

Thermal maturity and oil generation from liptinitic and sapropelic sources: Two examples from Indonesia by S. Thompson.

The thermal alteration index, spore colour index, and vitrinite reflectance methods of measuring thermal maturity are discussed. Interpretation of, and correlations between, the parameters of these methods may not be precise, due to variations in physical and chemical properties.

In the CMS-1 well (Northwest Java), heavy waxy oils have been generated from liptinitic kerogen and have accumulated in adjacent reservoirs. The onset of oil generation occurs at a vitrinite reflectance of between 0.35% and 0.4%, and a spore colour index of between 3 and 3.5. Major oil generation occurs at a vitrinite reflectance level of 0.55% and a spore colour index of 5.

In the Susu Selatan - 1 well (North Sumatra), light oils have been generated from sapropelic kerogen and have accumulated in overlying sandstone reservoirs in the area, although not in the well section. The onset of oil generation occurs at a vitrinite reflectance of 0.55% and spore colour index of 5. Optimum oil generation occurs at a vitrinite reflectance level of around 0.8% and a spore colour index of 7.5. No heavy oil accumulations have been discovered in this area.

The well sections are an example of liptinitic kerogen yielding oil at an earlier level of maturity than sapropelic kerogen. The different oil generating characteristics shown by the different kerogen types may primarily be ascribed to differences in the chemical structure of the kerogen; a secondary influence, bulk and concentration of kerogen, may be related to palaeo-environment.
