CRACK DETECTION AND CHARACTERIZATION OF POLYMER MIXED CONCRETE

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Abstracts

This project was proposed to investigate the fracture toughness of polymer concrete and to determine the dynamic characterization of the cracked specimen. The methods used were K_Q and CTOD test, since the simple setup and the size and weight requirements are suitable. The specimen polymer concrete is made of 60% sand, 30% polyester and 10% talcum powder. The fracture toughness determined K_Q and CTOD test methods using three points bend specimen configuration. The microstructures of each specimen have been investigated to see the different cracks occur on each specimen at different loading. Frequency responses were obtained on the selected specimen (with crack & with out crack) to determined dynamic characteristic i.e. natural frequency ω_n and damping ratio ζ. Base on the experiment conducted the natural frequency and damping ratio will be increase due to the crack length occur in the specimen. In this project also, the value of crack resistance of the polymer concrete was define using impact test (Izod Test).