

116
Sample Number :

3008

251118

Identification :

Hydrothermally altered and veined dacitic
crystal lithic tuff with replacement pyrite

Description :

The hand specimen is a slightly weathered sample composed of poorly defined, ovoid, greenish to yellowish grey clasts, commonly 2 to 10mm in size, set in a dark greenish grey chloritic matrix. There are several ovoid clasts of fine pyrite and chlorite and some inconspicuous, thin chlorite veins.

A staining test revealed no K-feldspar.

In thin section the sample displays a poorly sorted texture with angular to subangular clasts, but primary textures have been blurred by moderate pervasive sericitization and by irregular fine veining by sericite, then chlorite with fine rutile, then carbonate, then quartz. Sericite veins are thin replacement styles, carbonate and chlorite are coarse replacement styles and quartz forms thin fissure veins. The carbonate appears ankeritic. One partly fissure style vein carries sericite, chlorite, carbonate, quartz then pyrite.

The original clasts included strained quartz with embayed β -forms, moderately sericitized, twinned plagioclase (albite-oligoclase) and dacite porphyry. One clast consists of about equal proportions of anhedral fine pyrite and chlorite. The pyrite is not tightly confined to the chloritic clast and other pyrite grains occur as disseminations, commonly crystallized at clast boundaries.

An approximate mode is :

20-25%	quartz
30-40%	coarse plagioclase
20-30%	finely crystalline plagioclase and quartz
8-10%	sericite
4-6%	chlorite
0.1-0.2%	rutile
2-3%	ankerite
0.3-0.6%	pyrite

Comments and Interpretation :

Textures are blurred, but it is likely that the sample is a dacitic crystal lithic tuff which has been deposited without any sorting or rounding which could be attributed to aqueous transport. Deposition on land is likely, but direct deposition into deep water is not precluded.

The rock shows extensive hydrothermal alteration involving moderate pervasive sericitization and a veining history involving sericite, chlorite, ankerite and quartz. Pyrite has been introduced to replace a chloritic clast (speculatively by nucleating on secondary magnetite) and to form disseminations on clast boundaries. It is not persistently associated with any particular secondary mineral and may be rather late.