

Utilization of Treated Spend Pot Lining by Product from the Primary Aluminum Production in Cement and Concrete

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Abstract : Spend pot lining (SPL) is a by-product generated from primary aluminum production. SPL consists of two parts, the first cut is rich in carbonaceous materials, and the second cut is rich in aluminum and silicon oxides. After treating by the hydrometallurgical Low Caustic Leaching and Liming process, the refractory part of SPL becomes an inert material, called LCLL ash in this project. LCLL ash was calcined at different temperatures (800 and 1000°C) and Calcined LCLL ash ground as fines of cement and replacement a part of cement in concrete production. The effect of LCLL ash on the chemical properties, mechanical properties and fresh behavior of concrete was evaluated by isothermal calorimetry, compressive test, and slump test. These results were compared to the reference mixture.

Keywords : spend pot lining, concrete, cement, compressive strength, calorimetry

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