

## عنوان مقاله:

Toward a Reliable Model for the Prediction of CO<sub>2</sub>-Crude Oil MMP Using an Intelligent Approach

## محل انتشار:

دومین همایش ملی نفت و گاز ایران (سال: 1393)

تعداد صفحات اصل مقاله: 5

## نویسندگان:

,Abdolhossein Hemmati Sarapardeh - *PhD student of Petroleum Engineering, Amirkabir University of Technology*

Mohammad Hossein Ghazanfari - *PhD of Chemical Engineering, Sharif University of Technology*

Shahab Ayatollahi - *PhD of Chemical Engineering, Sharif University of Technology*

Mohsen Masihi - *PhD of Chemical Engineering, Sharif University of Technology*

## خلاصه مقاله:

Multiple contact miscible floods such as CO<sub>2</sub> injection has been considered as an attractive enhanced oil recovery technique especially for conventional reservoirs. A key parameter in design of CO<sub>2</sub> miscible floods is minimum miscibility pressure (MMP), which is normally determined through expensive and time consuming laboratory experiments. Therefore, developing a quick and reliable model for prediction of MMP is inevitable. In this communication, a new reliable model on the basis of feed forward artificial neural network is presented. The input parameters of the developed model are reservoir temperature, reservoirs oil composition, and injected gas composition. Statistical and graphical error analyses have been employed to compare the developed model with the available models for the prediction of MMP. The results indicated that the developed model is more reliable and accurate over existing models, in a wide range of thermodynamic and process conditions. Finally, the leverage approach, in which the statistical hat matrix, Williams plot, and the residuals of the model results leads to identification of the likely outlier has been performed. The results showed that only two experimental MMP data points located out of the applicability domain of the proposed model and therefore, the developed model was found could be reliable enough for the prediction of CO<sub>2</sub>- reservoir oil MMP.

## کلمات کلیدی:

Minimum miscibility pressure; Intelligent approach; Leverage approach; CO<sub>2</sub> flooding

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/309376>

