

## **Strength and durability properties of nanometakolined ultra high performance concrete (UHPC) using response surface model (RSM) approach**

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### **ABSTRACT**

Utilisation of Ultra High Performance Concrete (UHPC) is growing an interest in the world of construction today. Apart from that the inclusion of nano material in UHPC can enhance the performance and durability of UHPC. In this study, effect of nano metakaolin as additive in UHPC is reported. Inclusion of nano metakaolin from 1, 3, 5, 7 and 9% from weight of cement is compared to those plain UHPC and metakaolined UHPC. Effect of nano metakaolin in UHPC is done by four consecutive testing namely compressive strength, flexural strength, porosity and water absorption. All samples are prepared for testing's from 3, 7, 28, 90, 180 and 365 days and subjected to water cure until age of testing. For analysis, Response Surface Model using historical data software is selected. A new equation is generated to relate on the effect of nano metakaolin in UHPC.

### **KEYWORDS**

Nano Metakaolin; UHPC; Compressive; Flexural; Porosity; Water Absorption; Response Surface Model

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