

Sample: TSC47069; Location: Pelican-5, Core 2; 2871 m

Rock Name:

Compact lithic sandstone

Hand Specimen:

A distinctly pale grey to creamy coloured rock with a small proportion of distinctive white spots. The rock is slightly friable.

Thin Section:

An optical estimate of the constituents gives the following:

	%
Quartz	80
Lithic fragments	15-20
Pores	<5
Feldspar	<1
Mica	<1
Authigenic kaolinite	<1

In this sandstone the average size of the quartz grains is of the order of 0.2 to 0.3 mm and the grains are moderately to well sorted. There is some development of long and curved contacts and overgrowths on the quartz grains, although not abundant are somewhat more common than in the sample described immediately above.

The most characteristic feature of the rock is a presence of a considerable amount of fine-grained material between the quartz grains. This is generally a mixture of fine-grained quartz and rather varied phyllosilicate minerals. The material is heterogeneous and is clearly derived probably entirely from original lithic clasts. It is the abundance of this material and its deformation and compaction during lithification of the rock which has resulted in reduction of the original porosity. This will also have been affected by the modifications to the quartz grains whereas the development of authigenic kaolinite will have done little to reduce the porosity. The pores themselves are generally at least 0.2 mm in size and are thought to be of secondary origin. Many have marginal areas of rather porous clay and hence it appears most likely that the pores have derived from dissolution or physical removal in some way of some of the intergranular clay component. As far as can be distinguished in the thin section it seems unlikely that the pores are well interconnected in three dimensions.