trace elements, follow some basic migration and distribution rules during various chemical and mechanical differentiation processes. Even with artificial action, all quantifiable geochemical or other chemical processes conform to the periodic law of elements, which has been described quantitatively for the first time in this paper. For the artificial mechanical differentiation, the distribution rule of elements between various sizes of fly ash particles could be depicted by the periodic law as well as the empirical formula from the auto-regression function. However, in the condition of enclosed space, the concentration effect of elements in coal ash is not accordance with the periodic law, but presents all elements concentrating into the high-temperature carbonized coal ash in the same ratio and multiple.