

Sample Number : 10969 J.P. 3 216-8m  
Identification : Heavily chloritic tuff or tuffaceous sediment with traces of disseminated probable chalcopyrite

Description :

The hand specimen is a drill core sample of foliated, dark greenish grey, fine-grained, richly chloritic rock, speckled with light grey, sand-sized clasts. The foliation is inclined at 5-10° to the core axis.

A staining test revealed no K-feldspar.

In thin section the sample is seen to consist of poorly sorted, angular and rounded mineral and lithic clasts dispersed abundantly through a fine, chlorite-rich matrix.

The mineral fragments are angular to rounded grains of quartz, some with recognisable B form. Sizes range from about 0.02 to 2mm. Lithic clasts include fine quartzite or silicified volcanic rock, acid volcanic rock with quartz phenocrysts and completely chloritized elongate small clasts (perhaps formerly vitric). Sizes of lithic clasts range from about 0.3 to 5mm.

Anhedral, fine opaque oxides are minor constituents of some lithic clasts and the matrix. Anhedral, lenticular grains and aggregates of probable chalcopyrite (soft, brassy) are disseminated through the sample, possibly replacing some chloritic clasts. Sizes are generally less than 0.4mm.

An approximate mode is :

30-35%	quartz clasts
10-15%	fine quartzite or silicified volcanic clasts
2-3%	acid volcanic clasts with quartz phenocrysts
5-10%	chloritic clasts
35-45%	chloritic matrix
0.2-0.3%	sulphide, probably chalcopyrite

Comments and Interpretation :

This sample has textures which plainly indicate that it contains a great deal of acid tuffaceous material of sand to fine gravel size, but it is not certain whether it represents a heavily chloritized crystal lithic tuff or a chloritized tuffaceous sediment. Subjective impressions favour the latter interpretation, with much of the chlorite being derived from a formerly muddy matrix. Foliation in the chloritic matrix probably formed in response to regional metamorphism, but the chlorite itself may be of hydrothermal origin and related to the formation of traces of disseminated probable chalcopyrite.

A peculiarity of the sample is that there is no recognisable feldspar. Chloritization or silicification may have eliminated it.