IMPROVEMENT OF QUALITY OF SLAG CONCRETE BY HIGH ALITE CEMENT

IMPROVING THE QUALITY OF SLAG CONCRETE VIA HIGH ALITE CEMENT

Tác giả: *Huynh Phuong Nam*

Tóm tắt bằng tiếng Việt:

Concrete containing ground granulated blast furnace slag (GGBFS) has many advantages but it is easily subjected to cracking and has low quality when cured in poor conditions. For sustainability of slag concrete structures, these disadvantages need to be overcome. In this study, the effectiveness of high alite cement (HAC) in improving cracking and quality of covercrete of slag concrete was investigated. Cracking resistance ability was examined by tensile strength of concrete; while surface water absorption test was applied to study the quality of covercrete. The results revealed the capacity of HAC in improving tensile strength of slag concrete. High bond strength between aggregate and HAC mortar contributed significantly to larger tensile strength. HAC slag concrete also exhibited a high resistance against water absorption. The results revealed the capacity of HAC in improving tensile strength of slag concrete. High bond strength between aggregate and HAC mortar contributed significantly to larger tensile strength. HAC slag concrete also exhibited a high resistance against water absorption.

Từ khóa: slag concrete; high alit cement; direct tensile strength; bond strength; SWAT (surface water absorption test); water absorption rate at 10 minutes (p600), covercrete

Tóm tắt bằng tiếng Anh:

Concrete containing ground granulated blast furnace slag (GGBFS) has many advantages but it is easily subjected to cracking and has low quality when cured in poor conditions. For the sustainability of slag concrete structures, these disadvantages need to be overcome. In this study, the effectiveness of high alite cement (HAC) in improving cracking and the quality of covercrete of slag concrete is investigated. The cracking resistance ability is examined via the tensile strength of concrete, while the surface water absorption test is applied to study the quality of covercrete. The results reveal the capacity of HAC in improving the tensile strength of slag concrete. The high bond strength between aggregate and HAC mortar contributes significantly to larger tensile strength. HAC slag concrete also exhibits high resistance against water absorption.

Key words: slag concrete; high alite cement; direct tensile strength; bond strength; SWAT (surface water absorption test); water absorption rate at 10 minutes (p600); covercrete