

Sample: S404; TSC33704

Hand Specimen:

A very pale grey rock containing numerous quartz grains or phenocrysts 1 to 2 mm in size with a very fine-grained matrix which, in places, shows a streaky appearance.

Staining with cobaltinitrite shows that the rock contains a moderate amount of potash feldspar, mainly dispersed through patches of matrix but there is at least one potash feldspar phenocryst.

Thin Section:

A visual estimate of the minerals is as follows:

	<u>Z</u>
Quartz phenocrysts	15-50 (possibly more)
Aggregates and patches of sericite mainly sericitized feldspar phenocrysts	25-30
Potash feldspar phenocrysts	trace
Altered ?biotite phenocrysts	1-2
Leucoxene grains	trace
Matrix of sericite, potash feldspar, chlorite and quartz	50-55
Zircon	minute trace

This is a volcanic rock containing quartz phenocrysts 0.5 to 2 mm in size which appear embayed and corroded but are otherwise unaltered except for evidence of slight stain between crossed nicols. The rock also once had numerous feldspar phenocrysts 1 to 2 mm long which have been almost completely replaced by sericite but the external crystal shape has been moderately well preserved. There are a few altered feldspar phenocrysts which still retain traces of potash feldspar and it is uncertain whether or not any were plagioclase. There are a few elongate but thin, altered mica flakes about 1 mm long which were probably biotite phenocrysts and are now secondary mica, chlorite and very fine-grained secondary iron and titanium oxides. There are also a few crystals less than 0.5 mm in size which are now porous leucoxene and one larger fragment about 1 mm long which is largely opaque but porous and this may represent a very dark lithic fragment.

The matrix of the rock is patchy with many areas composed of extremely fine-grained sericite and chlorite possibly intergrown with quartz and feldspar but these areas are too fine-grained for the minerals to be accurately resolved microscopically. There are other areas which contain coarser-grained quartz intergrown with potash feldspar and lesser amounts of sericite and chlorite and these are probably the areas which stained yellow with cobaltinitrite. Many areas of the matrix have a streaky appearance and probably it was originally mainly volcanic glass. Textures are not well preserved but they suggest that it is much more likely to have been a pyroclastic or ash-flow than a lava flow.

Conclusion:

The rock is a partly sericitized rhyolite and is more likely to have been a pyroclastic or ash-flow than a lava flow.