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A study on the minimization of concrete sludge and CO_2-Carbonization using lime-water

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Now a day, past several decades of rapid economic growth development of Korea, the various kinds of types and quantities of waste are rapidly increasing even in the consideration of reconstruction of the urban city. This study is making efforts to improve waste recycling for environmental protection concerning of Cop21. Firstly, face on the weathering problem of concrete materials for old buildings considering of producing the WBM (waste building materials). Especially the USW (used concrete waste) consists of over 60% in the WBM. When we recycled USW, it must be passing through the comminution stage. At that time, the fine particles are around 20 to 30 volumes % and mixed with water and many kinds of organic things as wood, plastic etc. The classification and dewatering processes are required to use efficiently slurry generated from recycling processes of construction wastes. The classification tests with 2-inch hydro cyclone were performed using two samples; as-received one and re-dispersed one in water after filtration, the median diameter of underflow product decreased with increasing the pressure, and the diameter was 31.10 at 0.3 MPa with 5% pulp density. The dewatering efficiency increased with increasing pulp density, the water content of underflow product was 48.8% at 0.3 MPa with 8% pulp density. The basic characteristics analysis and pH neutralization experiments were carried out to use of slurry generated from recycling processes of construction wastes. Muscovite and carbonate minerals were main minerals of fine particles, and carbonate minerals increased as particle size was decreased. The neutralized the high pH (about 12) of the sludge supernatant using acid was not efficiency. But, it was could possible that using CO2 gas to neutralize under pH 8.5. And by the XRD analysis, it showed the possibility of the recovering highly purer CaCO3 precipitates.

Biography

Heeyoung Shin completed his PhD in Mechanochemical characteristics of the fine particle during the grinding from Hanyang University, South Korea in 2000. He is currently project manager as Rare-earth mineral beneficiation from beach-sand and Coal Modification Process using LRC. He spent three years as a Research Coordinator in KIGAM branch office on Sophia Antipolis& Orleans science town in France. He took a pleasant experience of a wide eye view of research trends in developing country in the development of appropriate technology project. He carried out several International Cooperative Research Projects in the field of mineral processing in China, Indonesia, Japan, Indonesia and Vietnam.

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