عنوان مقاله:

CO2-crude oil minimum miscibility pressure prediction using group method of data handling network

محل انتشار:

سومین کنفرانس ملی فناوریهای نوین در مهندسی برق و کامپیوتر (سال: 1398)

تعداد صفحات اصل مقاله: 19

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خلاصه مقاله:

Enhanced oil recovery using carbon dioxide (CO2) is the most commonly used method to achieve higher oil recovery. Successful design of a CO2 injection projects mostly depends on accurate prediction of minimum miscibility pressure (MMP) at which a crude oil will be miscible with CO2 at reservoir temperature. Since the conventional miscibility measurement techniques are usually difficult, time-consuming to carry out and high in operation cost, searching or developing a high accuracy approach for determination of the CO2-crude oil MMP is inevitable. This paper presents a new method based on group method of data handling (GMDH) network to predict CO2-crude oil MMP. Proposed GMDH network finds the polynomial model of CO2- crude oil MMP based on reservoir temperature, crude oil composition and composition of injected CO2 as effective input parameters. The performance of the newly developed GMDH model was compared with three well known correlations in published literature. The results show that there is a good agreement between the predicted and experimental values and proposed GMDH network can be successfully applied to model and predict CO2-crude oil MMP

کلمات کلیدی:

Minimum miscibility pressure, enhanced oil recovery, CO2 injection, GMDH network, correlations