

120

Sample Number : 3020

Identification : Mildly sericitized and chloritized  
andesitic lithic tuff with disseminated  
carbonate and pyrite

Description :

The hand specimen is a slightly weathered sample composed of poorly defined, light grey to pinkish grey clasts, about 1 to 10mm in size, set in a greenish black matrix. Disseminated fine sulphide is represented by iron-stained weathering pores and a few grains of pyrite.

A staining test revealed no K-feldspar.

In thin section the sample is seen to have textures consistent with a lithic tuff, but blurred by recrystallization and hydrothermal alteration. Clasts are unsorted, subangular to subrounded and display numerous phenocrysts of lightly sericitized, twinned plagioclase (0.5 to 1mm in size), set in a finely recrystallized groundmass of untwinned plagioclase and minor chlorite. A few grains of plagioclase and rare grains of quartz seem to be discrete mineral clasts.

Chlorite occurs between the clasts and forms a complex pattern of replacement patches and veins. Subhedral to euhedral pyrite and its oxidation products (iron oxides and jarosite) occur as disseminated grains up to 0.5mm in size. Many other limonitic pseudomorphs occurring as disseminations and as veins with chlorite are plainly after siderite or ankerite rhombs, and a few carbonate grains persist to confirm this interpretation. Early chlorite veinlets are associated with sericite and the latest carry minor quartz.

An approximate mode is :

10-20%	coarse plagioclase
rare	quartz phenocrysts
60-70%	fine-grained plagioclase
8-10%	chlorite
2-4%	sericite
0.1%	vein quartz
3-4%	siderite or ankerite and oxidation products
0.5-1%	pyrite and oxidation products

Comments and Interpretation :

The sample is considered to be a leucocratic andesitic lithic tuff, deposited on land or dumped in water without current action. It has experienced mild hydrothermal sericitization then chloritization. Disseminated and vein carbonate (siderite or ankerite) was deposited during chloritization, and a trace of quartz crystallized late. Disseminated euhedral pyrite crystallized without any distinct association with the other hydrothermal minerals.

The style of alteration and mineralization is similar to that in 3008 and 3013 but the precursor rock is andesitic, not dacitic.