

Sintering of Class F Fly Ash

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The sinterability of a class F fly ash was investigated as a function of processing conditions including compaction pressure (65.8 MPa-100.9 MPa), sintering temperature (1050 °C-1200 °C), and sintering time (0 min-90 min). Density, shrinkage, splitting tensile strength, water absorption and residual loss on ignition were evaluated as measures of sintering efficiency. The results suggest that sintering is fast relative to carbon volatilization and that local optima in properties exist as a function of process conditions. Scanning electron microscopy (SEM) and x-ray microanalysis were also used to examine both microstructure development and micro chemical changes due to sintering. Backscattered electron images combined with post image analysis show that extensive 2-D percolation networks are readily formed once a threshold sintering temperature and time are achieved.

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