

# Representative Petrographic Reports

For a suite of samples, a summary report will be included as well as the detailed descriptions. Where enough information is supplied by the client, the summary report also will include comments regarding genesis of the samples. As well, specific questions of the client will be answered.

## Sample XT-2

### **Muscovite/Sericite-Dolomite-Chlorite-Pyrite Schist; Early, Deformed Vein: Quartz-Dolomite-(Pyrite-Tetrahedrite- Chalcopyrite-Native Gold); Late Veins: Quartz-Dolomite**

The sample is a muscovite/sericite-dolomite-chlorite-pyrite schist that was cut by an early, deformed quartz-dolomite-(pyrite-tetrahedrite-chalcopyrite) vein and later fracture-filling veinlets of quartz-dolomite. The original rock may have been an intermediate volcanic rock, but no original texture is preserved. It contains porphyroblasts of pyrite and disseminated grains of arsenopyrite, rutile, and hematite(?).

The border of the vein is dominated by dolomite with patches of pyrite, lesser tetrahedrite, and minor chalcopyrite. The core of the vein is dominated by quartz with much less dolomite and minor pyrite. The vein was slightly cataclastically deformed and recrystallized. One strongly fractured pyrite grain contains abundant veinlets of tetrahedrite with scattered patches of native gold and chalcopyrite.

A few late veins up to 3 mm wide are of quartz and dolomite are present in the hand sample but are not obvious in the thin section.

<b>mineral</b>	<b>abundance</b>	<b>main size range (mm)</b>
<b>rock</b>	<b>(55-60%)</b>	
muscovite/sericite	20-25	0.03-0.1
calcite	20-25	0.03-0.1
chlortie	4-5	0.03-0.1
pyrite	2-3	0.05-0.5
arsenopyrite	0.3	0.02-0.05
rutile	0.3	0.005-0.02
Fe-oxide	0.2	0.03-0.05
leucoxeme	1-2	cryptocrystalline-0.02
chalcopyrite	trace	0.01-0.03
<b>veins, veinlets</b>	<b>(40-45%)</b>	
<b>early vein</b>		
quartz	30-35	0.5-2
dolomite	10-12	0.5-1.5
tetrahedrite	1-2	0.2-1.5
pyrite	1-2	0.3-1
chalcopyrite	0.3	0.03-0.02
<b>native gold</b>	trace	0.003-0.02
<b>late vein</b>		
quartz- dolomite	(not in section - 3-5% of hand sample)	

Muscovite/sericite forms unoriented flakes intergrown finely with anhedral grains of dolomite. Chlorite is intergrown with muscovite/sericite and dolomite, and also is concentrated moderately in a few chlorite-rich patches and lenses of grains from 0.1-0.15 mm in size.

Pyrite forms disseminated, subhedral porphyroblasts. A few of these a partial overgrowth of chlorite on one or more sides of the crystal. Chlorite flakes in these overgrowths are mainly oriented perpendicular to pyrite crystal faces. A few large flakes are oriented parallel to pyrite crystal faces. Pyrite also forms disseminated grains and clusters of grains averaging 0.005-0.05 mm in size. A few pyrite porphyroblasts contain minor lensy patches and fracture-filling zones up to 0.02 mm wide of chalcopyrite.

Rutile forms disseminated grains and clusters of grains. Leucoxene is concentrated strongly in patches up to 0.2 mm in size in which anhedral leucoxene grains are intergrown with sericite, calcite, and chlorite. These patches may be secondary after original sphene. Hematite(?) forms disseminated, equant, commonly subrounded, isotropic grains.

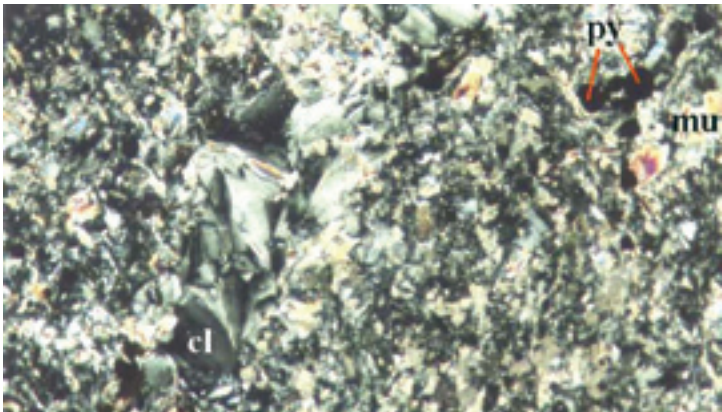
Along the margin is a zone up to 3 mm wide dominated by dolomite with disseminated grains of pyrite. Dolomite grains are anhedral and slightly interlocking and commonly contain abundant dusty inclusions of iron oxide(?), giving it a turbid appearance. Against quartz grains, a zone up to 0.1 mm wide in the grains is recrystallized and clear, and is free of dusty inclusions. Pyrite forms subhedral grains and clusters of grains. Two patches up to 1.5 mm across along the border of the vein are of recrystallized dolomite (0.3-0.5 mm) with patches up to 0.5 mm in size of muscovite flakes (0.1-0.2 mm). Pyrite contains minor inclusions up to 0.03 mm in size of tetrahedrite and chalcopyrite, and one grain contains a lens of **native gold** 0.025 mm long. One strongly fractured pyrite grain contains abundant veinlets of tetrahedrite with scattered patches of **native gold** and chalcopyrite.

One patch 1.5 mm across and several smaller, irregular patches are of tetrahedrite with minor to moderately abundant chalcopyrite. Tetrahedrite also forms a few patches up to 0.2 mm in size associated with dolomite in the quartz-rich part of the vein.

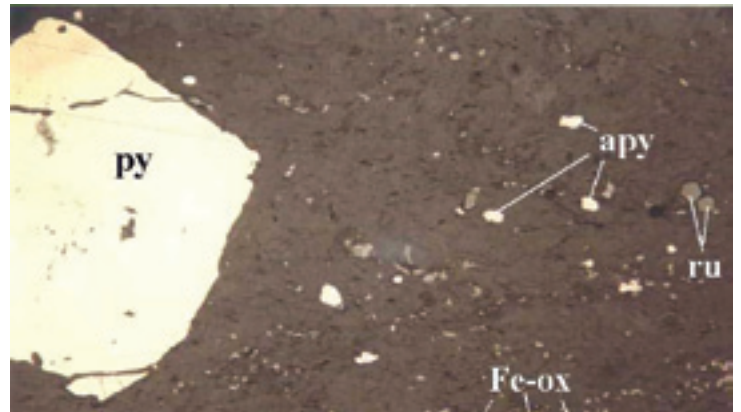
The core of the vein is dominated by quartz with much less abundant dolomite and minor pyrite. Quartz forms anhedral grains that contain minor dusty opaque inclusions and show slight to moderate cataclastic deformation. Many were recrystallized slightly to moderately along grain borders to subgrain aggregates 0.01-0.015 mm in size that generally are free of dusty inclusions. Dolomite forms irregular patches up to 1.5 mm in size surrounded by quartz. Cores of grains are turbid and rims are clear as in the border zone. Pyrite forms minor disseminated subhedral to euhedral grains.

Some of the recrystallized zones of quartz and dolomite in the main vein may be associated with the late veins of quartz-dolomite.

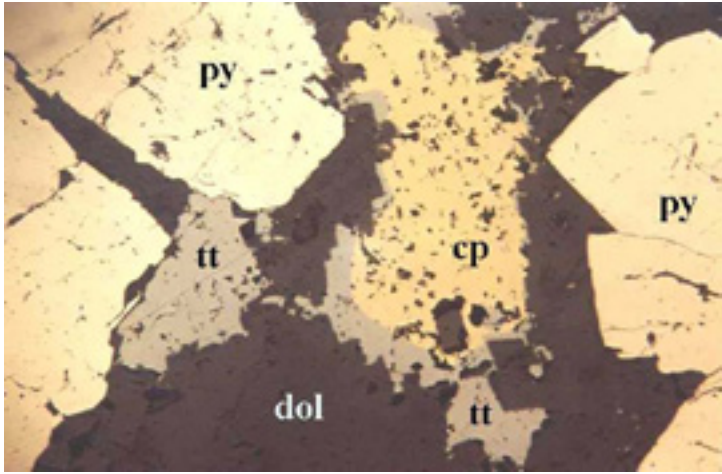
**Photo 1:** Chlorite-muscovite-calcite rock; coarser grained lens of chlorite; minor disseminated pyrite (opaque). Crossed nicols. LOP: 1.6 mm.



**Photo 2:** Porphyroblast of pyrite, disseminated grains of arsenopyrite, rutile, and minor Fe-oxide in schist. Reflected light. Length of photo: 1.6 mm.



**Photo 3:** grains of pyrite and patches of tetrahedrite-chalcopyrite in matrix of dolomite. Reflected light. Length of photo: 1.6 mm.



**Photo 4:** Veinlets of tetrahedrite - (native gold-chalcopyrite) in strongly fractured pyrite grain. Reflected light. Length of photo: 0.4 mm.

