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NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF APPLIED SCIENCES

DEPARTMENT OF APPLIED CHEMISTRY

**INVESTIGATING THE EFFECTS OF SELECTED
ACCELERATORS ON THE STRENGTH, SETTING TIME
AND SOUNDNESS OF CEMENT**

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ABSTRACT

This project was undertaken to investigate the effects of accelerators on the strength of cement and/or concrete, setting time, soundness and standard consistency of mixes. The effect of water-to-cement ratio on the accelerating properties of calcium chloride was also investigated. Results obtained with systems containing accelerators were generally higher than those without, with effectiveness varying from 3.1% for sodium nitrite to 43.2% for potassium chloride at 1.0% dosage for one day strengths. Dosages for powerchlor at 1% or higher gave negative contribution to early strengths.

The chemical composition of the cement used for the experiments was ascertained through wet chemical methods.