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Mechanical recovery of lime-stabilised clays subjected to freeze–thaw damage

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ABSTRACT

Lime stabilisation of clay soils is a widely used technique for the improvement of existing soils in the construction of embankments and sub-bases for road pavements. The mixing of clayey soils with lime initiates chemical reactions allowing a significant increase of geotechnical properties. This study aims at investigating the ability to recover strength of a conventional lime-stabilised clay soil after being distressed by multiple Freeze–Thaw (F–T) cycles. This capability was investigated as a function of the percentage of lime additive, post-compaction curing time and the presence of a disturbing element in clay–lime interaction. The stabilisation of clay soils with lime provides capability of recovering compressive strength after distress from freeze–thaw cycles, regardless of the post-compaction curing time. The percentage of lime added assumes a very important role in the extent of this capability. The presence of disturbing elements negatively affects the success of pozzolanic reactions between clay and lime.

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