

SAMPLE NUMBER: 431568

SUMMARY:

This is a formerly glassy felsic lava breccia that suffered strong silica-sericite-pyrite alteration, and further silicification and recrystallization in a hydrothermal alteration event that produced silica-barite-pyrite-galena-tetrahedrite-sphalerite assemblages, in which sphalerite was clearly the last phase to precipitate.

HAND SPECIMEN:

This is an extensively hydrothermally altered and recrystallized felsic lava breccia, with a few fragments to 1.5cm across still evident. It contains abundant disseminated pyrite and minor barite, in a matrix that is probably highly siliceous.

THIN SECTION:

A few lava fragments are still obvious, with variable textures following devitrification of glassy groundmass. Most have fine-grained quartzose mosaic textures in which sparse former plagioclase phenocrysts are replaced by polycrystalline quartz. The recrystallized quartzose groundmasses of the various lava fragments are also variably peppered by tiny opaques, some of which may be exceptionally fine-grained sphalerite. Meandering narrow quartz veinlets cut the fragments, and pass into inter-fragment matrix areas composed of medium- to coarse-grained polygonal quartz riddled with tiny sericite-muscovite needles and submicroscopic Fe oxide(?) dust and very fine-grained disseminated sphalerite. These areas contain abundant pyrite grains (to almost 1mm across) and anhedral patches of colourless to pale yellow sphalerite. Barite occurs as a subordinate phase intergrown with polycrystalline quartz in veinlets and strongly recrystallized inter-fragment matrix areas.

OPAQUE MINERALOGY

The sulphides in this sample form extensive stockworks through the inter-fragment matrix areas. Pyrite grains, mainly less than 0.5mm across, are well-formed and inclusion-free, and occur as disseminated grains and disrupted small trains and veinlets. Amorphous colourless to pale yellow anhedral sphalerite occurs as patches to several mm across, and is clearly replacing and overgrowing pyrite. It is probably the most abundant sulphide phase in this rock. Galena occurs as anhedral patches interstitial to pyrite, and as quite large (to several mm) pools unrelated to pyrite, and is also being overgrown by sphalerite. Tetrahedrite