

Co-surfactant polyethylene glycol mono-oleate in the formulation of natural based-surfactant for chemical EOR = Surfaktan pendamping polietilen glikol mono-oleat pada formulasi surfaktan berbasis nabati untuk injeksi kimia EOR

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Abstrak

Natural-based surfactant such as methyl ester sulfonate, which is derived from palm oil, has increasingly become the focus of study for the last decade to improve oil recovery due to the abundant raw materials availability and the need for oil as a source of energy. Surfactant MES development with the targeted fluid reservoir characteristics has been conducted in the laboratory scale as well as in the field scale. In this study, the addition of polyethylene glycol mono-oleate as co-surfactant to enhanced oil recovery in the "L" oilfield in Central Java was investigated in the laboratory scale through compatibility observation, IFT measurement, thermal stability and core flooding tests. The result showed that the presence of PMO improved the solubility of surfactant mixture in the water which formed one phase milky solution. Decreasing IFT as the crucial factor for surfactant flooding was also achieved until 10-3 dyne/cm and thermally stable for two months. Furthermore, core flooding experiments to study the performance of surfactant to recover oil production showed that the mixture of MES and PMO are able to enhance oil recovery until 55.35% and have potential to be used as chemicals for chemical flooding in the targeted oilfield.