

SAMPLE: Core 11, 3498m: TSC47281

Rock Name:

Carbonate Cemented Sandstone

Thin Section:

An optical estimate of the constituents gives the following :

	<u>%</u>
Quartz	40
Carbonate	35
Chert and lithic clasts	5
Clay/sericite	5
Muscovite	1
Feldspar	Tr-1
Zircon	Tr-1
Opagues	3
Pores	10

This sample consists mainly of detrital quartz grains between 0.1 and 0.25 mm in size cemented by a granular carbonate matrix. The detrital quartz grains typically exhibit angular to subangular shapes with a very small proportion having subrounded shapes. The carbonate matrix consists of carbonate grains ranging up to 0.2 mm in size which forms an interstitial granular mosaic. Testing of the hand specimen with dilute hydrochloric acid failed to give a reaction indicating no calcite is present. The carbonate generally has a very pale brown to tan colour and is thought to be siderite.

Although quartz is the major detrital component smaller amounts of chert and lithic clasts as well as some feldspar and zircon grains are also disseminated through the rock. The lithic clasts consist mainly of finely granular quartz intergrown with finely divided muscovite/sericite which locally exhibits a foliated texture suggesting that at least some of the clasts are low grade metamorphic rock clasts. Other finely granular cherty clasts are also disseminated through the rock. The detrital feldspar grains range up to 0.2 mm in size and consist of untwinned feldspar. At least some of the feldspar grains show slight marginal replacement with carbonate. Minor muscovite is disseminated through the rock as well developed flakes up to 0.3 mm long which are thought to be of detrital origin.

The rock contains some disseminated weakly birefringent clay as interstitial fillings intergrown with the carbonate matrix and as small pellets or clasts up to 0.2 mm wide. The interstitial clay consists of both weakly birefringent clay (probably kaolinite) as well as smaller amounts of fibrous sericite. The clay pellets typically consist of sericite intergrown with varying amounts of weakly birefringent clay.

The rock contains a moderate proportion of interstitial pores which range in size up to about 0.5 mm wide. At least some of these pores are thought to be original but it is also possible that some of the larger pores could have been produced during sampling.

Opaque grains and aggregates up to 0.15 mm wide are disseminated through the rock. Opaque to translucent iron oxides also locally form fine intergrowths with the interstitial matrix.

This is a fine grained detrital sediment containing a significant proportion of carbonate cement as well as a moderate porosity.