Development of a Numerical Correlation Model to Predict the Mechanical Properties of High-Performance Concrete Using an Indentation Test

Bentoumi Mohamed *

Laboratory of Electronic Materials and Systems, Faculty of Science and Technology, Department of Mechanical Engineering University of Bordj Bou Arreridj. Algeria

Logzit Nacer

Laboratory of Electronic Materials and Systems, Faculty of Science and Technology, Department of Civil Engineering University of Bordj Bou Arreridj. Algeria

Chebbah Bouzid

Laboratory of Electronic Materials and Systems, Faculty of Science and Technology, Department of Civil Engineering University of Bordj Bou Arreridj. Algeria

Abstract:

The aim of this work is to develop a numerical correlation model for predicting the mechanical properties of concrete using indentation test, based on the durability parameters of a high-performance concrete (HPC). The model to be proposed will be deduced on the basis of the characterization of three families of concretes: HPC 60, HPC 70, and HPC 80. The expected result will make it possible to predict the mechanical behavior of the concretes, knowing only the durability parameters (porosity or density). The advantage of this approach is to enhance the value of the indentation technique approach in the field of Civil Engineering.