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An Adaptive Neuro-Fuzzy Inference System (ANFIS) Modelling of Bleeding

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Abstract : The bleeding prediction of the asphalt is one of the most complex subjects in the pavement engineering. In this paper, an Adaptive Neuro Fuzzy Inference System (ANFIS) is used for modeling the effect of important parameters on bleeding is trained and tested with the experimental results. bleeding index based on the asphalt film thickness differential as target parameter,asphalt content, temperature depth of two centemeter, heavy traffic, dust to effective binder, Marshall strength, passing 3/4 sieves, passing 3/8 sieves,passing 3/16 sieves, passing NO8, passing NO50, passing NO100, passing NO200 as input parameters. Then, we randomly divided empirical data into train and test sections in order to accomplish modeling. We instructed ANFIS network by 72 percent of empirical data. 28 percent of primary data which had been considered for testing the appropriativity of the modeling were entered into ANFIS model. Results were compared by two statistical criterions (R2, RMSE) with empirical ones. Considering the results, it is obvious that our proposed modeling by ANFIS is efficient and valid and it can also be promoted to more general states.

Keywords : bleeding, asphalt film thickness differential, Anfis Modeling
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