

Ion-exchange Properties of Hardened Geopolymer Paste

Motoki UEHARA Atsushi YAMAZAKI

We prepared hardened geopolymer paste by heating a mixture of fly ash and alkali silicate solution at 80°C for 8 hours. The hardened paste was amorphous with a zeolite-like network structure. Its cation exchange capacity was 150 – 170, 200 – 230, and 250 – 300 meq/100 g against alkali/H₂O ratios of 0.10, 0.15 and 0.20, respectively. The ion selectivity of the hardened geopolymer paste followed the order of $\text{Pb}^{2+} > \text{Ba}^{2+} > \text{Sr}^{2+} > \text{K}^+ > \text{Na}^+$. Except for Cr^{3+} – adsorption, the selectivity of divalent ions was greater than that of monovalent ions, and ion selectivity increased in the order of ascending atomic numbers for the identical valences.