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Sensitive Quantification and Reservoir Rock Typing for Improved Reservoir Characterisation

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SUMMARY

Magnetic hysteresis method can provide rapid, improved, non-destructive characterisation of multiple mineral and fluid components for reservoir characterisation. The advantage of the new hysteresis method is identification of multiple mineral components in the reservoir sample, by acquiring data at a range of low and high applied magnetic fields. Plots of applied magnetic field versus magnetisation, where the slope represents the magnetic susceptibility, provide a universal template upon which any reservoir rock or fluid can be typed and characterised. Pure diamagnetic components, rock matrix minerals such as quartz and calcite, or reservoir fluids such as crude oils and formation waters are characterised by straight lines with negative slope.

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