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On the Prediction of Watson Characterization Factor of Hydrocarbons

Adel Najafi-Marghmaleki^a, Ali Barati-Harooni^a, Afshin Tatar^{b1}, Armin Mohebbi^c, Amir H Mohammadi^{d,e,2}

^a Young Researchers and Elite Club, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran

^b Young Researchers and Elite Club, North Tehran Branch, Islamic Azad University, Tehran, Iran

^c Young Researchers and Elite Club, South Tehran Branch, Islamic Azad University, Tehran, Iran

^d Institut de Recherche en Génie Chimique et Pétrolier (IRGCP), Paris Cedex, France

^e Discipline of Chemical Engineering, School of Engineering, University of KwaZulu-Natal, Howard College Campus, King George V Avenue, Durban, 4041, South Africa.

Abstract - This study aims to develop four methods, namely GA-RBF, MLP-NN, CSA-LSSVM and CHPSO-ANFIS methods, to accurately estimate the Watson characterization factor for various hydrocarbons. The obtained results were analyzed graphically and statistically to check the validity and reliability of the proposed models. Results reveal that the proposed models are robust and accurate in estimation of experimental data. Moreover, the GA-RBF model is superior to three other developed models in prediction of experimental data. Furthermore, the results of the GA-RBF model as the most accurate model in the present work are compared with the results of a previously published model in literature and it is concluded that the GA-RBF model outperforms the literature model thanks to higher values of correlation coefficient and lower values of Root Mean Squared Error (RMSE).

Keywords: Watson characterization factor; Hydrocarbon; Petroleum fluid; Prediction; Model.

Corresponding author:

¹1. Email Address: Afshin.Tatar@gmail.com (A. Tatar)

²2. Email Address: a.h.m@irgcp.fr and amir_h_mohammadi@yahoo.com (A. H. Mohammadi)

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