

Sample Number : 10978

L.S.9 92-3m

Identification : Moderately chloritized and sericitized  
rhyolite porphyry with subtle stockwork  
veining and a trace of pyrite

Description :

The hand specimen is a drill core sample which displays abundant phenocrysts of quartz, altered feldspar and chloritized mafics set in a fine-grained, moderate reddish orange groundmass. There is a weak metamorphic foliation at a shallow angle to the core axis and some dark, thin veins across the core.

A staining test revealed that the groundmass is dominated by K-feldspar.

In thin section the sample is seen to have a simple porphyry texture, modified by moderate hydrothermal alteration, veining and very weak metamorphic foliation.

Phenocrysts are subhedral to corroded and about 0.2 to 4mm in size. The most abundant are weakly strained quartz, commonly with deep embayments. There are some grains of poorly twinned orthoclase, but more and larger phenocrysts of inferred plagioclase, now completely sericitized. Former biotite phenocrysts have been pseudomorphed by chlorite and leucoxenized rutile.

The groundmass is allotriomorphic and has a grainsize of about 0.05mm. It consists of K-feldspar, quartz, poorly twinned plagioclase and minor chlorite and sericite.

Additional sericite and minor chlorite occurs in a fracture-controlled network and the veinlets have been internally foliated by subsequent metamorphism. The darkest, thickest veins (0.5mm) across the core consist of chlorite and sericite and appear to be truncated by the most sericitic veinlets which carry minor chlorite. A few grains of fine, anhedral pyrite occur in one sericite vein.

An approximate mode is :

10-15%	quartz phenocrysts
1-3%	orthoclase phenocrysts
3-5%	sericite after probable plagioclase phenocrysts
0.5-1%	chlorite-rutile after biotite phenocrysts
10-15%	groundmass quartz
55-65%	groundmass K-feldspar
5-7%	groundmass plagioclase
2-4%	sericite in veins and the groundmass
1-3%	chlorite in veins and the groundmass
tr	pyrite

Comments and Interpretation :

This sample is considered to be a rhyolite porphyry and its textures are more suggestive of a subvolcanic intrusion than a lava. It has experienced moderate hydrothermal alteration involving chloritization of biotite, sericitization of plagioclase phenocrysts and veining by chlorite and sericite. It seems likely that chloritization began first and sericitization became dominant subsequently. A few grains of pyrite formed in a sericite vein. Subsequent regional metamorphism has produced weak foliation.