

7. Immobilization Function of the Recycled Cement to Toxic Substance and Applicability

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The recycled cement has been produced by processing the concrete block which arises in demolishing the facilities. It is expected to be used as waste solidification material, and its immobilization function to the toxic substance was tested. The relationship between diffusion behavior through a mortar specimen and its property was examined using diffusion cell and elements such as strontium, cesium, iodine and bromine. As the result, it was obtained that amount of elution through the recycled cement mortar was low both of cation and anion. Then it was shown that the behavior resembled the dissolution behavior of the mortar represented for the calcium. The recycled cement mortar had small value of CaO/SiO₂ ratio and pH, and it was measured that the calcium dissolution quantity was also little. Therefore, the dissolution velocity of recycled cement mortar should be slow, and the diffusion coefficient for each element seems to decrease. It was concluded that the recycled cement could be used as an effective solidification material for immobilizing the toxic element in it from the above fact.

Key words : recycled cement, demolition, toxic substance, dissolution , diffusion coefficient