

SAMPLE: 562662

SUMMARY: This sample is a volcanoclastic sandstone containing detritus from both felsic volcanics (mainly tuffs) and also from pelitic metamorphics.

HAND SPECIMEN:

This is a dark green volcanoclastic with detrital altered plagioclase crystals to several mm long, lithic fragments of dacite or andesite, and black areas of intensely chloritized groundmass.

THIN SECTION DESCRIPTION:

By far the most abundant component of this volcanoclastic sandstone are large partially to totally sericitized detrital phenocrysts of albitized plagioclase, most of which are 1-2mm long. These have blocky shapes typical of the more evolved Mount Read Volcanics (ie. felsic lavas and tuffs), and their well-preserved crystal shapes suggest that they have been liberated from ashes or non-welded tuffs rather than lavas. Detrital quartz grains are less common than feldspar, and smaller, rarely being larger than 1mm long. They show features indicative of both volcanic (even extinction, relic crystal faces) and pelitic metamorphic (multi-crystalline, uneven extinction) quartz, indicating unambiguously that the quartz was supplied from two different sources. Detrital muscovite crystals are not uncommon, and lithic clasts composed of quartz-muscovite schist, and quartzite, are also present (~5 modal%). A few lithic clasts were clearly once-glassy sparsely plagioclase-phyric lavas; one large clast was a plagioclase-phyric andesite with perlitic cracks in the glassy groundmass. Common former FeTi oxide crystals have totally altered to dirty brown leucoxenitic material.

This sandstone was crystal-rich, but not quite framework supported. The matrix of this rock was largely a mixed volcanogenic silt with a large vitric component, although tiny detrital muscovite and metamorphic quartz are also common. Areas of the groundmass have been replaced by pale green streaky chlorite, and dirty brownish carbonate is not uncommon overprinting both groundmass and phenocrysts. This sandstone was clearly derived from two sources, one composed of felsic volcanic tuffs and lavas, and the other Precambrian pelitic metamorphics.