

Thesis Title	A study of Synthesized Zeolite properties from Iron Cupola's Slag
Thesis Credit	12
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Abstract

An experimental study on synthesis of zeolite from cupola ion industry slag was carried out. The slag was activated by NaOH and KOH solutions at different concentrations with the ratio of slag to chemical solution of 0.01 g/ml. The experimental results showed that the hydroxysodalite type was synthesized when activated by NaOH, and gismondine type was obtained when activated by KOH. In addition, other compounds such as mullite, quartz, and unknown were found also. A suitable condition to synthesize the slag was determined at the NaOH concentration of 4 molar, 120 °C and 7 hours of the activation time. At this condition, the synthesized zeolite has a cation exchange capacity of 245.3 meq/100 g zeolite. When the first filtration solution was used in the reaction, a suitable condition for the synthesized zeolite was obtained at the NaOH concentration of 4 molar, 180 °C and 3 hours of the activation time. The synthesized zeolite A has a cation exchange capacity of 474.1 meq/100 g zeolite, surface area of 451 m²/g zeolite, a range of pore size of 4-11 Å, and pore volume of 0.11 cm³/g.

The adsorption capacity of the synthesized zeolite in a stirred batch reactor was found to be 24.2 mg lead adsorbed /g synthetic zeolite.

Keyword : slag / Zeolite / Adsorption / Lead