

EXPERIMENTAL TESTS AND FE SIMULATIONS TO COMPUTE THE MECHANICAL AND FRACTURE PROPERTIES OF THE SHOT-EARTH 772

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Abstract

The present paper is dedicated to the mechanical and fracture characterisation of a specific earthen material, that is, the shot-earth 772. Although such a material has been recently characterised from a microstructural, chemical and physical point of view, the knowledge of its mechanical and fracture properties (essential for extending its use in construction industry) is still lacking. Such characterisations are here performed both experimentally, through laboratory tests, and numerically, through a FE model. The experimental tests (i.e. flexural, compression and fracture tests) are carried out on shot-earth specimens according to Recommendations available for concrete and a method proposed by some of the present authors, named Modified Two-Parameter Model. The numerical analyses are performed by employing a micromechanical model (implemented in a non-linear 2D FE homemade code), which allows to simulate both flexural and fracture behaviour of the shot-earth examined. Finally, the obtained numerical results are compared with the experimental ones.

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