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Sample Number : T 092

Identification : Abundantly pyritic, sericitized, sparsely porphyritic, albitized, subvolcanic intrusion or lava

Description :

The sample is a moderately weathered, crudely foliated hand specimen with greyish orange, inconspicuous feldspar grains, up to 2mm in size, set in a medium light grey groundmass with abundant fine pyrite.

A staining test revealed no K-feldspar.

In thin section the sample is seen to have altered and recrystallized textures, locally deformed. The general impression is that there are sparse 0.5 to 2mm phenocrysts of tabular plagioclase (poorly twinned albite and some mosaics of albite) set in a groundmass in which grains and fine mosaics of quartz and untwinned albite alternate with sericite in a pattern of equidimensional grains and aggregates about 0.2mm in size. There are many disseminated, subhedral, multifaceted (?pyritohedrons) grains of pyrite, about 0.05 to 0.3mm in size. Inhomogeneous shearing has locally foliated the sericite and broken the phenocrysts.

An approximate mode is :

- 2-3% plagioclase phenocrysts (albite now)
- 40-45% groundmass quartz and albite (too difficult for separate estimation)
- 45-50% groundmass sericite
- 5-6% disseminated pyrite

Comments and Interpretations :

This sample is difficult to interpret with confidence. It seems that it may have been a sparsely porphyritic subvolcanic intrusion or lava. It may have been of acid, (?)dacitic or (?)felsite composition, if the groundmass quartz is original. It is perhaps strange that the phenocrysts of feldspar, albeit albitized, are devoid of sericite, whilst the groundmass is rich in sericite. Does this mean that the groundmass was sericitized after albitization buffered the phenocrysts against sericitization? There is abundant pyrite, all disseminated. If any quartz was introduced there is no sign of any veining or inhomogeneous distribution.

On balance, it is thought that the sample may represent an acid, sparsely porphyritic intrusion which has been partly albitized, then sericitized and impregnated by pyrite under mesothermal to high temperature epithermal conditions.