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INVESTIGATION OF RED MUD IN ORDER TO UTILIZE IT

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As a byproduct of the alumina production about 50 Mt red mud is accumulated in Hungary, and the disposing and storing of this material can case and has caused environmental burden and damage for the environment. On the other hand, red mud contains a considerably high amount of iron in the form of Fe_2O_3 in the concentration of 30-40%. Utilization of this form of iron oxide can supply iron ore substituting material for the Hungarian metallurgical industry enough for 12-16 years. With this action the burden on environment could be eased, and the emerging technology could result jobs for many workers. In this paper we report the present status of an investigation during which the paramagnetic iron oxide content of the red mud was reduced by using different particles with carbon content by heating them in inert atmosphere. The resulted ferromagnetic products were separated by both magnetic and electrostatic separation. The usage of those particles was analysed, too. The magnetic properties of the product was analysed by measurement of relative magnetic permeability. The consistency of the product was investigated with scanning electron microscopy. The research showed that the magnetic properties of the iron oxide can be modified in a reproduceable way.

Keywords: red mud, red mud reprocessing, reduction, magnetic separation

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