

عنوان مقاله:

Laboratory Study and Investigation on Significance Level of Fatigue Phenomenon in Warm Mix Asphalt Modified with Nano-Silica

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نویسندگان:

Saber Kie Badroodi - Ph.D. candidate of Tehran PNU University, Tehran, Iran

Mahmood Reza Keymanesh - Associate Professor, North Tehran Branch, Payam Noor University

Gholamali Shafabakhsh - Faculty of Civil Engineering, Semnan University

خلاصه مقاله:

The present research aims to conduct laboratory assessment on fatigue phenomenon in warm mix asphalt modified with nano-silica and including reclaimed asphalt pavement materials by the aid of review on self-healing behavior and measurement of validity of laboratory results by modeling via neural artificial network in neural network of SPSS software. For this purpose, ۲% weight of sasobit and ۳, ۵ and ۷ % weights of base bitumen-to-bitumen (۸۵-۱۰۰) were added and they were stirred up by high-cut mixer. Then, the specimens of four-point flexural test were made by the reclaimed bitumen samples. The quantities of ۰, ۷۰ and ۱۰۰% of reclaimed asphalt materials were utilized for aging simulation process in warm mix asphalt to build four-point flexural tested slabs. The findings indicate that adding nano-silica may essentially affect rising self-healing level in warm mix asphalts. The current study intends to present a model based on neural artificial network technique to predict behavior of warm asphalt specimens including different nano-material contents and to compare them with the laboratory results for measurement of validity of the given model. The given results show high precision of the model at level of ۰.۹۵۱.

کلمات کلیدی:

Warm mix asphalt, Fatigue, Self-healing, Reclaimed asphalt materials, Nano-silica, Neural Network

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