

Sample: S407; TSC33706

**Specimen:**

A pale greenish-grey, fine-grained rock with a weak foliation. There are indistinct darker markings and patterns which suggest possible deformation but these are difficult to interpret accurately.

Staining with cobaltinitrite shows up some small intersecting veins which contain potash feldspar but the remainder of the rock has little or no potash feldspar.

**Thin Section:**

A visual estimate of the minerals is as follows:

	<u>Z</u>
Quartz	35-40
Chlorite	25-30
Sericite	25-30
Potash feldspar	3-5
Leucoxene	1-2
Apatite	trace
Unidentified mineral	very minute trace

Throughout much of this rock there is abundant fine-grained quartz with a grain size of about 0.03 to 0.05 mm intergrown with varying concentrations of extremely fine-grained chlorite and sericite and these micaceous minerals occur mainly along boundaries between the quartz grains. There are also very thin streaks and irregular to elongate concentrations of sericite and chlorite which do not form any recognizable pattern but at least in some areas much of the sericite and some of the chlorite show a preferred orientation parallel to the schistosity. Minute dark grains very probably leucoxene are scattered sporadically through the rock occurring mainly in sericite and chlorite and these are concentrated in some elongate patches and shreds of sericite and chlorite. At least some of these small patches of sericite and chlorite probably represent completely altered grains or fragments and in one area there is a suggestion of a relict rectangular shape about 0.2 mm in size which could have been a feldspar crystal or fragment but the evidence is very inconclusive. There are a few apatite grains scattered throughout the rock and although most of these are less than 0.1 mm in size, in some patches of chlorite there are a few larger apatite grains up to 0.3 mm in size. There are also a few elongated and dispersed concentrations of leucoxene of very variable size and some of these probably represent completely altered and deformed grains of an iron-titanium oxide mineral. In the area sectioned there is one partly granulated quartz grain 0.6 mm in size.

No evidence of sedimentary layering or other definite evidence to suggest a sediment could be found in the section but there is also no definite evidence that this was a porphyritic volcanic rock. It has been deformed, probably sheared and fractured and there are now scattered, irregular patches of coarser-grained, recrystallized and possibly migratory quartz, some veins containing quartz and potash feldspar and also numerous small veins and irregular patches containing concentrations of chlorite.

One tiny grain of zircon was found and also one minute grain of an isotropic mineral with high refractive index. As this is very small and no other similar grain was found, it cannot be positively identified but could be either garnet or sphalerite.