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Durability Study of Binary Blended High Performance Concrete

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Abstract : This paper presents the results of a laboratory study on the properties of binary blended High Performance cementitious systems containing blends of ordinary Portland cement (OPC), Porcelain Powder or Marble Powder blend proportions of 100:00, 95:05, 90:10, 85:15, 80:20 for OPC: Porcelain Powder/Marble Powder. Studies on the Engineering Properties of the cementitious concrete, namely compressive strength, flexural strength, sorptivity, rapid chloride penetration test and accelerated corrosion test have been performed and those of OPC concrete. The results show that the inclusion of Porcelain powder or Marble Powder as binary blended cement alters to a great degree the properties of the binder as well as the resulting concrete. In addition, the results show that the Porcelain powder with 85:15 proportions and Marble powder with 90:10 proportions as binary systems to produce high-performance concrete could potentially be used in the concrete construction industry particular in lowering down the volume of OPC used and lowering emission of CO2 produces during manufacturing of cement.

Keywords : accelerated corrosion, binary blended cementitious system, rapid chloride penetration, sorptivity
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