

144

251146

Sample Number : TO31

Identification : Slightly pyritic, largely unaltered, finely recrystallized, unwelded vitric crystal tuff

Description :

The sample is a hard, fairly tough hand specimen of lightly weathered, greenish grey, massive, fine-grained rock with joints but no obvious foliation or cleavage. There are a few ferruginous, oxidized nodules or clasts, up to 2mm.

A staining test revealed moderately abundant fine K-feldspar.

In thin section the sample plainly displays textures consistent with unwelded, fine vitric crystal tuff. The rock was dominated by randomly orientated, undeformed, cusped, thin vitric shards, commonly 0.2mm in size, but attaining 0.4mm in some cases; they have devitrified to untwinned and poorly twinned albite, K-feldspar, minor chlorite and small specks of leucoxene. There are also many angular small clasts of plagioclase, 0.1 to 0.5mm, some very lightly flecked with sericite.

There are sparse 0.7mm aggregates of fine subhedral pyrite cubes and sparse disseminated cubic pores after weathered sulphide, finer than about 0.2mm. Additional pores and iron oxides after probable sulphides occur in quartz-chlorite fissure veins, up to 0.4mm wide in joint systems.

An approximate mode is :

10-20%	small plagioclase clasts
80-90%	vitric shards, recrystallized to feldspar and minor chlorite and leucoxene
0.1%	disseminated grains and aggregates of pyrite
0.2-0.3%	fracture veins of quartz-chlorite-inferred sulphide

Comments and Interpretations :

The sample is interpreted confidently to have been an unwelded tuff, composed of small vitric shards and subordinate small clasts of plagioclase. Deposition by airfall processes or distal ashflow mechanisms are likely. There is no evidence of aqueous sorting or rounding but deposition on land or into still water are both possibilities. The source magma may have been trachyandesitic.

Primary textural details are not identical but there are similarities to the much more altered and slaty vitric tuff 3171.

There seems to have been little, if any, hydrothermal alteration in TO31, but there are traces of pyrite present. Some sulphide was probably present within thin quartz-chlorite veins which follow joints.