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Minimum miscibility pressure (MMP) is a key parameter for the design and operations of successful CO2 miscible flood project to enhance oil recovery. Operating miscible flood project below the minimum miscibility pressure results in immiscible displacement and consequently low oil recovery. Operating above the minimum miscibility pressure increases project expenses with little or no additional oil recovery.

This paper presents a new method for calculation of CO2-crude oil minimum miscibility pressure. The new algorithm takes into account the effect of various components of volatiles (C1 and N2), intermediate components (C2-C6, H2S) and heavy components (C7+). Accuracy of the proposed algorithm has been compared to statistical correlations and equation of state based methods. The comparison indicates that the new algorithm successfully and accurately predict CO2 MMP better than published methods. The algorithm can be used estimate MMP for designing CO2 flood projects in case reliable experimental data is unavailable and screening oil reservoir for potential of increasing oil recovery by CO2 flooding.