

PITCHSTONE FINES: A NEW DEVELOPMENT IN PORTLAND CEMENT-BASED CONSTRUCTION PRODUCTS

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Abstract.

Rising international concern over the contribution of carbon dioxide (CO₂) emissions is encouraging the construction industry to develop environmentally responsible solutions. One way of reducing CO₂ emissions involves using supplementary cementitious materials (SCMs) as partial replacements for Portland cement (PC).

This paper reports the findings of performances of mortars at 20% replacement levels of PC by pitchstone fines (PF) from a naturally occurring pitchstone deposit in Australia and PF blended with silica fume (SF), and those of fly ash (FA) and FA blended with SF for comparisons. Recent studies by the authors, reported in published literature, have proven the pozzolanic behaviour of PF in the context of blended PC-based construction products. Compressive strength development and drying shrinkage of PF in mortars after 3, 7, 14, 28, 56 and 91 days ageing demonstrated the viability of using PF as a novel SCM.