

Sample: TSC47103; Location: Sidewall Core 48, 3155.5 m

Rock Name:

Compact lithic sandstone

Thin Section:

There has been considerable damage to this sample and the quartz grains in many areas are fractured and fine-grained seams are thought to be derived from this disturbance of the original sandstone. In most places, however, the quartz grains appear to show moderate to good sorting and have an average grain size of the order of 0.2 to 0.3 mm. Clay comprises approximately 25% of the volume of the rock and most of this is heterogeneous material derived from original lithic fragments. This now occurs as discrete aggregates which fill the whole of the intergranular space where they occur and the heterogeneity is the essential indicator of the derivation from lithic fragments rather than from an original argillaceous matrix. The squeezing and deformation of the soft lithic clast during compaction has been one of the principal factors resulting in the apparently impervious nature of the sample.

As well as the clay derived from lithic fragments the sample does contain isolated monomineralic pools of kaolinite and there is a small amount of widely dispersed carbonate. The latter probably comprises 3 to 5% of the volume of the rock and, as well as an unstained variety there is a small amount of calcite. The carbonate is clearly authigenic in origin and there are some moderately well formed rhombs. The carbonate is present generally as very small crystals but some larger aggregates also tend to fill the space between the quartz grains.

The rock contains small amounts of detrital feldspar and colourless mica. As far as can be determined the rock is essentially impervious and hence has very poor reservoir properties.