

Carbonate cement is relatively late and could be formed from the influx of seawater into the system or by an increase in CO₂ in the porewaters (from organic-matter diagenesis or perhaps from the diagenesis of adjacent shales). The advent of CO₂ (increasing pH) may also be responsible for some mineral dissolution and an increase in (secondary) porosity.

X-Ray Diffraction

The XRD results illustrate that the clay fractions of these sandstones comprise of mixtures of ten different minerals, a large proportion of which are generally present in each sample. Barite is probably a contaminant in these samples derived from the drilling mud. The size of the -2 um fraction relates to the proportion of clay minerals in each sample and in this case is largely dependent on the proportion of lithic fragments.

The most abundant clay minerals in the -2 um fraction are kaolinite, randomly interstratified mixed-layer smectite-illite and mica/illite. Smectite occurs in the interval 2746.5-3098.5 metres depth and chlorite is present between 3155.5-3617 metres depth. Quartz and feldspars in this size range are most likely derived from the lithic fragments.