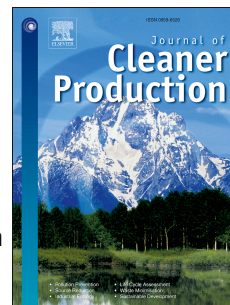


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## Recycling of arsenic-rich mine tailings in controlled low-strength materials

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### Abstract

This study investigated the engineering properties and leaching behavior of controlled low-strength materials (CLSM) containing arsenic-rich mine tailings and evaluates the feasibility of the tailings as source material for CLSM. The compressive strength of the CLSM mixtures was shown to satisfy that specified in American Concrete Institute (ACI) Committee 229R in which the content of cement was controlled to be 10-30 % by the weight of the tailings. The leaching fraction of As from CLSM mixtures was found to be below 6% regardless of the mix proportion and grinding of samples. The leaching fraction from the mortar-type CLSM was lower than those of the slurry-type CLSM. Furthermore, the leaching fraction of the CLSM mixtures in the ground state by weathering and erosion was increased, whereas the absolute value remained below 2%, thus showing no significant influence.

Keywords: Mine tailings; recycling; controlled low-strength materials (CLSM); engineering properties; arsenic; leaching

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