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Sample Number : T 226

Identification : Intensely sericitized, chloritized and carbonated andesite lava

Description :

The sample is a hand specimen of fine-grained greenish grey rock, weathering to light olive grey. It displays several white amygdales, the largest about 3mm.

A staining test revealed no K-feldspar.

In thin section the sample is seen to have been intensely altered to an assemblage of sericite, chlorite, carbonate and quartz, but it has well preserved primary textures consistent with sparsely porphyritic andesite. Tabular, subhedral phenocrysts of feldspar about 0.5 to 1mm in size, have been pseudomorphed by coarse sericite and minor quartz. Mafic silicate phenocrysts of similar size have been replaced by chlorite. The groundmass was dominated by feldspar laths, about 0.2 to 0.4mm long, now pseudomorphed by fine sericite and carbonate (apparently calcite). Quartz is prominent as 0.1 to 0.3mm grains. There are abundant interstitial aggregates of chlorite and anhedral 0.05mm grains of magnetite, rimmed by (?)sphene and partly altered to hematite.

The amygdales have thin rims of chlorite and cores of quartz and calcite.

Subhedral pyrite grains, up to 0.2mm in size, occur in a zone of intense chloritization and subsequent shearing on one edge of the sample.

An approximate mode is :

0.5-1%	sericite pseudomorphs of feldspar phenocrysts
0.5-1%	chlorite pseudomorphs of mafic phenocrysts
70-80%	sericite and calcite pseudomorphs of feldspar laths in the groundmass
10-12%	groundmass quartz
10-15%	groundmass chlorite
1-3%	groundmass magnetite, partly altered to (?)sphene and hematite
0.1-0.2%	amygdales of chlorite-quartz-calcite
0.1%	pyrite (in sheared chlorite)

Comments and Interpretations :

The sample is interpreted confidently to have originated as a holocrystalline, sparsely porphyritic and amygdaloidal lava. If it was not a lava then it was a shallow sill or dyke. The composition was probably quartz-bearing andesite, but all feldspar has since been replaced by sericite and calcite and all mafic silicates have been replaced by chlorite. There is no sound basis on which to judge whether the alteration is of hydrothermal origin or a product of diagenetic/metamorphic adjustment. It is all pervasive and the only pyrite occurs in an intensely chloritized zone, subsequently sheared.