

Sample Number : 10974 L.S.10 145.4m

Identification: Foliated, sericitic and chloritic, acid tuffaceous sediment

Description :

The hand specimen is a drill core sample of fresh, dark greenish grey rock which displays quartz phenoclasts and some thin lenticular dark clasts, up to 10mm in length, aligned at about 25-30° to the core axis, all set in a matrix of finely sandy appearance.

A staining test produced some diffuse staining and indicated abundant fine K-feldspar in some thin clasts.

In thin section the sample is seen to consist of many volcanic quartz phenoclasts (0.3 to 4mm) and sparse lenticular clasts of sericite-chlorite (1 to 10mm long) dispersed through a matrix of moderately sorted, subrounded quartz grains (about 0.1mm in size) with interstitial foliated sericite with fine rutile and minor chlorite. Several of the largest sericite-chlorite clasts have segregated patches of anhedral K-feldspar.

Adjacent to several micro-faults which form high angles with the foliation, but pre-date it, chlorite has formed instead of sericite for several millimetres in one direction.

Opaque oxides (probably magnetite or ilmenite) form anhedral grains and aggregates within some sericite-chlorite clasts. Inconspicuous hematite "dust" occurs in the chloritic, faulted regime. Several patches of calcite also occur in the chlorite.

An approximate mode is :

5-7%	quartz phenoclasts
3-4%	sericite clasts with minor chlorite and in some cases K-feldspar
0.1-0.2%	opaque oxides in clasts
50-55%	fine sand grains of quartz
30-35%	matrix sericite
2-3%	irregularly distributed matrix chlorite
0.1%	groundmass rutile
rare	hematite

Comments and Interpretation :

It is possible that this sample originated as an acid crystal tuff with a few blebs of glass, but it seems more probable that it represents a tuffaceous sediment in which a few phenoclasts and glass blebs were dispersed through a moderately sorted, finely sandy matrix. Regional metamorphism has since foliated the rock.

The inferred glass blebs have been converted largely to sericite, but it is uncertain whether this is a product of hydrothermal alteration or regional metamorphism. Chlorite adjacent to pre-metamorphic micro-faults is more obviously of hydrothermal origin. No sulphides were observed.