

Heather  
M524



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M524 Report file  
842126

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SAMPLE LOCATIONS  
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MAPS FOR HEATHER  
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Report for: Ragnar Bruaset,  
Chevron Canada Resources Ltd.,  
1900 - 1055 West Hastings Street,  
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Samples: RB84-29, 64, 103, 104, 121, 126, 131, 135, 148, 219A, 225, 227A, 230.

#### SUMMARY.

The sample are from a sequence of andesitic volcanic and volcanoclastic rocks. Fine grained pelitic metasediments (or highly sheared volcanic rocks??) are associated with these. Shearing and brecciation has affected all the rocks and has imparted a fairly strong cleavage to the massive samples. Chlorite alteration is associated with shearing. Prior to deformation there was a period of silicification. Highly deformed patches of quartz occur in many of the samples (all types). Quartz veining associated with epidote and pyrite occurred in some samples after the shearing. Some pyrite and quartz was probably introduced as deformation relaxed. The last stage of alteration was the replacement of the earlier minerals by calcite and sericite. Chalcopryrite is associated with this stage.

The samples are grouped as follows:

- A) ANDESITES: 103, 115, 131, 219A, 227A, 230.
- B) SHEARED ANDESITE: 104.
- C) TUFFS: 29, 121, 135.
- D) PHYLITES: 64, 126, 148.

#### ANDESITE:

These are massive volcanic rocks originally consisting almost entirely of plagioclase. Sample 219A contains plagioclase phenocrysts. They have been intensely altered in various ways and the original textures and mineralogy have been obscured. Deformation (shearing and brecciation) ) has also occurred.

(continued)

## SUMMARY (continued)

103 has been silicified and then sheared with the formation of chlorite and sericite. Pyrite mineralization is associated with the shearing. Pervasive epidote alteration occurs with quartz in sample 230. Small amounts of silicification have occurred in the other samples also but the main alteration has been the formation of sericite and carbonate replacing the mass of fine plagioclase grains. The carbonate is probably an impure (Fe,Mg) calcite since it is slow to react with dilute acid. Chalcopyrite is associated with the carbonate alteration.

### SHEARED ANDESITE:

This sample was an andesite which was silicified and then sheared with the formation of chlorite which has replaced much of the plagioclase. Pyrite (and some quartz) were added after deformation relaxed.


### TUFF:

These are finely bedded volcanoclastic rocks of andesitic composition derived from a similar source to the andesites. They consist of fine plagioclase (and some quartz) fragments set in a cryptocrystalline matrix. A few fragments of fine grained andesite occur in places. The layering is due to variations in grain size and proportion of fragments; the coarser layers contain mostly fragments and the finer layers contain mostly matrix.

Pervasive chlorite and epidote alteration has affected the matrix of all the samples. Sample 29 is the least altered. Sample 125 has been slightly brecciated and sheared and the chlorite is associated with the deformation. Sample 135 contains patches and veinlets of quartz. There are two stages of silicification. The earlier forms patches which have been quite highly deformed (compare andesite 103); this was followed by veining which is associated with some epidote. Pyrite mineralization is associated with this stage.

### PHYLLITE:

These are these are strongly foliated rocks consisting mainly of sericite and chlorite. They are probably pelitic metasediments but it is possible that they could be rocks which were originally volcanic and which have been thoroughly altered by during cataclasis. Sample 148 is hematitic. Sample 64 has been highly altered by carbonate (after deformation).

  
A. L. Littlejohn, M.Sc.

KB84-29: TUFF.

This sample is a fine grained, finely bedded volcaniclastic rock consisting mainly of plagioclase and quartz clasts set in an extremely fine grained cryptocrystalline matrix. Included within the matrix are fine angular shards of palagonite. Moderate pervasive chlorite and epidote alteration (metamorphism?) has occurred within the matrix. Weak sericite alteration has affected some of the plagioclase fragments. Minerals are:

plagioclase	45
quartz	2
andesite	5
chlorite	20
cryptocrystalline	8
palagonite	10
epidote	7
sericite	3

Layers are from 0.4 to 4mm in thickness and consist of angular to subrounded plagioclase and quartz fragments ranging in size from 0.01 to 0.3mm. The beds are equigranular and those with the coarser grains contain up to 90% fragments and tend to be thicker. Those which contain the finest grains contain only 10% fragments. There are also two thin layers which consist of fine grained andesite fragments packed closely together. These consist of irregularly shaped interlocking plagioclase grains about 0.05mm in size.

The matrix of the rock consists mainly of extremely fine grained chlorite mixed with a dark cryptocrystalline material. There are also angular shards of brown palagonite about 0.1mm in size which are scattered between the fragments in many of the layers.

In the finer layers there are extremely fine grains of epidote within the matrix. These often occur in small patches. There is a concentration of fine epidote between some of the beds. Rounded epidote grains up to 0.1mm in size are scattered within the matrix in the coarser layers. Some of these occur within the plagioclase fragments. Patches of coarse epidote replace some of the andesite fragments. In two of the coarser layers the plagioclase fragments have been partly altered to fine sericite.

MB84-64: ALTERED (CALCITE) PHYLLITE.

This sample is a fine grained pelitic metasediment with a well developed phyllitic foliation and which has been highly altered with calcite. Some quartz and pyrite mineralization occurred prior to the addition of calcite. Minerals are:

calcite	60%
quartz	18
sericite	21
chlorite	1
plagioclase	minor
pyrite	minor
Fe-Ti oxide	trace
chalcopyrite	trace

The original rock consisted mainly of a streaky mass of very fine sericite intimately intergrown with some chlorite and very fine quartz. Extremely fine Fe-Ti oxide occurs within the sericite. Much of the quartz in the rock appears to have been added but there may have been quartzitic lenses along the foliation. The quartz forms irregularly shaped interlocking grains 0.05 to 0.3mm in size which occur in small patches and aggregates along the foliation and within masses of calcite. It has been quite highly strained. Pyrite forms cubic grains 0.1 to 0.3mm in size which are intergrown with the quartz, often in clusters of a few grains. In one of the quartzitic patches there are a few subhedral grains of plagioclase intergrown with it. It appears to be albitic (low RI and extinction angle) but there is not enough for an accurate optical determination.

Calcite alteration has resulted in replacement of much of the quartz and the sericite. The phyllitic parts of the rock now consist of discontinuous layers up to 1mm thick which occur within a mass of calcite. The calcite is replacing the quartz. It forms a mass of rounded to rhombic grains 0.1 to 0.5mm in size. Grain size distribution is patchy. The coarser grains occur in aggregates grading into patches of finer grains which are intergrown with the quartz and replacing it. Extremely fine calcite occurs along the foliation within the phyllitic parts of the rock. Small amounts of chalcopyrite, forming irregularly shaped grains less than 0.1mm in size, are intergrown with the calcite. These usually occur around pyrite grains.

RB84-103: ALTERED (QUARTZ) AND SHEARED ANDESITE.

This sample was originally a fine grained volcanic rock of andesitic composition. It has been intensely silicified and then sheared with the formation of chlorite and sericite. Minerals are:

quartz	47%
plagioclase	10
chlorite	28
sericite	10
pyrite	5
Fe-Ti oxide	minor

The original rock apparently consisted of a mass of irregularly shaped plagioclase grains about 0.05mm in size. Silicification has resulted in the formation of veinlets and patches within the mass of plagioclase. Deformation has occurred after the silicification for the quartz veins and patches have been broken up and deformed. Only small patches of remnant plagioclase remain. The quartz now forms irregularly shaped grains of highly variable size from 0.01 to 1.0mm. Grain margins are sutured and they are highly strained. The finer grains tend to occur along narrow shears within the larger ones. Sometimes there is a network of fine grains within a patch of coarser ones. The patches are up to several millimeters in size. Fine grained quartz has flooded some of the volcanic parts.

Much of the remnant plagioclase is intimately intergrown with very fine grained chlorite. Most of the chlorite is concentrated in massive streaky patches around the quartz aggregates. It sometimes has penetrated along grain margins in the quartz patches. Very fine grained sericite is mixed with the chlorite in places. Extremely fine grained Fe-Ti oxide is disseminated in the chlorite and the sericite.

Pyrite forms cubic grains 0.1 to 1.0mm in size which occur in clusters of several grains within the masses of chlorite and sericite. There is usually narrow zone of quartz surrounding the pyrite. This forms elongated grains with the long axis perpendicular to the edge of the pyrite. Some pyrite occurs in the quartzitic patches but always in a narrow shear within the patch. The pyrite mineralization thus appears to be associated with the deformation rather than the earlier stage of silicification. Rare pyrrhotite and chalcopyrite inclusions are present in the pyrite

LB84-104: SHEARED ANDESITE(?)

This sample is a fine grained volcanic(?) rock which consists mainly of quartz, chlorite and plagioclase. It is finely foliated as a result of shearing. Quartz patches and lenses have been broken up and strongly deformed during the shearing. Pyrite is disseminated within the rock and is associated with minor silicification. Mineralization appears to closely follow the shearing. Minerals are:

quartz	35%
chlorite	45
plagioclase	18
pyrite	1
Fe-Ti oxide	1

Much of the quartz is concentrated in thin elongated and ovoid aggregates which may be a few millimeters in length. Grain size is highly variable ranging from 0.02 to 0.4mm. The quartz is highly strained and in the aggregates the margins are sutured. The edges of the aggregates are intimately intergrown with chlorite. These appear to quartz veins and lenses which have been broken up and stretched during shearing. There are also a few isolated rounded quartz grains up to 0.4mm in size which are scattered within the mass of finer plagioclase and chlorite.

Plagioclase forms very fine grains less than 0.05mm in size which are intimately intergrown with chlorite. The chlorite forms extremely fine flakes which occur in a streaky, interconnected patchy network around the quartz grains and aggregates. There are dark streaky spots scattered along the foliation which are small chlorite masses. As well as fine grained plagioclase there is about 5% of rounded to subhedral grains 0.05 to 0.2mm in size which occur scattered about the mass of fine chlorite and plagioclase. The edges are being replaced by chlorite. These are remnant grains which have not been broken up and replaced by chlorite during the shearing.

Pyrite forms subcubic grains with ragged edges 0.5 to 2.0mm in size which are scattered about the rock. It is concentrated in siliceous shear zones less than 2mm wide and in these areas there are also smaller grains clustered around the larger ones. Very thin stringers of pyrite sometimes occur along the shears. The larger pyrite grains and clusters are often surrounded by a narrow zone of quartz which forms irregularly shaped to elongated interlocking grains of variable size up to 0.3mm. The elongated grains tend to have a spherulitic structure around the pyrite. Small ovoid patches of this type of quartz occur without pyrite in places. This quartz is undeformed. Some of the pyrite grains are slightly altered to goethite around their edges.

Fe-Ti oxides form ragged rounded grains less than 0.05mm in size which are disseminated throughout the rock within the chloritic parts. It is usually concentrated in clusters and aggregates of a few grains.

RB84-115: ALTERED (CALCITE - SERICITE) ANDESITE.

This sample is a massive pale coloured volcanic rock which has been highly altered by calcite and sericite. The original texture and mineralogy has been obscured by the alteration. Minerals are:

calcite	40%
sericite	20
plagioclase	34
quartz	6
Fe-Ti oxide	minor
chalcopyrite	minor
pyrite	trace

The original rock appears to have consisted of a mass of fine plagioclase grains. Alteration appears to have caused recrystallisation of the plagioclase to grains about 0.01mm in size which are intimately intergrown with extremely fine sericite. Some sericite is concentrated in streaky patches (shears?). Very fine ragged grains of Fe-Ti oxides occur within the sericite and are concentrated along thin stringers within the sericitic concentrations. Minor limonite stain occurs along these.

Quartz forms irregularly shaped grains 0.05 to 0.3mm in size which occur in small vein-like patches. These are intergrown with and being replaced by calcite. The calcite in the vein-like patches forms grains about 0.4mm in size which graie into masses of finer grains within the plagioclase. Some sericite is intergrown with the calcite in these. Calcite also forms rhombic grains about 0.1mm in size which are scattered within the mass if plagioclase and sericite.

Pyrite forms cubic grains about 0.3mm in size which are scattered about the rock. They often have a narrow rim of quartz around them. Chalcopyrite forms ragged, irregularly shaped grains less than 0.1mm in size which are intergrown with calcite in the vein-like patches. Finer chalcopyrite grains are disseminated throughout the rock. Some have been altered to goethite.

RB84-121: ALTERED (EPIDOTE) TUFF.

This sample is a fine grained bedded volcanoclastic rock which has been deformed and altered with fine epidote. Light and dark beds about 1 - 4mm thick have been crenulated and offset slightly by an axial plane cleavage. The darker coloured beds are fine grained and have been more altered by epidote. Minerals are:

plagioclase	35%
quartz	8
quartz "vein"	2
epidote	20
cryptocrystalline	20
chlorite	15
pyrite	trace (altered to goethite)
hematite	trace

The lighter coloured beds consist of angular to rounded fragments of plagioclase and quartz ranging in size from 0.05 to 0.2mm. They are closely packed within an extremely fine grained cryptocrystalline matrix. Darker coloured beds consist mainly of the matrix with scattered fragments within it. Extremely fine hematite is disseminated within the matrix throughout. The fragments are usually less than 0.05mm in size.

Pervasive chlorite and epidote alteration has affected the matrix of both types of bed. In the lighter coloured beds in which the matrix makes up about 10% of the bed, extremely fine grained epidote occurs incipiently within the matrix. In the darker beds extremely fine grained chlorite and epidote are mixed and there are scattered epidote grains up to 0.1mm in size within the matrix. Some epidote replaces plagioclase fragments in both types of bed. Much of the chlorite in the rock occurs in narrow streaky masses cutting across the bedding along the foliation.

There are a few small vein-like patches of quartz which consisting of an intergrowth of irregularly shaped quartz grains up to 0.3mm in size. Epidote and chlorite are sometimes intergrown with the quartz.

Pyrite occurred in the rock and formed cubic grains about 0.1mm in size scattered throughout. It has been altered to a mixture of hematite and goethite.



KB84-126: PHYLLITE.

This sample is a fine grained metasediment (greenschist facies) with a well developed phyllitic foliation. The foliation is somewhat crenulated. Minerals are:

sericite	60%
chlorite	22
quartz	15
pyrite (+ goethite)	3
hematite	minor

Much of the rock consists of a streaky mass of very fine sericite flakes. Extremely fine hematite is disseminated within the mass of sericite. Chlorite also forms fine flakes which occur in very thin lensoid layers within the mass of sericite. The chlorite is often intimately intergrown with quartz which forms irregularly shaped grains less than 0.05mm in size. There are also a few rounded quartz grains about 0.1mm in size which are scattered about the rock within the sericite.

Pyrite forms subcubic grains 0.1 to 0.3mm in size which occur intergrown with quartz in small lenses. Most of the pyrite has been altered to goethite, and limonite has formed a stain between the quartz grains. Chlorite is not intergrown with the quartz in the pyritic lenses which may be up to 1mm in size.

RB84-131: ALTERED (SERICITE) ANDESITE.

This sample was originally a massive volcanic rock. It has been highly altered by sericite. There is also a fairly well developed foliation formed during shearing. Lesser quartz and carbonate alteration has also occurred. The original texture and mineralogy have been obscured by the alteration and shearing. Minerals are:

sericite	55%
chlorite	10
plagioclase	18
carbonate	12 (siderite?)
quartz	5
Fe-Ti oxide	minor
apatite	trace

The original rock consisted of a mass of very fine plagioclase with small amounts of quartz intergrown with it. The quartz forms rounded grains about 0.1mm in size. There are also a few small rounded apatite grains scattered within the mass of plagioclase. The plagioclase appears to have been recrystallised during shearing and alteration. It now forms a mass of subrounded grains about 0.01mm in size which are intimately mixed with very fine sericite. Small patches of chlorite also occur with the sericite and there are extremely fine grains of Fe-Ti oxide disseminated within it. The sericite is sometimes concentrated in streaky patches. The distribution of the remnant plagioclase is patchy within the mass of sericite and contacts between these and the sericite is indistinct.

There has been a small amount of silicification. The quartz forms irregularly shaped grains of variable size up to 0.1mm which occur in small vein-like patches up to 1mm in length. Smaller rounded patches of fine quartz also occur.

Carbonate alteration has also occurred. The carbonate is stained dark brown with limonite and is probably sideritic. It forms rounded grains and aggregates which are scattered within the mass of sericite and remnant plagioclase. Grain size varies from 0.01 to 0.2mm. It is sometimes concentrated in small aggregates which are intergrown with the quartz. Much of the carbonate has been weathered out.

RB84-135: ALTERED (EPIDOTE) TUFF WITH QUARTZ VEINS.

This sample is a fine grained bedded volcanoclastic rock consisting of small plagioclase and quartz fragments set within a fine grained cryptocrystalline matrix. Quite intense alteration of the matrix and the plagioclase fragments has occurred. There is a system of widely spaced quartz veinlets cutting through the rock. Minerals are:

plagioclase	45
quartz	2
andesite	minor
epidote	34
cryptocrystalline	12
chlorite	1
quartz vein	6
plagioclase vein	trace
pyrite	trace
K-spar	trace

Plagioclase fragments are subangular to rounded and range in size from 0.05 to 0.3mm. They are crowded within a cryptocrystalline matrix (since altered). Beds vary in thickness up to several millimeters and are equigranular. The coarser beds contain up to 95% fragments while the finer grained ones contain as little as 10% fragments. Quartz fragments are usually fine grained. There are also a few rounded andesite fragments about 0.5mm in size which occur in a fine grained bed. These consist of a mass of shapeless interlocking plagioclase grains about 0.05mm in size.

The matrix of the rock now consists mainly of a mass of very fine epidote which has grown within the cryptocrystalline material. In the coarser layers many of the plagioclase fragments have been completely replaced by epidote. There are small amounts of very fine chlorite within the matrix but most of the chlorite in the rock is associated with the quartz veinlets and patches.

Quartz occurs in veinlets up to 1mm thick and in patches a few millimeters in size. In the patches the quartz forms irregularly shaped interlocking grains with sutured margins and which are highly strained. Grain size is highly variable ranging from 0.01 to 0.5mm. Chlorite occurs in these patches and it appears to have formed along narrow shears within the quartz patch. There is also fine K-spar occurring between some of the quartz grains replacing the edges. A few cubic grains of pyrite up to 0.4mm in size are intergrown with the quartz. It has been altered to goethite. These patches appear to be from an earlier stage of silicification than the veinlets since they are deformed and the veinlets are not. In the veinlets the quartz forms irregularly shaped grains from 0.05 to 0.2mm in size which are intergrown with small amounts of plagioclase (albitic??). In one veinlet there is epidote intergrown with the quartz. The small amounts of K-spar in the quartzitic patches probably formed at this time.

BB84-148: PHYLLITE.

This sample is a fine grained pelitic metasediment (greenschist facies) with a well developed phyllitic foliation. It is purple in colour due to the occurrence of hematite. Relatively large quartz clasts scattered about the rock could possibly be lapilli. Minerals are:

sericite	60%
chlorite	27
quartz	14
hematite	6
Fe-Ti oxide	3

Sericite forms a streaky mass of extremely fine flakes. Chlorite also forms fine flakes which are intimately intergrown with the sericite but which tend to be concentrated in thin lenses along the foliation. These sometimes cut across the foliation at a shallow angle and have formed during shearing.

Quartz forms shapeless grains less than 0.03mm in size which are intergrown with the sericite and chlorite. Most of the quartz occurs as rounded or ovoid clasts (lapilli??) 0.05 to 0.5mm in size, averaging about 0.1mm. Most of the larger ones are aggregates of a few grains. Both the aggregates and single grains are quite highly strained. They are sometimes concentrated along the foliation plane. The streaky masses of sericite wrap around the quartz.

Hematite forms ragged or thin, elongated grains less than 0.03mm in size which are disseminated throughout the rock within the mass of sericite and chlorite. It is associated with Fe-Ti oxides which forms very fine grains occurring in ragged, lensoid aggregates up to 0.1mm in size.

RB84-219A: ALTERED (CALCITE - SERICITE) ANDESITE.

This sample is a massive andesitic volcanic rock which has been highly altered with calcite and some sericite. The original fabric and mineralogy has been largely obscured by the alteration but there are a few remnant phenocrysts of plagioclase and diffuse patches of a very fine groundmass can be recognised in places. Minerals are:

calcite	72
sericite	12
plagioclase phenocrysts	5
plagioclase groundmass	10
quartz	1
Fe-Ti oxide	minor
pyrite	trace
chalcopyrite	trace
apatite	trace

The original rock apparently consisted of euhedral plagioclase phenocrysts 0.2 to 0.8mm in size scattered within a mass of fine grained shapeless plagioclase less than 0.05mm in size. One partly altered phenocryst 1.5mm in size was seen in the section. A few rounded apatite grains about 0.1mm in size are scattered within the groundmass.

Quartz occurs in a few discontinuous veinlets less than 0.05mm wide. Small patches sometimes occur within the groundmass plagioclase near the veinlets. The quartz is associated with weak pyrite mineralization. The pyrite forms subcubic grains about 0.05mm in size which are scattered about the rock and occur intergrown with the quartz in the veinlets.

Calcite alteration is pervasive and has replaced most of the plagioclase (groundmass and phenocrysts). It forms a mass of very fine grains which are sometimes intimately intergrown with sericite. The sericite tends to occur in thin streaky patches. Some sericite is concentrated in large ovoid patches which may have been large plagioclase phenocrysts. Calcite also occurs in a system of veinlets consisting of shapeless interlocking grains about 0.3mm in size. The veinlets have indistinct margins. Where remnant groundmass material is present there are small rhombic grains of calcite scattered within it. Extremely fine ragged grains of Fe-Ti oxide are disseminated within the calcite and are concentrated in very thin streaks. Chalcopyrite is associated with the calcite alteration. Fine shapeless chalcopyrite grains are intergrown with the calcite in a few of the veinlets. Some chalcopyrite is disseminated within the rest of the rock and tends to surround the pyrite.

RB84-227A: ALTERED (CALCITE-SERICITE) ANDESITE.

This sample is a massive pale coloured volcanic rock which has been highly altered by calcite and sericite. The original texture and mineralogy has been largely obscured but there are a few small patches of remnant plagioclase. Minerals are:

calcite	25%
sericite	60
plagioclase	10
pyrite	3
Fe-Ti oxides	2
chalcopyrite	minor
quartz	trace

The original rock appears to have consisted mainly of a mass of shapeless interlocking plagioclase grains about 0.05mm in size. Intense alteration has resulted in the replacement of the plagioclase by a mass of very fine sericite flakes. Indistinct patches less than 0.5mm in size of remnant plagioclase occur within the mass of sericite. Small patches also occur in which there are extremely fine plagioclase grains intimately mixed with the sericite. Some sericite occurs in a network of vein-like patches.

Calcite alteration has also occurred and this appears to follow the sericite alteration. The calcite forms rhombic grains about 0.2mm in size which are scattered about the mass of sericite. These often coalesce into patches of more massive calcite.

Quartz forms irregularly shaped grains less than 0.1mm in size which occur in aggregates of a few grains around pyrite. The pyrite occurs in a widely spaced system of subparallel, sinuous stringers. It forms ragged cubic grains 0.05 to 0.2mm in size. Rare ~~pyrrhotite inclusions~~ occur in some of the larger ones. Small pyrite grains are disseminated throughout the rock. Chalcopyrite also occurs with the pyrite in the stringers. It forms irregularly shaped grains less than 0.1mm in size which occur around the pyrite. Also occurring within the stringers are small patches of Fe-Ti oxides which forms ragged, rounded grains less than 0.05mm in size.

RB84-230: ALTERED (QUARTZ - EPIDOTE; CALCITE) ANDESITE.

This sample was a massive volcanic rock of andesitic composition which has been altered with quartz and epidote and then brecciated. Later alteration by a system of calcite veinlets has occurred. The original fabric and mineralogy have been largely obscured by the alteration (both stages). Minerals are:

plagioclase	45%
quartz	18
epidote	23
calcite	12
sercite	2

The original rock consisted of a mass of interlocking shapeless to lath-like plagioclase grains 0.05 to 0.1mm in size. There are a few subhedral phenocrysts about 0.4mm in size scattered within the fine plagioclase. Larger ones have been broken up into small fragments. Phenocrysts make up less than 5% of the rock.

Quartz originally occurred in a widely spaced system of veinlets and patches. These have been brecciated into subangular or elongated fragments up to a few millimeters in size. The quartz forms irregularly shaped interlocking grains 0.05 to 0.5mm in size; most are less than 0.1mm in size. The coarser grains tend to occur in fragmented veinlets about 1mm in width; the finer ones tend to occur in patches. Epidote forms rounded grains 0.05 to 0.1mm in size which occur at the edges of the quartz veins and patches within the andesitic parts. Some is disseminated between the plagioclase grains and there is a partly interconnected patchwork of massive epidote. Some epidote is intergrown with the quartz.

Calcite forms irregularly shaped grains of highly variable size up to 0.2mm which occur in a closely spaced network of discontinuous veinlets 0.05 to 0.3mm thick cutting through the quartz and epidote. Some fine sericite is intergrown with the calcite in a few of the veinlets (stains yellow on the offcut block).