

SAMPLE: Core 53, 3103.5m: TSC47284

Rock Name:

Carbonate Cemented Sandstone

Thin Section:

An optical estimate of the constituents gives the following :

	<u>%</u>
Quartz	45
Carbonate	25
Clay/sericite	10
Chert and lithic clasts	5
Opagues	1
Pores	15

This sample consists mainly of quartz grains ranging up to 0.5 mm in size cemented by an interstitial matrix comprised mainly of carbonate and minor clay minerals. The quartz grains typically exhibit angular to subangular shapes and often have highly broken characters. The fractured character of the quartz grains is locally very strongly developed and could have been produced during sampling.

The interstitial carbonate forms a granular mosaic with a typical grain size of about 0.1 to 0.2 mm and partially fills the angular interstices between the detrital quartz grains. The carbonate typically has a very pale brown to tan colour and is thought to be siderite. Clay also occurs as interstitial fillings between the detrital quartz grains and is often intergrown with the carbonate. The clay includes a very weakly birefringent clay believed to be kaolinite as well as a fibrous more birefringent sericite which could represent a mixed-layer phyllosilicate. Within localised areas clay forms narrow lenticular bodies with a dark reddish-brown iron stained colour. These bodies range up to 0.3 mm in width and have a highly discontinuous character.

The rock contains a significant proportion of pores ranging up to approximately 1 mm in size. Some of the pores are obviously interstitial areas while others are thought to have been produced by deformation during sampling.

Minor chert and lithic clasts form small detrital grains up to 0.5 mm in size. Many of the lithic clasts consist of fine intergrowths of sericite and clay with finely granular quartz. Minor opaques form small disseminated grains and aggregates below 0.1 mm in size which are generally intergrown with the interstitial clay.

This is a detrital sediment somewhat similar to the Core 11 sample. This sample contains highly fractured quartz and this along with at least some of the porosity is thought to be due to deformational effects associated with sampling.