

## Geochemical fingerprinting in D35 Oil Field, offshore Sarawak

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Crude oil geochemical fingerprinting had been applied successfully to identify reservoir compartmentalisation in the D35 oil field, offshore Sarawak. Both lateral and vertical compartmentalisation of the reservoirs were identified and these were supported by the pressure data and production performance of the producing wells.

The traditional application of geochemistry has been towards solving exploration-related problems such as source rock evaluation and oil-source correlations. A shift has occurred towards the application of geochemical analyses to production and reservoir-related problems. The compositional heterogeneity of fluids (oil, gas and water) in a reservoir is an important concept in reservoir geochemistry, particularly in compartmentalisation studies. Lateral variations in composition of the oil, either inherited during filling or post-accumulation, will persist whereas mechanical instability within a single petroleum system is unlikely without the presence of barriers to diffusive mixing.

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