Sample Number : 10967 J.P.3 89.2m

Identification : Probable porphyritic rhyolite which has dense stockwork veining by chlorite-sericite-calcite-pyrite and subsequent modification by regional metamorphism

Description :

The hand specimen is a drill core sample which resembles a fine breccia of orange pink clasts set in a dark greenish grey matrix and disrupted by a stockwork of thin, porous, white carbonate veins.

A staining test revealed that the orange pink rock is dominated by fine K-feldspar.

In thin section the sample appears to consist of porphyritic volcanic rock which has been intensely fractured and veined, then moderately sheared and recrystallized.

Least altered parts of the sample display altered phenocrysts, up to 2mm in size, set in an allotriomorphic groundmass with grainsizes generally of about 0.03mm. The most abundant and largest phenocrysts are quartz, now recrystallized to strained, sutured aggregates of grains. Smaller, less obvious phenocrysts are represented by chlorite-rutile aggregates (possibly after biotite) and magnetite-chlorite aggregates (possibly after Fe-Ti oxides). The groundmass consists of untwinned feldspar (largely potassic), weakly strained quartz and minor chlorite and calcite. There are sparse, irregularly disseminated, subhedral grains of magnetite (about 0.1 to 0.2mm in size) and several similar grains of pyrite.

A dense stockwork of veins consists of sericite, chlorite and calcite, but internal foliation and mild blurring of contact relationships has been produced by shearing. The porous white veins which appeared in hand specimen to be distinct from the chloritic material are observed in section to be calcite dominated veins which are not obviously distinct from the chlorite-sericite network and which show the same style of deformation; some carry quartz. A few aggregates of subhedral pyrite occur in several veins and other grains of pyrite are disseminated through host rock.

An approximate mode is :

3-5%	recrystallized quartz phenocrysts
12-18%	groundmass quartz
65-75%	groundmass feldspar (largely potassic)
4-6%	chlorite, in veins and groundmass
4-5%	sericite, in veins
2-3%	calcite, mainly in veins
0.2-0.3%	vein quartz
0.1-0.2%	disseminated magnetite
0.1-0.2%	pyrite, veins and disseminations

Comments and Interpretation :

Primary textures of this sample are poorly preserved, but it seems to have been porphyritic rhyolite. It is plain that the rock has been densely fractured and a stockwork of veins developed, containing chlorite, sericite, calcite and minor quartz and pyrite. There are also development of disseminated magnetite, chlorite, pyrite and calcite. Subsequent regional metamorphism has deformed the vein minerals and strained and recrystallized especially quartz in the host rock. Incipient weathering presumably accounts for porosity in carbonate veins.