Heavy metal adsorption properties of zeolite synthesized from coal bottom ash

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ABSTRACT

At present, about 70% of the coal fly ash that discharged from domestic thermoelectric power plants is reused as raw materials in the manufacture of cement and concrete. And researches on synthesis of zeolite synthesized from coal fly ash have been performed to obtain the high-value industrial products for the last two decades. However, coal bottom ash occupying about 15% of total coal ash is totally disposed at present. Coal bottom ash can also used as raw materials for the synthesis of zeolites because it contain large amounts of Al and Si. In this study, we synthesized zeolite from coal bottom ash at various NaOH concentrations and reaction times. Then, physio-chemical properties of the synthesized zeolite such as crystal structure, surface area and cation exchange capacity were investigated. Also, characterized adsorption and elution properties of heavy metals for apply the synthesized zeolite to soil improvement agent or water treatment agent.

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