

Cation Exchange Property of Various Zeolitic Materials from Coal Fly Ash for Monovalent and divalent cations

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ABSTRACT

The zeolite syntheses from coal fly ash were carried out under various hydrothermal conditions. Cation exchange capacity and ion exchange selectivity were measured for the obtained product. The usage of various zeolites as a cation exchanger was considered from an engineering aspect.

When NaOH, KOH are used as an alkali source of zeolite synthesis, Na-P, HS, ANA, K-CHA, K-H are synthesized under hydrothermal conditions. The order of cation exchange capacity is as follows; Na-P>K-CHA>HS>K-H. The selectivity of cation exchange for monovalent and divalent cations are almost corresponding to the degree of Stokes hydration ionic radius. It is considered the zeolites obtained from coal fly ash can be used as an excellent cation exchanger.

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