

عنوان مقاله:

Application of SVM for investigation of factors affecting compressive strength and consistency of geopolymer concretes

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خلاصه مقاله:

A solution for synthesizing environmentally friendly concrete is to reduce the conventional Portland cement (OPC) content and utilize activated pozzolanic binders. Geopolymers are a sort of mineral polymers, so that their chemical composition resembles zeolites and their microscopic structure is not crystalline, but rather amorphous. In this study, it is attempted to address the behavior of synthetic geopolymers through the investigation of their base materials, e.g. blast furnace slag, metakaolin, fly ash and other curing agents such as potassium hydroxide or sodium hydroxide solutions. It is tried to study the behavior of geopolymer concrete (GPC) at different contents of curing agents and base materials using the literature review and, eventually, make an SVM model to find out whether the results of compressive strength and consistency of GPCs can be estimated using support vector machine or not. The research results suggest that it is possible to estimate the compressive strength and consistency of GPCs using SVM and also there is a significant relationship between molarity and compressive strength of concrete at different ages, molarity and consistency of concrete, ratio of sodium hydroxide to sodium silicate, compressive strength and liquid limit (LL) of concrete.

کلمات کلیدی:

SVM, Compressive strength, geopolymer concretes, Metakaolin, Fly ash

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