

Sample: TSC47119; Location: Sidewall Core 18, 3697 m

Rock Name:

Compact lithic sandstone

Thin Section:

In the better preserved parts of this thin section, this sandstone shows most of the textural features common to the majority of samples from Pelican-5. The rock is particularly characterised by the development of concavo-convex and sutured contacts between the grains.

Fine-grained components comprise about 30% of the volume of the rock and most of these are birefringent phyllosilicates with a rather characteristic brown colour. Some of the material may even be fine-grained biotite possibly derived from neomorphism of clays originally in lithic clasts. The material shows considerable evidence of having been deformed and compressed between the more rigid quartz grains. As in other rocks, the lithic material is distinctly heterogeneous and ranges from quartz-rich varieties (mainly cherts) to grains which appear to be monomineralic phyllosilicates.

The rock contains traces of authigenic kaolinite and of fine-grained carbonate but the crystallisation of these phases has probably been much less important in occluding original porosity than has the development of pressure solution on the quartz grains and deformation of the soft lithic clasts.

The sample does show microstylolitic zones and these are particularly characterised in some areas by the presence of irregular networks of opaque material which may well be of plant origin. The thin section contains hardly any porosity which can be regarded as integral to the original sandstone.