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Chromium VI analysis method and heavy metal concentration of Portland cement in South Korea

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In recent the National Assembly and the media of Korea arouse issues on the degradation in health and environments caused by heavy metals included in cement in addition to interests on the wastes used in cement kilns. Therefore, local residents, government and civilian organizations, experts, and cement production companies are gathered to form a committee for determining an autonomous guide for Chromium VI in Portland cement. Also, they investigated the criteria and analysis methods and established an autonomous management system in 2006 for the concentration of such heavy metals included in cement products including Chromium VI. In Korea, in the analysis methods for Chromium VI, the quantitative method was established by KS L 5221 Dec., 2007 and an autonomous agreement criteria (20 mg/kg) was determined between cement production companies since 2009. Then, the results of the analysis of heavy metals are to be published for every month, and the degree of pollution has been monitored. In Korea, because there are no test methods for such main and sub-materials and wastes, the concentrations of five major heavy metals, such as As, Cd, Cu, Pb, and Hg, which are determined in the autonomous committee, are managed according to the US EPA test method. In this study a investigates some effective and reasonable test methods for establishing a guideline for the criteria of the heavy metal included in wastes applied to cement kilns. In addition, the concentrations of seven different heavy metals (Cr (), T-Cr, As, Cd, Cu, Pb and Hg) in cement products collected from 11 factories of 9 manufacturers are verified for every month and changes in the concentrations are also compared with the cement products of USA, Germany, China and Japan.

Biography

Tae-Wan Jeon has worked from 1994 in the National Institute of Environmental Research and is currently in charge of the related work, such as waste management and disposal, waste recycling purposes, the Basel Convention. He is a Doctor of Engineering and Director of resource recirculation research division.

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