

Oil quality variations in the Malay basin — geochemical insights

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Malay Basin oils are largely sourced from non-marine organic matter in depositional environments ranging from older, algal dominated assemblages to young, coal-swamp related mixtures of terrigenous organic detritus. These source environments generate low sulphur oils which are generally rich in wax. In the producing fairway of the Malay Basin, oils are of relatively high maturity having API gravities in the 45–50° range with pour points generally -10°C to +20°C. Recent drilling on the northern flank of the basin has identified some crudes with API gravities as low as 20° and pour points as much as +42°C.

Petroleum geochemistry has been applied to a wide range of these crudes and several groups are recognized based on the interplay of source type, maturity and biodegradation. Some oils on the northern flank are of lower maturity and therefore more waxy, others are partially biodegraded and have had their heavy waxes negatively enriched by this process. Total wax removal has affected other oils and left them with very low API's and pour points. The occurrence of crudes with this wide variety of physical properties has an impact on the planned development of this area and attempts to predict the occurrence of particularly difficult oils can guide exploration.
