Prediction Fluid Properties of Iranian Oil Field with Using of Radial Based Neural Network

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Abstract : In this article in order to estimate the viscosity of crude oil,a numerical method has been used. We use this method to measure the crude oil's viscosity for 3 states: Saturated oil's viscosity, viscosity above the bubble point and viscosity under the saturation pressure. Then the crude oil's viscosity is estimated by using KHAN model and roller ball method. After that using these data that include efficient conditions in measuring viscosity, the estimated viscosity by the presented method, a radial based neural method, is taught. This network is a kind of two layered artificial neural network that its stimulation function of hidden layer is Gaussian function and teaching algorithms are used to teach them. After teaching radial based neural network, results of experimental method and artificial intelligence are compared all together. Teaching this network, we are able to estimate crude oil's viscosity without using KHAN model and experimental conditions and under any other condition with acceptable accuracy. Results show that radial neural network has high capability of estimating crude oil saving in time and cost is another advantage of this investigation.

Keywords : viscosity, Iranian crude oil, radial based, neural network, roller ball method, KHAN model
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