

SAMPLE: 562698

SUMMARY: This rock was a basaltic to basaltic andesite hyaloclastite composed of mainly vesicular fragments spalled of a gas-rich flow. Subsequent strong silica-alteration filled vesicles and inter-fragment spaces.

HAND SPECIMEN:

This rock appears to be a feldspar-phyric andesite, although close examination suggests that there are some small (<2mm across) formerly glassy lithic fragments.

THIN SECTION DESCRIPTION:

This is an exceptionally difficult sample to diagnose, due to the very unusual texture of the rock. It was originally probably a basaltic andesite compositionally, and consists essentially of abundant augite and altered plagioclase phenocrysts in a rather bizarre groundmass that probably was originally quite glassy. I suggest that the sample was a hyaloclastite composed of quite small (mainly << a few mm long) fragments of vesicular porphyritic lava with a quenched groundmass. These consist of about subequal amounts of blocky and tabular phenocrysts of sericite+prehnite-altered albite after calcic plagioclase, and mainly euhedral augite phenocrysts less than 1mm long; the augite is fresh and often occurs in multi-crystal clots. Three or four small crystal shapes now composed of pale green chlorite may have been former olivine phenocrysts, although in all cases, the shapes are not diagnostic.

The groundmass of this sample is strikingly unusual, and the interpretation offered is a best guess, rather than a positive identification. The texture of the groundmass shows several major domains that are quite different and probably correspond to different events in the formation of the sample.. The first of these, notably the clear fragmental texture, may confidently be assigned to a primary origin, since some fragments are non-vesicular, whereas others are highly vesicular (although of the same 'parent' lava). These fragments are rather angular, dark coloured and charged with flow-orientated tiny plagioclase microlites in devitrified glass. Within and between the darker coloured fragments are areas of lighter-coloured material, probably cryptocrystalline silica. This fills elongate and flattened vesicles in the dark lava