

## Appendix V-7 Result of Microscopic Observation of Thin Section

### Summary of Observations under polarizing microscope

#### Legend

##### [Rocks]

GR : granitic rock BS : basalt QSH : quartz schist  
SI : silicified rock QR : quartz rock QG : quartz-goethite rock

##### [Minerals]

Qz : quartz Kf : alkali feldspar Pl : plagioclase Ab : albite  
Mus : muscovite Bi : biotite Hb : hornblende  
Cpx : clinopyroxene Trm : tourmaline Zr : zircon Ap : apatite  
Ga : garnet Mon : monazite Op : opaque mineral Sph : sphene  
Ti : titanite (fine aggregate of sphene-like minerals) Ky : kyanite  
Ep : epidote Chl : chlorite Ac : actinolite Il : illite Py : pyrite  
Ser : sericite Ge : goethite Oth : other minerals

##### [Other symbols]

( ) : pseudomorph

## Appendix V-7 Result of Microscopic Observation of Thin Section

Table Summary of Observations under polarizing microscope (1)

Outcrop No.	Sample Name	Map Sheet	Rock name	Locality	Formation	Texture	Grains, primary minerals and phenocryst	Matrix, secondary minerals or groundmass
A090202	RA003T	1130NE	Medium-grained sandstone	Lubaleshi R.	Katanga Group	Sedimentary texture with bedding by grading (medium to fine-grained)	Qz(40)·Pl(20)·Kf(18)·Op(2)·Mus(3)·GR·GSH·Hb·Sph·Ky·Ep·Zr	Matrix is minor amount(11%), Mixtures of Il·Qz·Chl and Ge cement.
L107100301	RA005T	1030NE	Granitic pegmatite	Take	Basement Complex	Holocrystalline equigranular (partly recrystallized)	Qz(25)·Kf(25)·Mus(19)·Pl(13)	Secondary minerals: Qz(16)·Ser(2)
Pg70	RA006T	1030SE	Granite	Take	Intrusive	Holocrystalline equigranular	Kf(42)·Qz(31)·Pl(19)·B(6)·Mus(1)	Secondary minerals(2%): Chl·Ser·Ep
Lh7100210	RA007T	1030NE	Dolerite (Alkali dolerite)	Take	Intrusive	Ophitic	Pl(60)·Cpx(17)·Op(3)	Secondary minerals: Ser(9)·Chl(7)·Ac(3)·Qz(1)·Ti
Lh7090721	RA008T	1030NE	Very coarse-grained sandstone (arkosic wacke)	Near Kanchibia	Katanga Group	Sedimentary texture with weak bedding by mineral alignment. Sorting is poor and by roundness. Grains are subangular to subrounded.	Qz(33)·Kf(25)·Pl(6)·S(6)·GSH(5)·QR(3)·Oth(4)	Matrix: Mainly mixture of Chl, Il and fine Qz, and with the presence of Ch(calcite) cement.
N072301	RB001T	1130SE	Very fine-grained sandstone (wacke)	Kanchibia R.	Katanga Group	Sedimentary texture with bedding by mineral alignment.	Qz(16)·Pl(5)·Mus(3)·Op(3)·Chl(3)·Oth(3)·Kf(2)·Ep	Matrix occupies 65%, it is composed of Il(32%), Chl(8%) and a complex mixture(25%).
N081101	RB002T	1130SE	Micaceous siltstone (~very fine-grained sandstone)	Luitikila R.	Katanga Group	Sedimentary texture with bedding by mineral alignment.	Mus(14)·Qz(13)·Pl(6)·Kf(6)·Op(2)·Oth	Matrix is 59% composed of Il, Ge and others.
N081203	RB004T	1130SE	Fine-grained sandstone (wacke)	Luitikila R.	Katanga Group	Sedimentary texture with bedding by mineral orientation and grading. Siltstone of 0.2 to 0.3mm thick is interleaved with the sandstone.	Qz(16)·QG(11)·Pl(10)·Mus(8)·Kf(6)·Op(2)·Oth	Matrix(48%) is composed of Il, Ge and others.
N081306	RB007T	1130SE	Siltstone (~very fine-grained sandstone)	Locality : Kanchibia R.	Katanga Group	Sedimentary texture with bedding by mineral orientation.	Qz(19)·Pl(10)·Mus(6)·Kf(4)·Op(2)·Ep·Oth	Matrix is 58% composed of Il, Ge and others.
N081308	RB008T	1130SE	Fine-grained sandstone (wacke)	Take		Sedimentary texture with bedding by mineral orientation.	Qz(39)·Pl(17)·Kf(4)·Mus(2)·Op(2)	Matrix occupies 32%, and it is composed of Il(9%), Ch(9%), secondary Qz(8%), Chl(4%) and others.
N091301	RB011T	1030NE	Orthoquartzite (quartz rich medium-grained sandstone)	K-L road	Mporokoso Group	Sedimentary texture with weak graded bedding.	Qz(96)·Pl(1)·Mus·Op·Zr	Matrix is minor amount (3%), and mostly composed of mixtures of Il, Chl and Ge. But the amount of original matrix was probably much larger, because the secondary quartz has grown over original quartz grains.
N091311	RB012T	1030NE	Coarse-grained sandstone (arkosic wacke)	Lukupu		Sedimentary textures with grain orientation and with bad sorting.	Qz(39)·Pl(15)·Kf(11)·S(4)·GR(2)·Oth(2)·GSH(1)	Matrix is rich (26%) and composed of Ser, Chl, fine Qz and others.
N091505	RB015T	1030NE	Orthoquartzite (quartz-rich medium-grained sandstone)		Kasama Formation	Sedimentary texture with weak orientation of quartz grains. Secondary fine-grained quartz fills the network of fractures.	Qz(92)·Op(1)·Pl·Hb·Mus·Zr Vein filled : Qz(4)	Matrix is minor amount (3%) and composed of mainly Op and minor amount of Chl. But the amount of original matrix was probably much larger, because the secondary Qz grows on original Qz grains.

( ) : modal %

## Appendix V-7 Result of Microscopic Observation of Thin Section

Table Summary of Observations under polarizing microscope (2)

Outcrop No.	Sample Name	Map Sheet	Rock name	Locality	Formation	Texture	Grains, primary minerals and phenocryst	Matrix, secondary minerals or groundmass
N091602	RB016T	1030NE	Tonalite (sheared and recrystallized)		Basement Complex	Holocrystalline equigranular with features of shearing and recrystallization.	Pl(19)>B(16)>Qz(5)>Kf(2)	Secondary minerals: Qz(25)>Chl(14)>Ser(10)>Ep(5)>Ab(2)>Ga(1)·Mon·Oth(1)
N091603	RB017T	1030NE	Psammitic gneiss		Basement Complex	Gneissose	Qz(36)>Bi(24)>Pl(15)>Mus(9)·Kf(8)>Op(1)>Hb·Trm	Secondary minerals: Chl(5)>Ser(2)
N091607	RB019T	1030NE	Fine-grained sandstone (arkosic arenite with recrystallization = semi shist)		Basement Complex	Sedimentary texture with orientation of grains and with recrystallization features.	Qz(53)>Pl(26)>Kf(7)>B(5)>Op(2)·Mus(2)Chl(2)	Matrix is minor amount (5%) and recrystallized. It is composed of Bi, Mus and Chl.
N091502	RB020T	1030NE	Medium-grained sandstone		Basement Complex	Sedimentary texture with orientation of grains and with recrystallization features.	Qz(49)>Pl(28)>Kf(14)>B(8)>Op(1)	Matrix is in minor amount and exhibits recrystallization. It is probably composed of biotite, secondary Qz, chl and Op. But the amount of original matrix is not clear.
N091707	RB021T	1030NE	Psammitic gneiss		Basement Complex	Gneissose	Qz(59)>Pl(21)>B(10)>Kf(7)>Ga(1)>Mus·Op	Secondary mineral: Chl(2)
FC20080702	RC002T	1130SE	Carbonate-quartz-muscovite shist	River	Katanga Group	nematoblastic texture with shear band cleavage	Mus(43)>Qz(21)>Cb(14)·Chl(11)>Kf(4)·Pl(4)·Op(3)	
FC20080803	RC003T	1130SE	Coarse-grained sandstone (orthoquartzite)	River	Katanga Group	Massive sedimentary texture with recrystallized matrix.	Qz(57)>Oth(5)·Kf(4)·Pl(4)>Mus(1)>Oth	The matrix is composed of secondary quartz(21%) and minor amount of sericite and opaque mineral(8%).
FC080705	RC005T	1130SE	Very fine-grained sandstone	River outcrop	Katanga Group	Sedimentary texture with bedding by mineral orientation.	Qz(20)>Mus(8)·Pl(7)>Kf(4)·Chl(4)>Oth(2)·Op(1)	Matrix(54%) is composed of Pl, Py-like mineral, Ge and others.
FC081315	RC010T	1130SE	Micaceous very fine-grained sandstone	River outcrop	Katanga Group	Texture : Sedimentary texture with mineral orientation.	Qz(17)>Mus(11)>Pl(7)>Oth(5)>Kf(3)>Op(2)·Bi(2)	Matrix(53%) is composed of Pl, Py-like mineral and others.
FC090420	RC011T	1130NE	Medium-grained sandstone	Riverbed outcrop	Katanga Group	Massive sedimentary texture. The sorting is good, and the grains are subrounded to rounded.	Qz(63)>Pl(15)·Kf(13)>S(2)>Op(1)>Hb·Sph·Oth	Matrix is minor amount (5%). It is mainly composed of quartz cement, and partly opaque minerals.
FC091929	RC012T	1030NE	Granodiorite (deformed and recrystallized)	Riverbed outcrop	Basement Complex	Holocrystalline equigranular with deformation and signs of recrystallization. Biotite has preferred alignment due to deformation.	Pl(31)>Qz(10)>Bi(15)>Kf(7)·Hb(7)>>Sph(1)·Trm(1)>Opq·Zr·Ap	Secondary minerals: Qz(15)>Ser(10)>Ep(2)>Chl(1)
FC092228	RC013T	1030NE	Rhyolite (recrystallized)	Riverbed outcrop	Dyke	Porphyritic. Groundmass is holocrystalline.	Phenocryst: Pl(2)>Qz(1)·Mus·Kf	Groundmass: Qz(65)>>B(15)>Kf(8)·Pl(7)>Op(1)>Mus
APD080801	RD001T	1130SE	Medium-grained sandstone	Water well	Katanga Group	Texture : Sedimentary texture with weakly developed mineral alignment.	Qz(63)>Kf(10)>Pl(5)·Oth(4)	Matrix(12%) is composed of secondary Qz, Pl and others.

( ) : modal %

# Appendix V-7 Result of Microscopic Observation of Thin Section

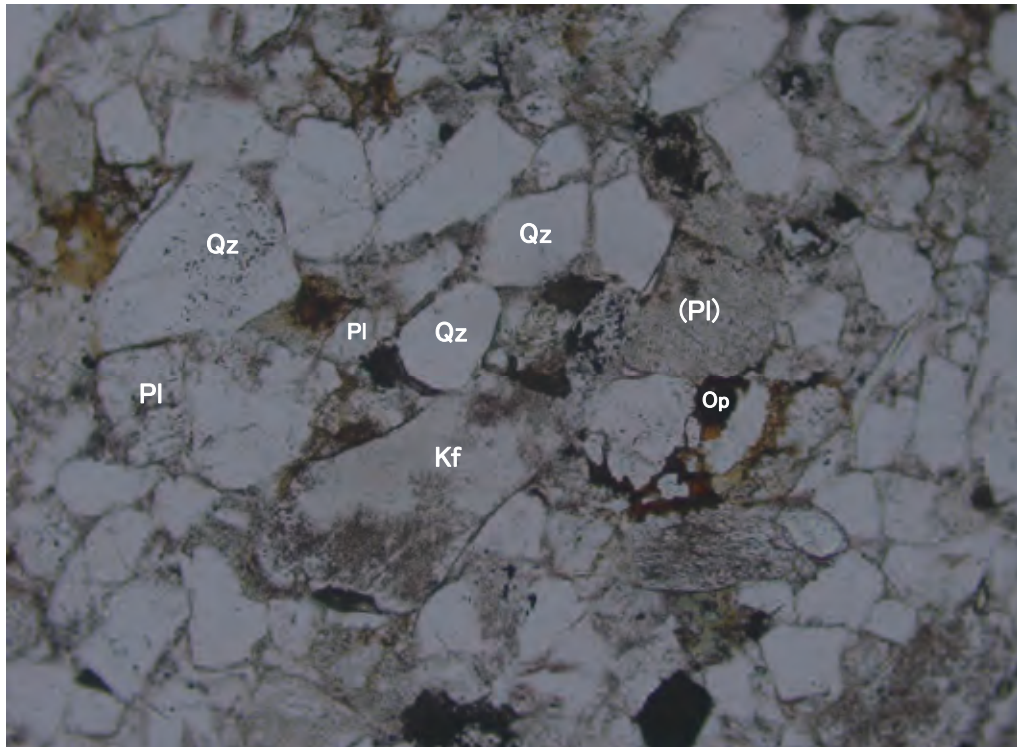
## Photomicrographs (1)

Sam.No. : RA003T

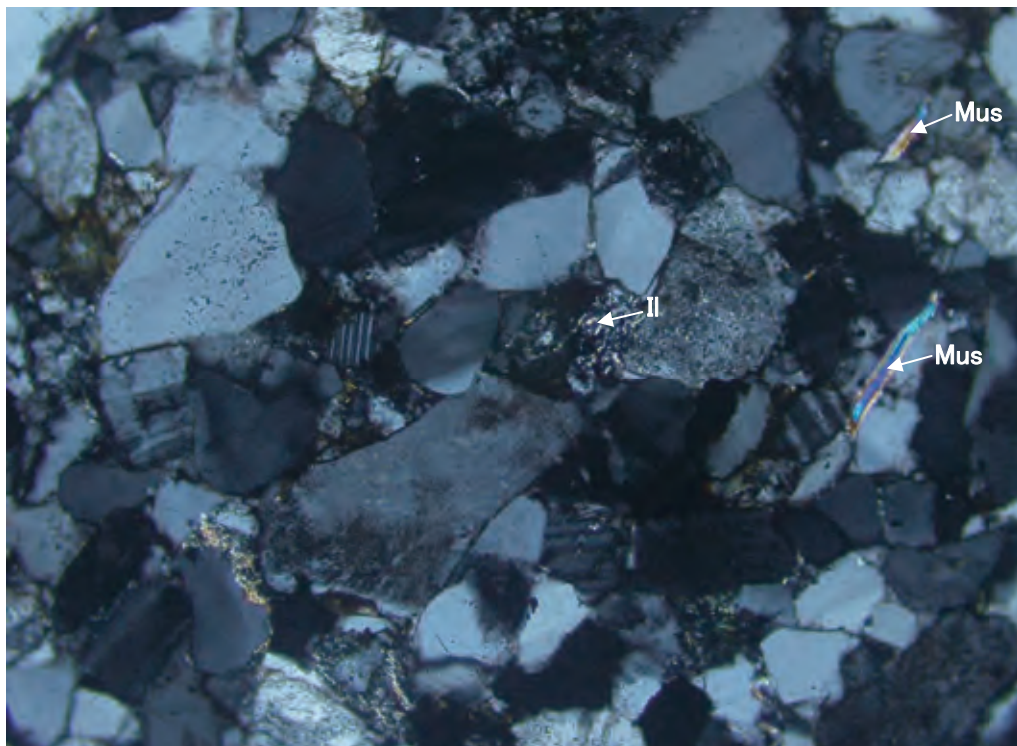
Locality : Lubaleshi R.

Rock name : Medium-grained sandstone (arkosic arenite)

Open nicol



Crossed nicols



Scale 0.1mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

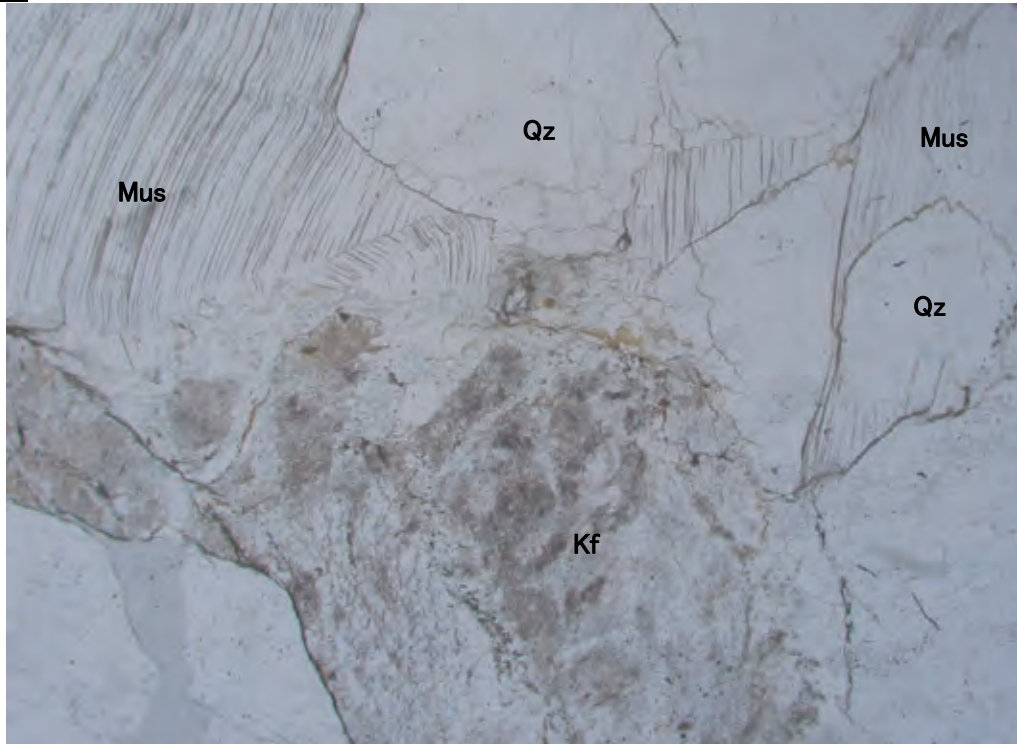
## Photomicrographs (2)

Sam.No. : RA005T

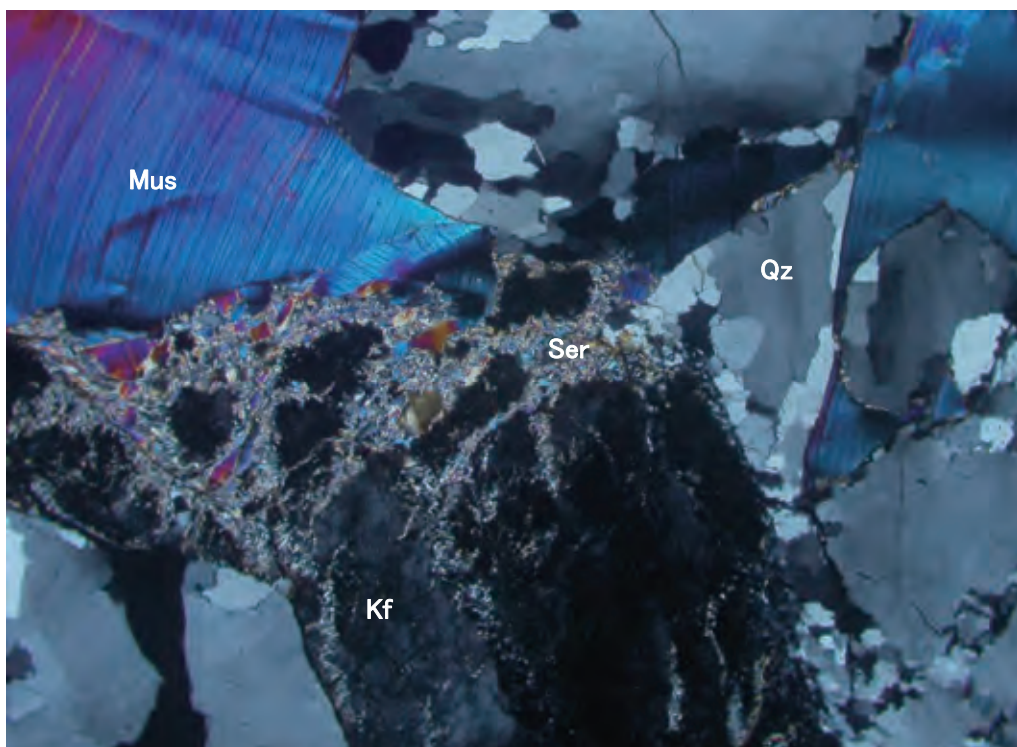
Locality :

Rock name : Granitic pegmatite

Open nicol



Crossed nicols



Scale 1.0mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

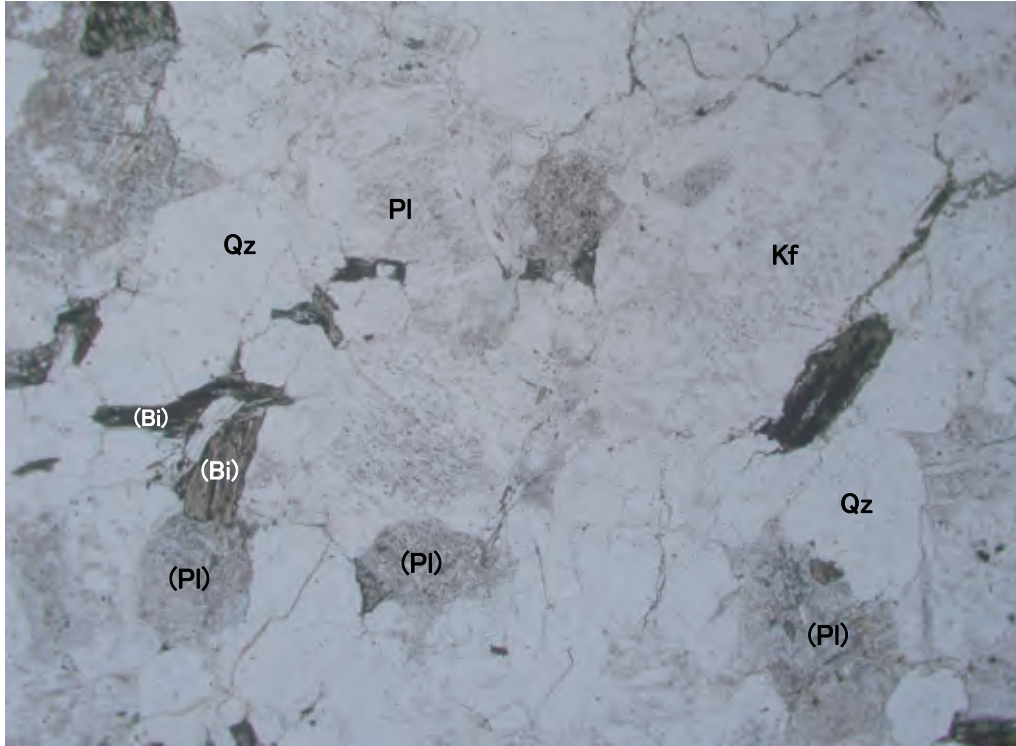
## Photomicrographs (3)

Sam.No. : RA006T

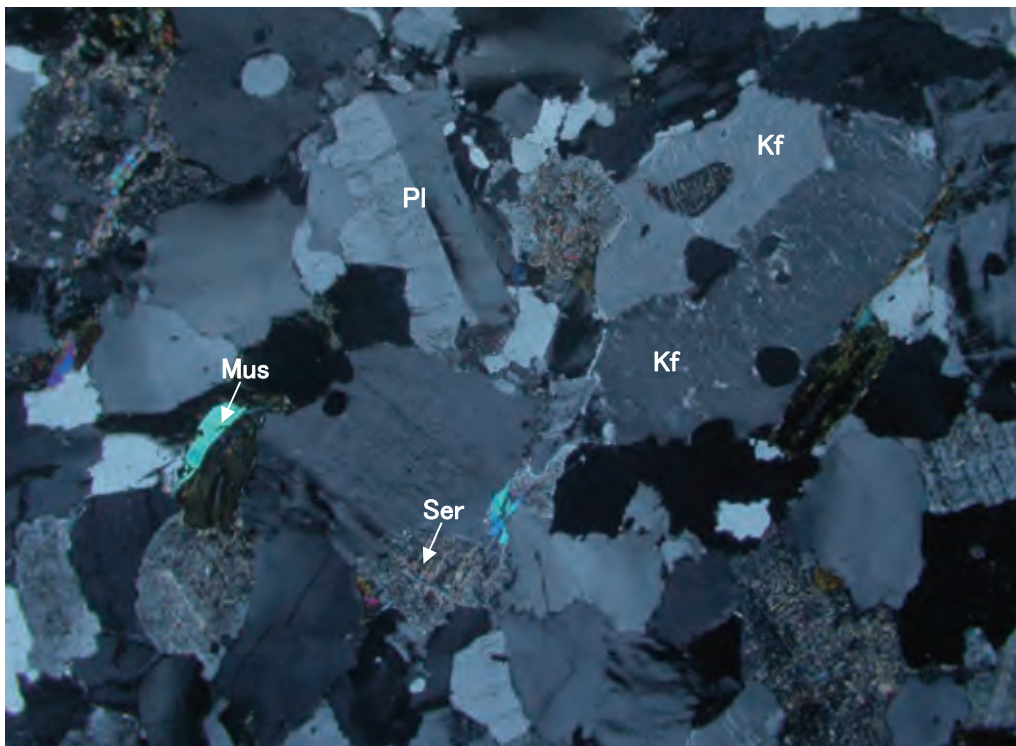
Locality :

Rock name : Granite

Open nicol



Crossed nicols



Scale 1.0mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

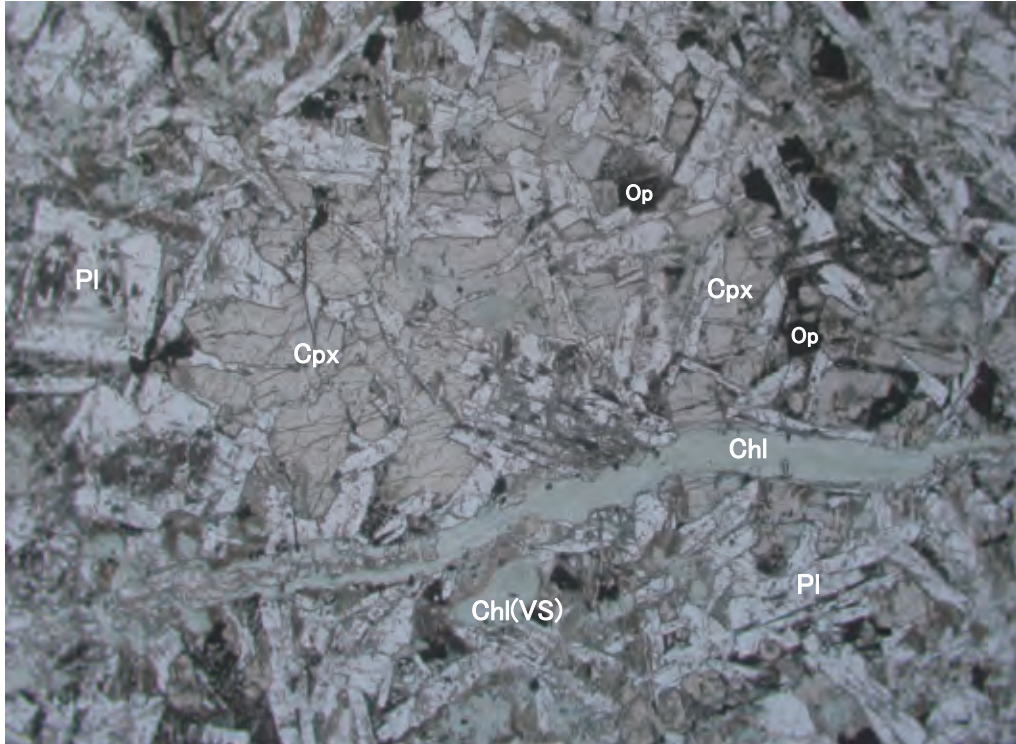
## Photomicrographs (4)

Sam.No. : RA007T

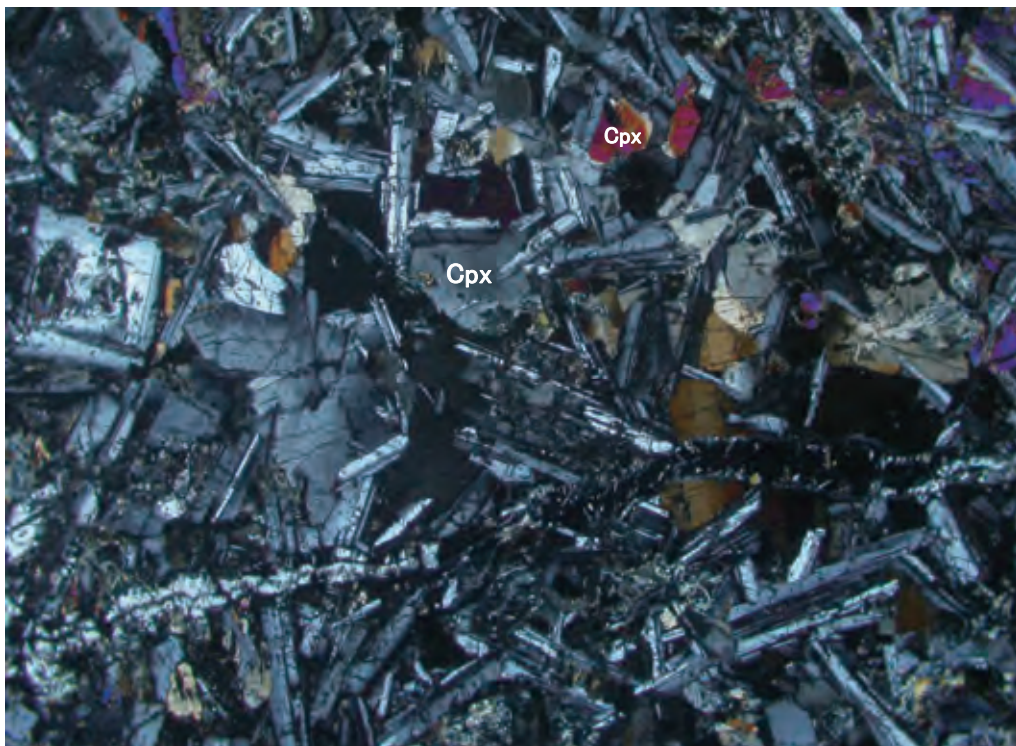
Locality :

Rock name : Dolerite

Open nicol



Crossed nicols



Scale 1.0mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

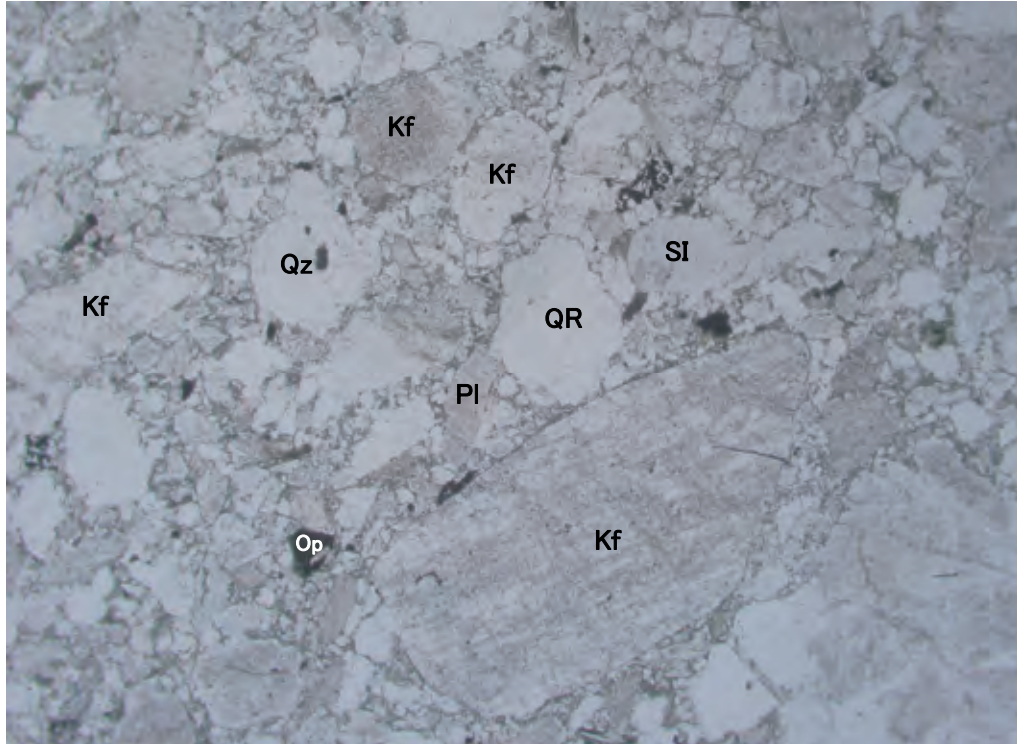
## Photomicrographs (5)

Sam.No. : RA008T

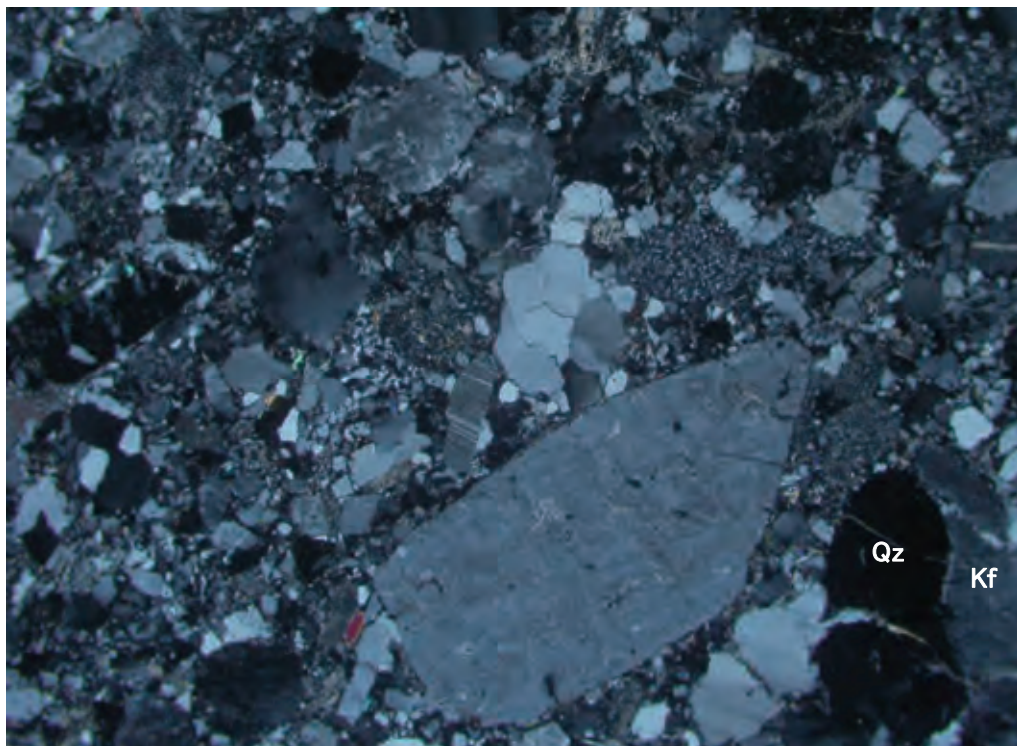
Locality : Near Kanchibia

Rock name : Very coarse-grained sandstone

Open nicol



Crossed nicols



Scale 1.0mm 



# Appendix V-7 Result of Microscopic Observation of Thin Section

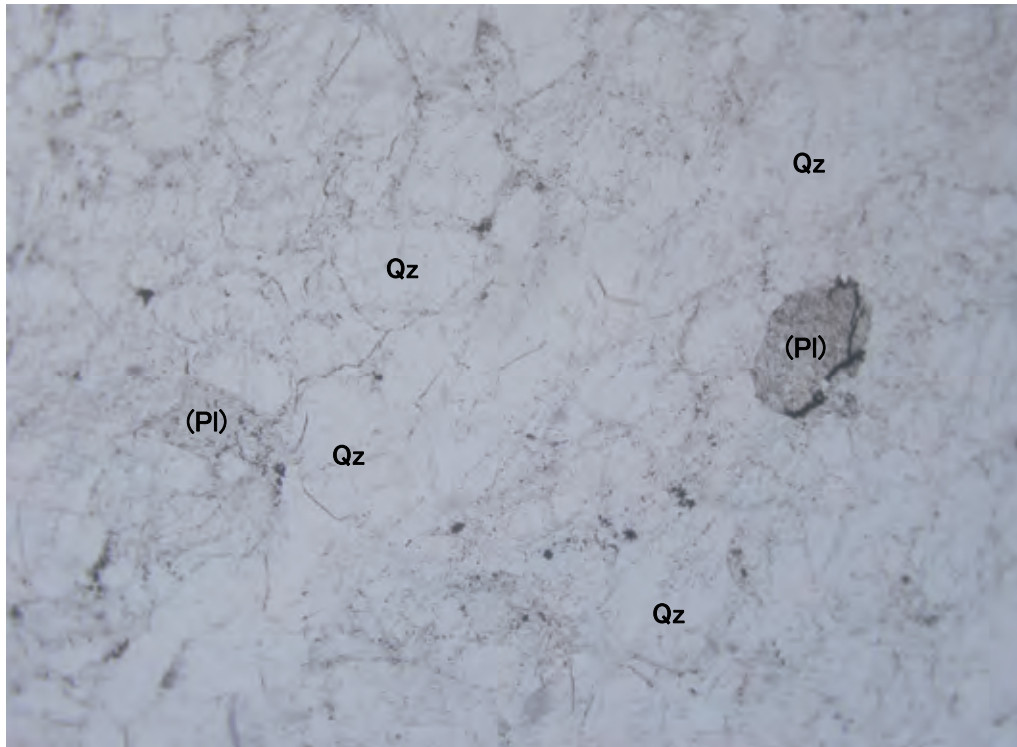
## Photomicrographs (11)

Sam.No. : RB011T

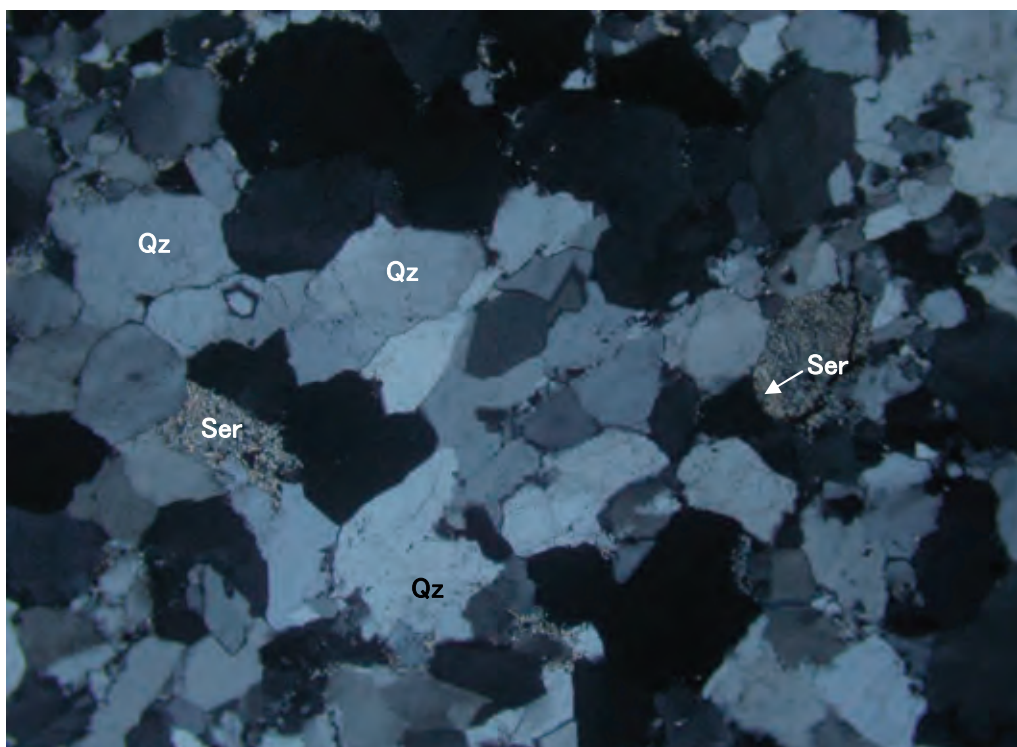
Locality : K-L road

Rock name : Orthoquartzite (quartz rich medium-grained sandstone)

Open nicol



Crossed nicols



Scale 1.0mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

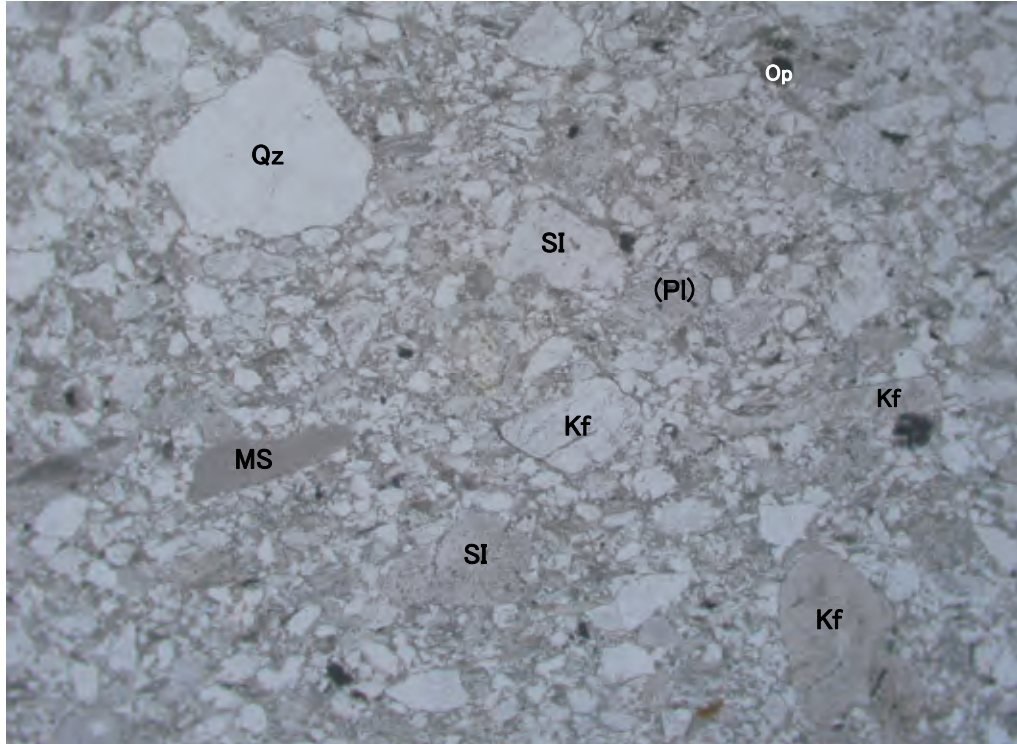
## Photomicrographs (12)

Sam.No. : RB012T

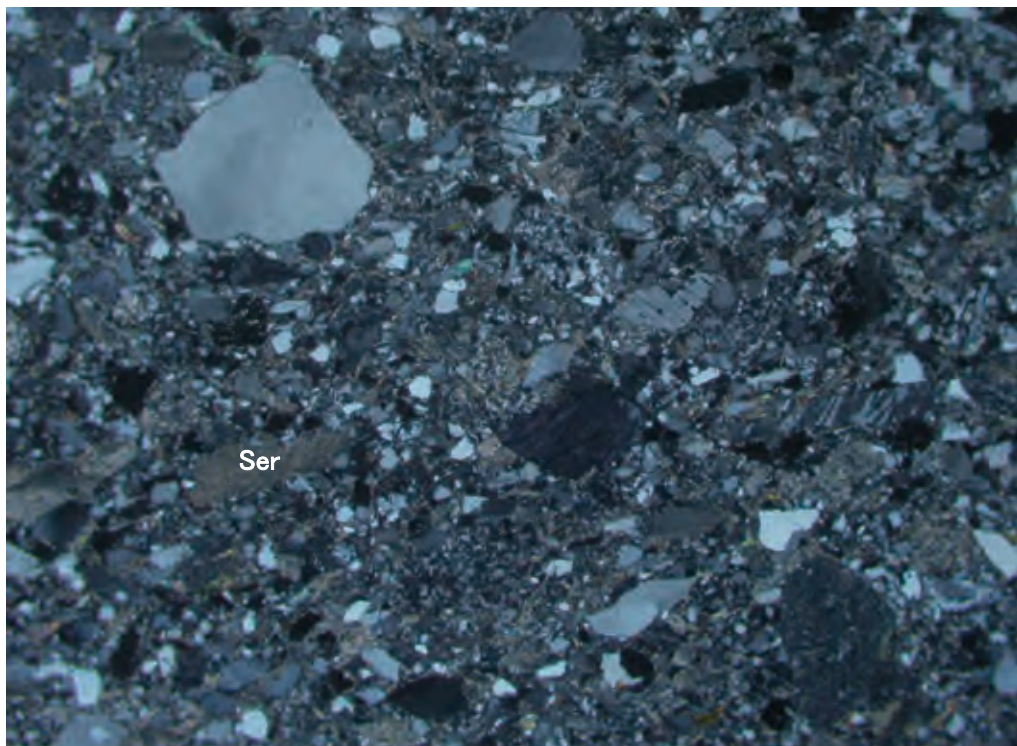
Locality : Lukupa

Rock name : Coarse-grained sandstone

Open nicol



Crossed nicols



Scale 1.0mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

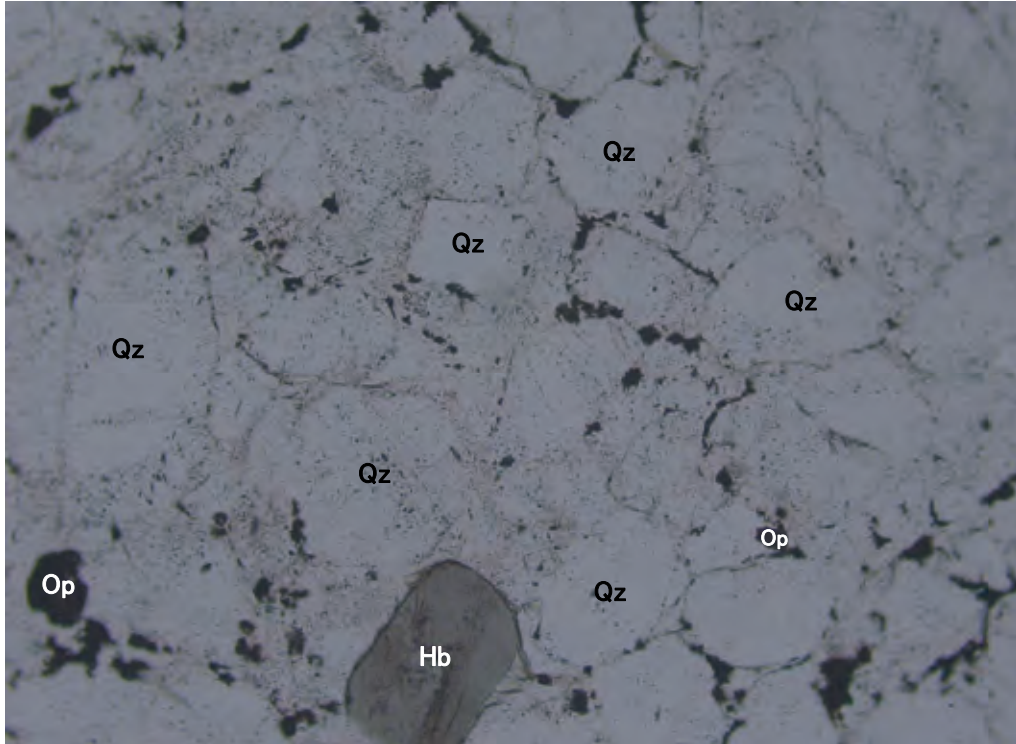
## Photomicrographs (13)

Sam.No. : RB015T

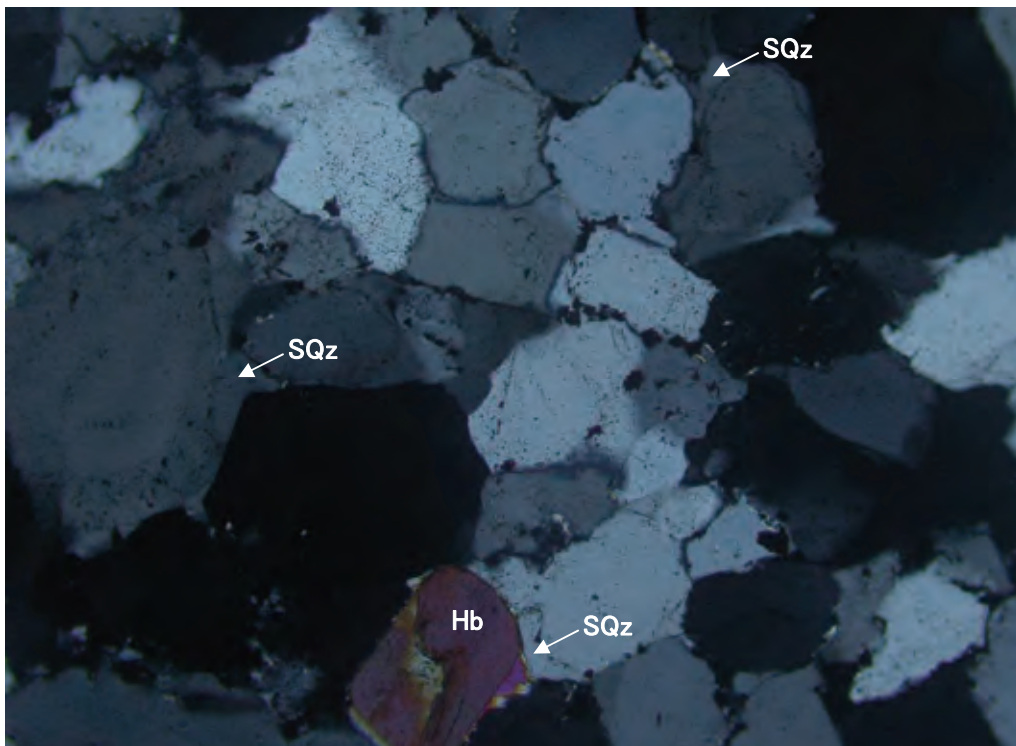
Locality :

Rock name : Orthoquartzite (quartz rich medium-grained sandstone)

Open nicol



Crossed nicols



Scale 0.1mm ———

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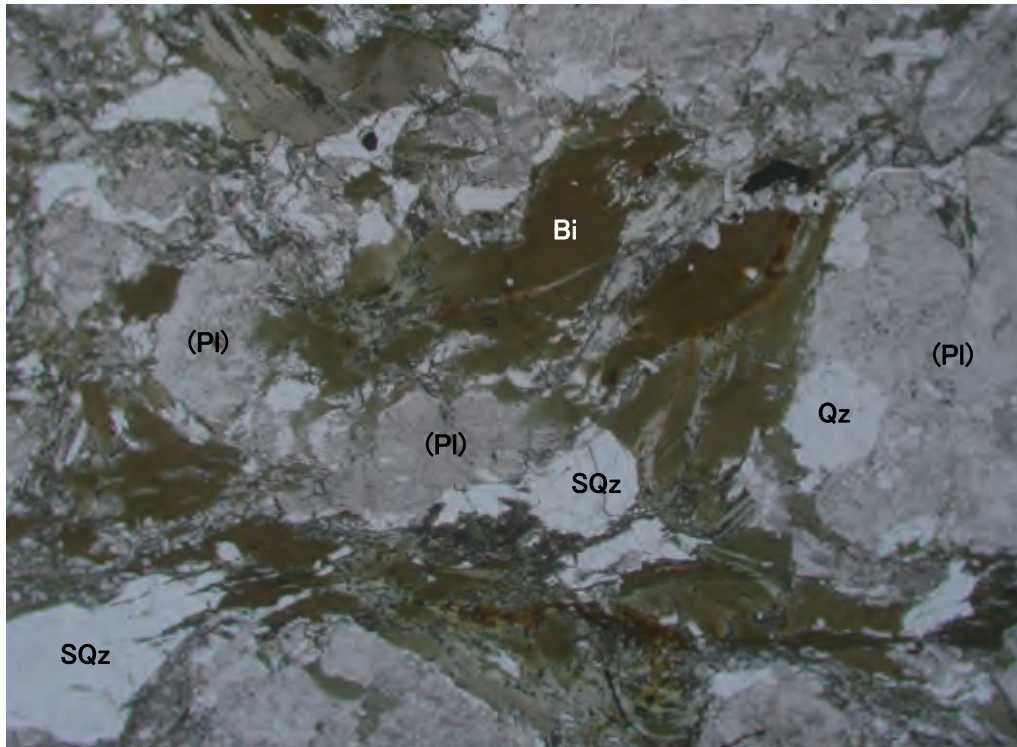
## Photomicrographs (14)

Sam.No. : RB016T

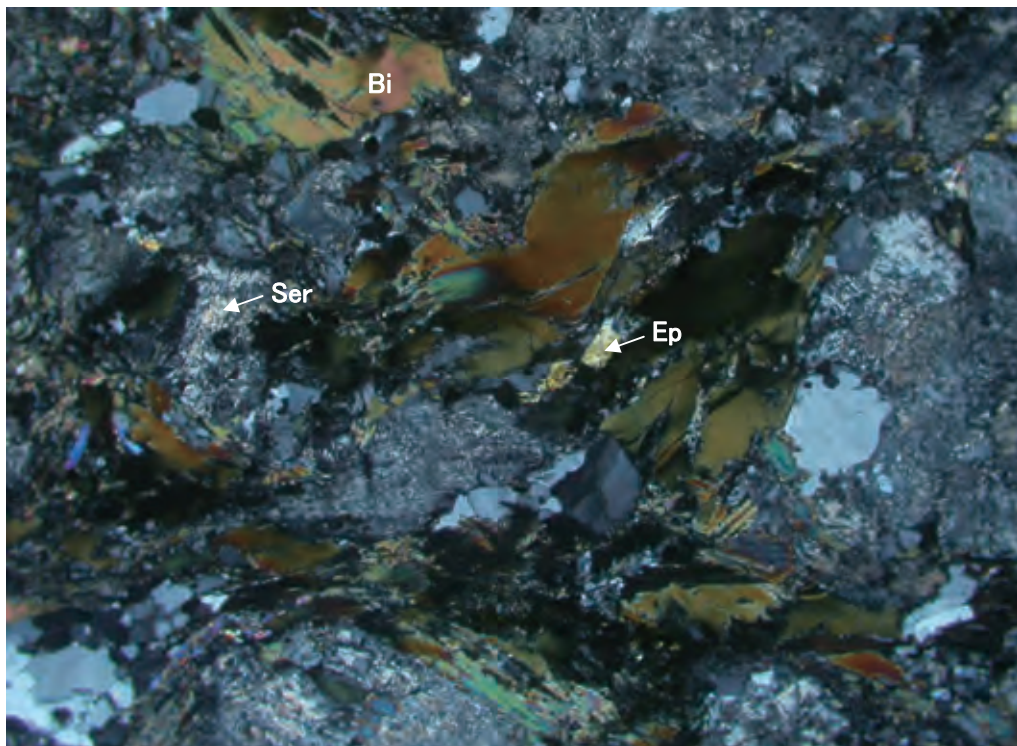
Locality :

Rock name : Tonalite (sheared and recrystallized)

Open nicol



Crossed nicols



Scale 1.0mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

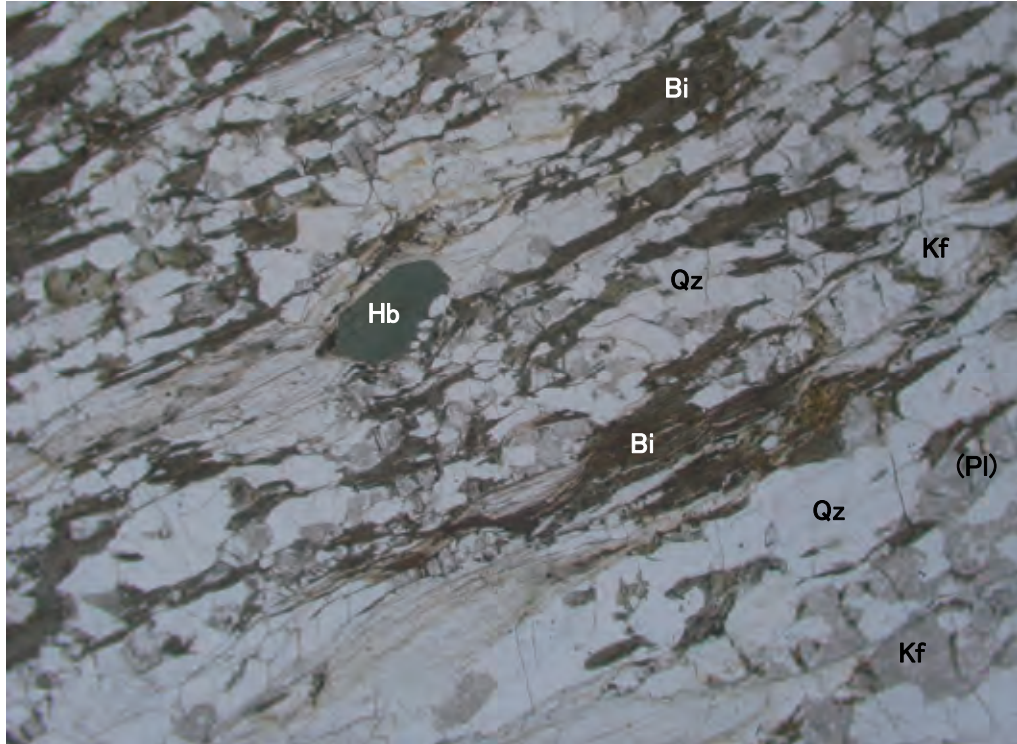
## Photomicrographs (15)

Sam.No. : RB017T

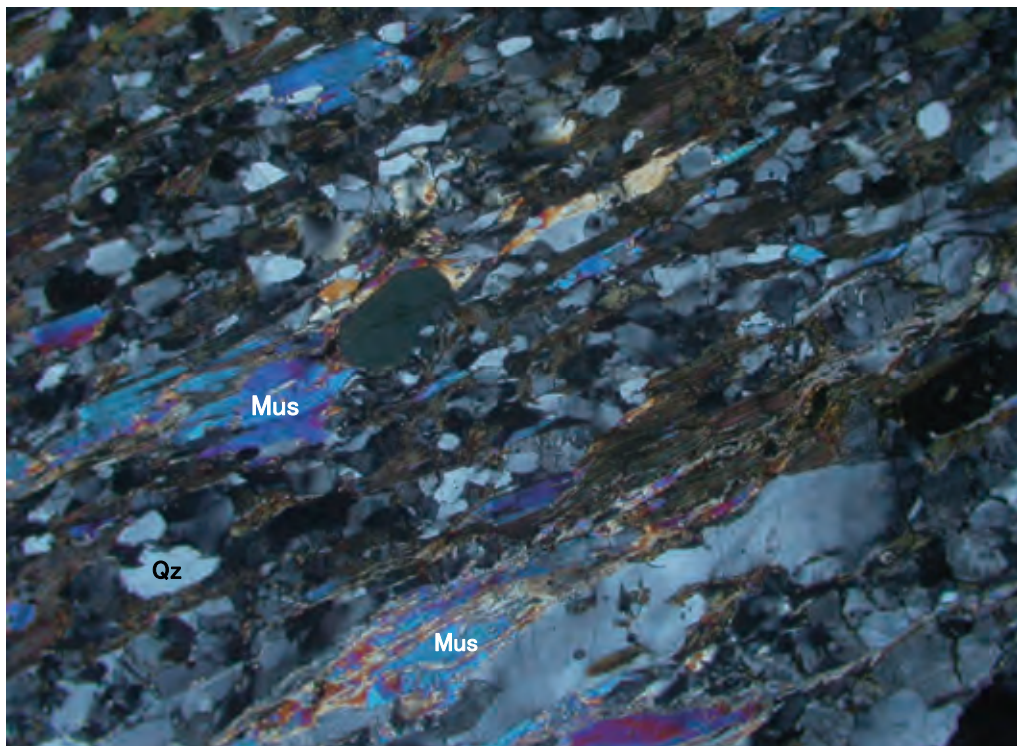
Locality :

Rock name : Psamitic gneiss

Open nicol



Crossed nicols



Scale 1.0mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

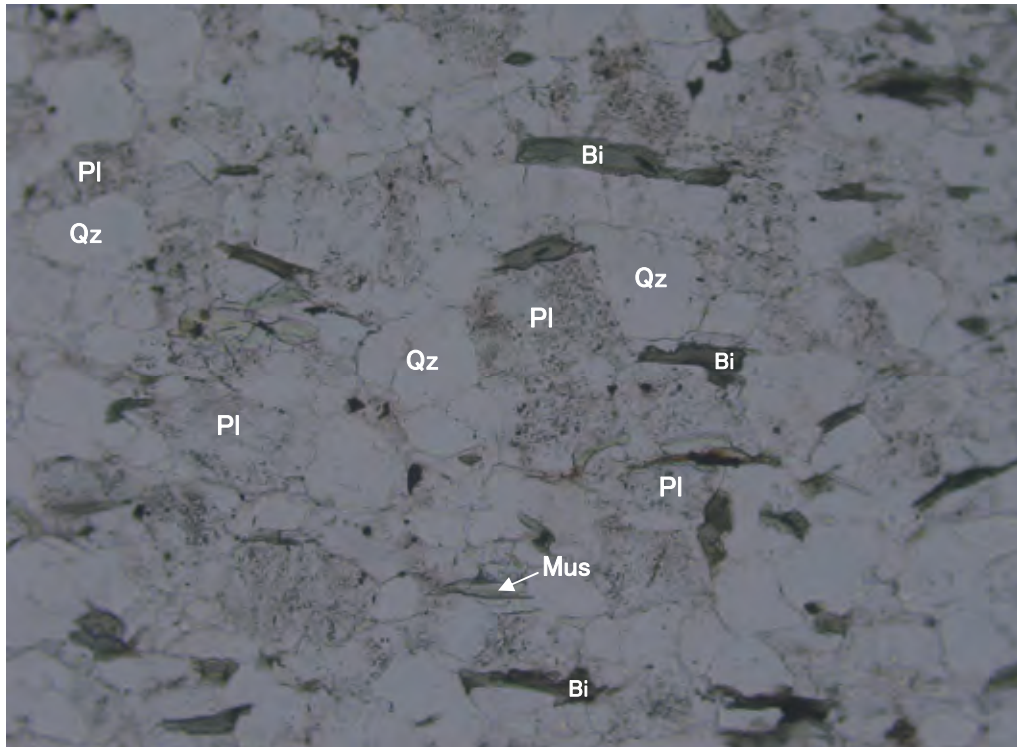
## Photomicrographs (16)

Sam.No. : RB019T

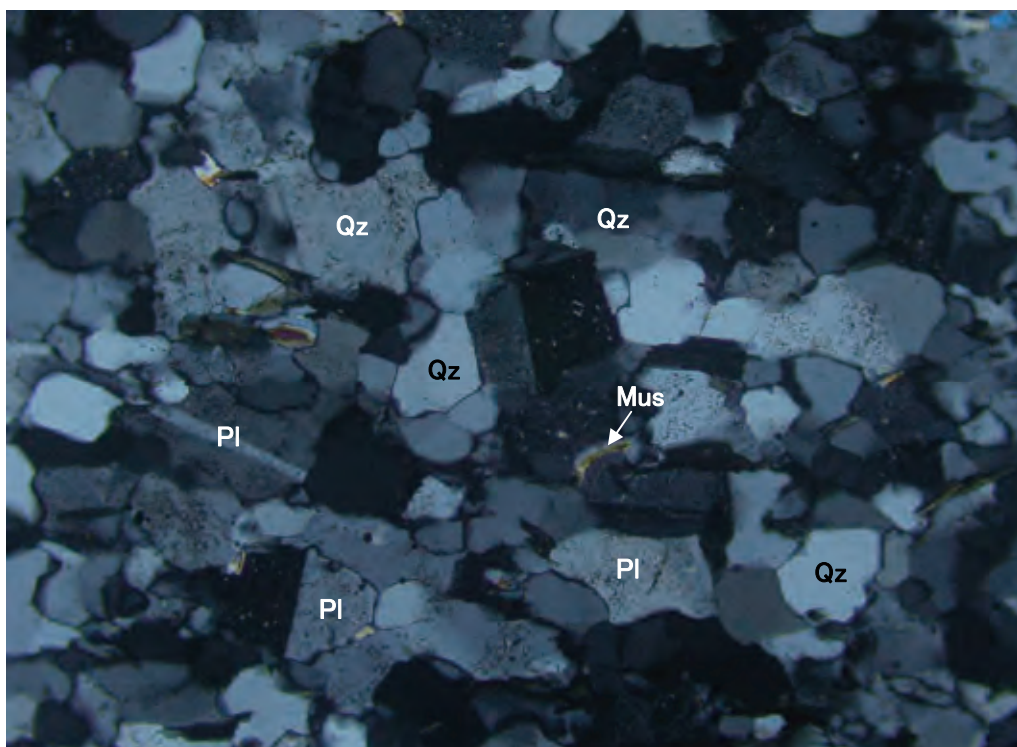
Locality :

Rock name : Fine-grained sandstone (recrystallized)

Open nicol



Crossed nicols



Scale 0.1mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

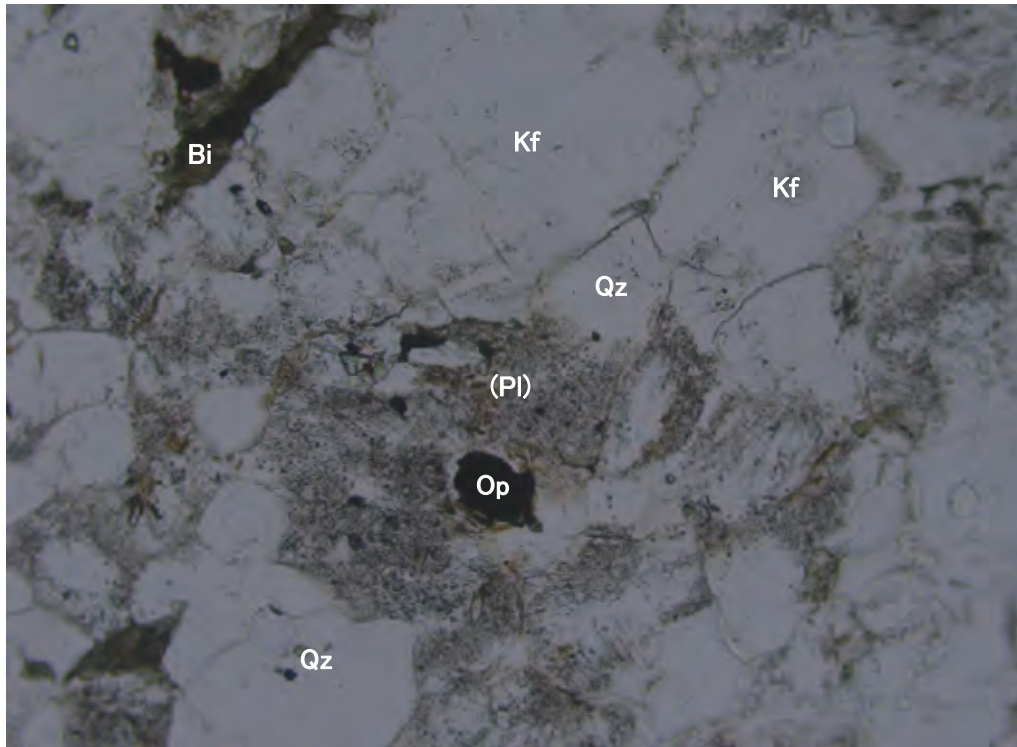
## Photomicrographs (17)

Sam.No. : RB020T

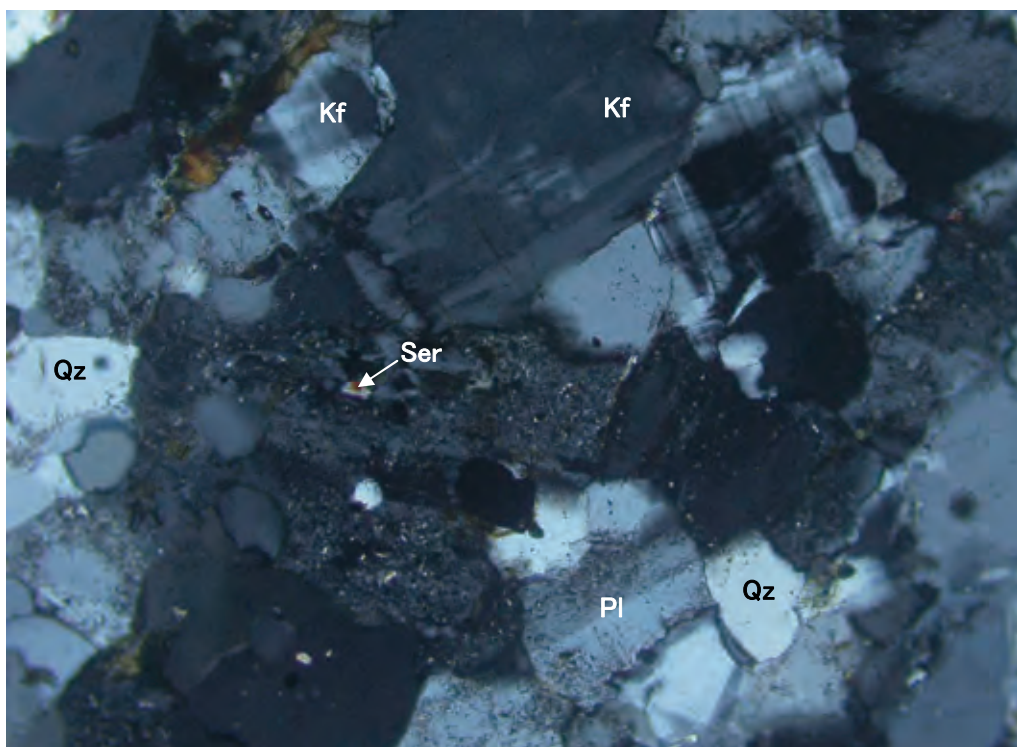
Locality :

Rock name : Medium-grained sandstone

Open nicol



Crossed nicols



Scale 0.1mm ———

# Appendix V-7 Result of Microscopic Observation of Thin Section

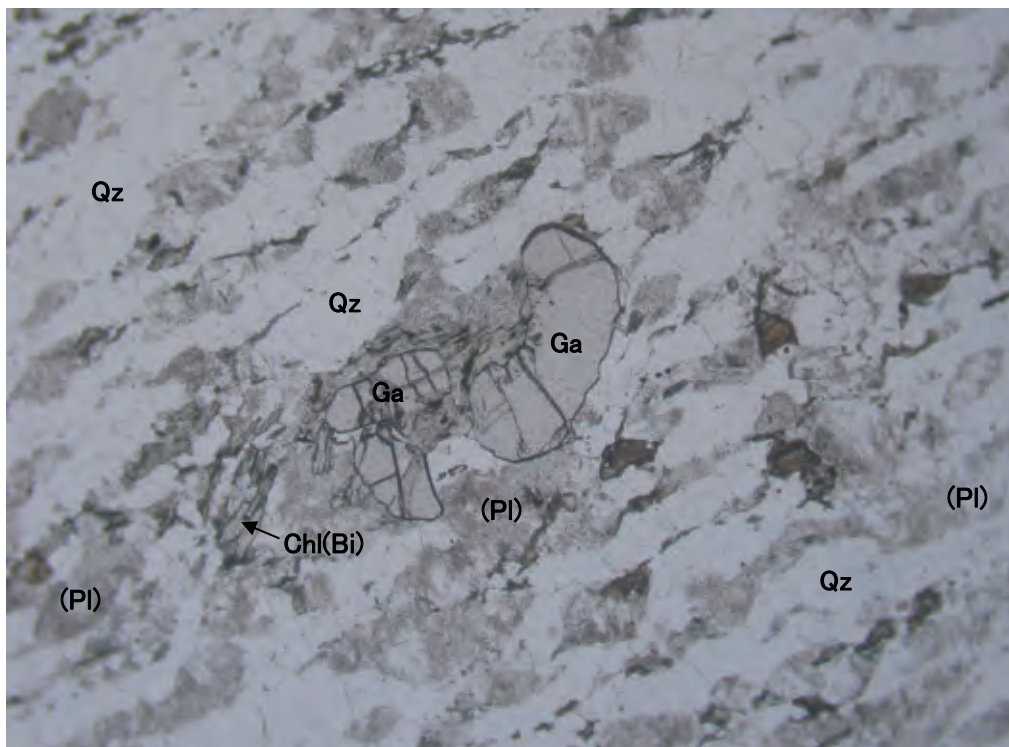
## Photomicrographs (18)

Sam.No. : RB021T

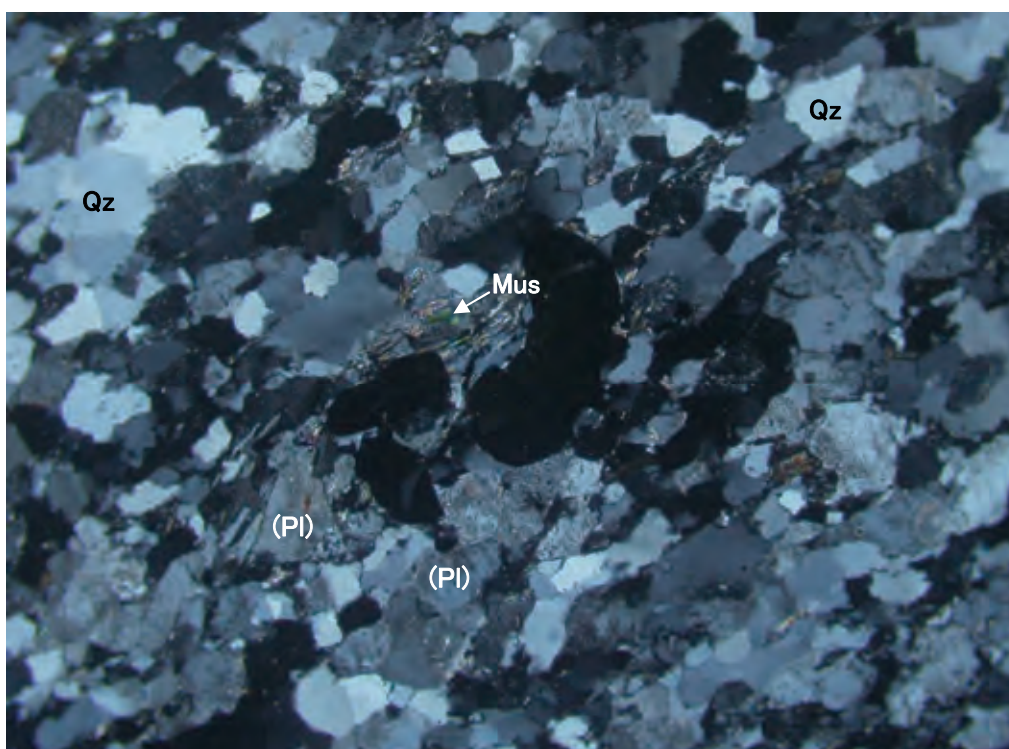
Locality :

Rock name : Psamitic gneiss

Open nicol



Crossed nicols



Scale 1.0mm 



# Appendix V-7 Result of Microscopic Observation of Thin Section

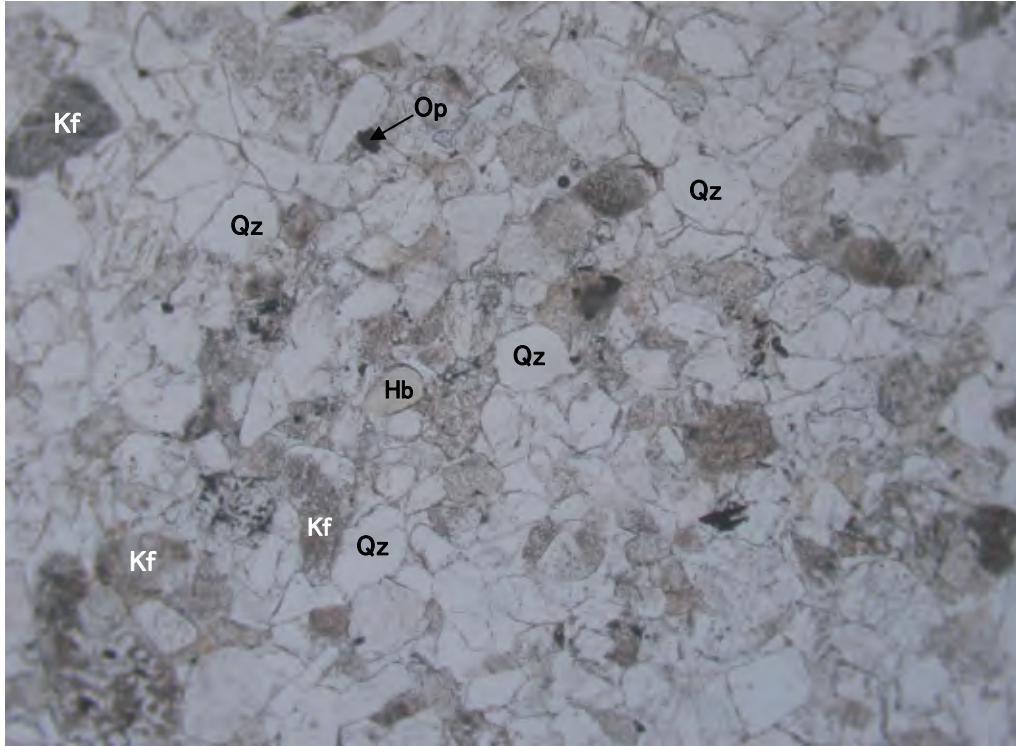
## Photomicrographs (23)

Sam.No. : RC011T

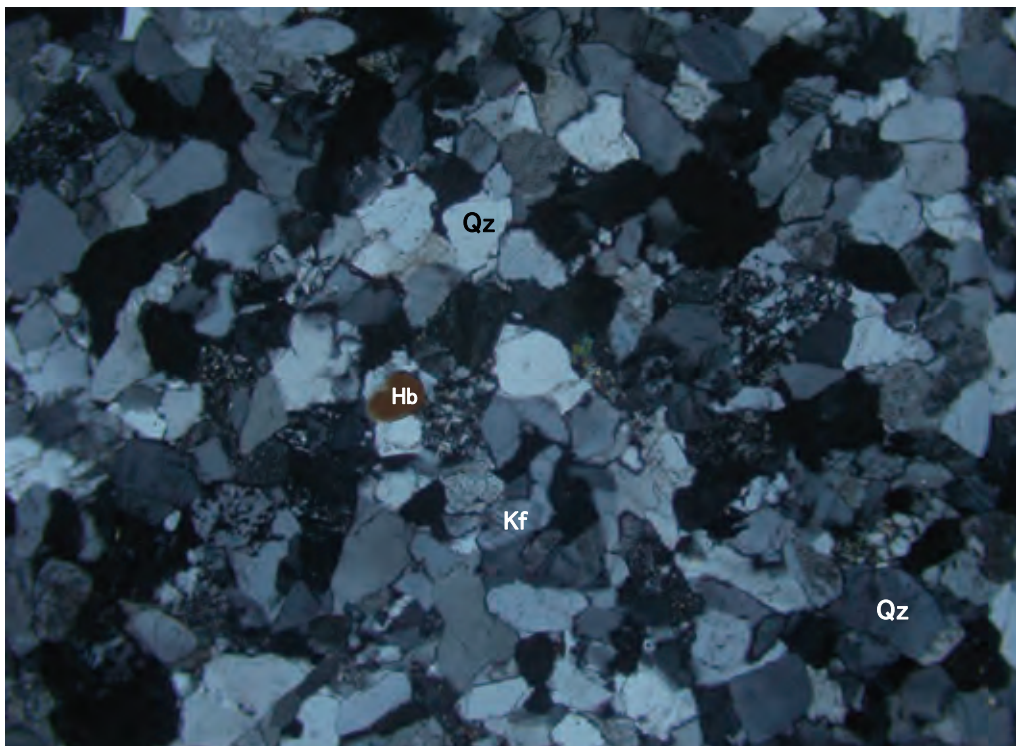
Locality : Riverbed outcrop

Rock name : Quartz rich medium-grained sandstone

Open nicol



Crossed nicols



Scale 1.0mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

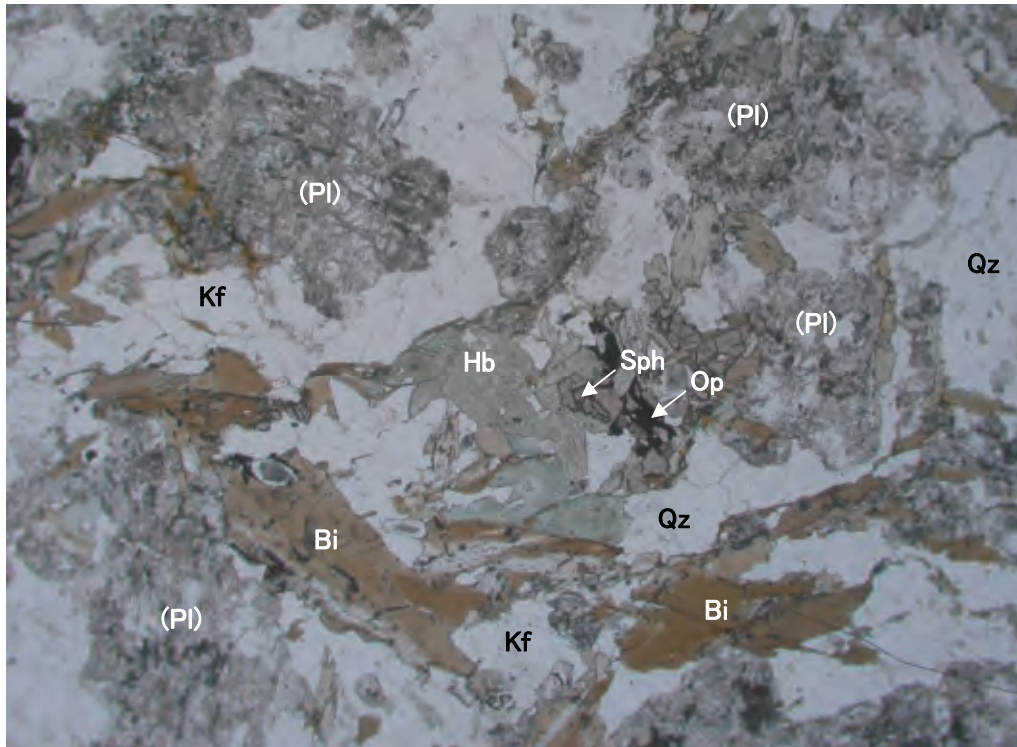
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Sam.No. : RC012T

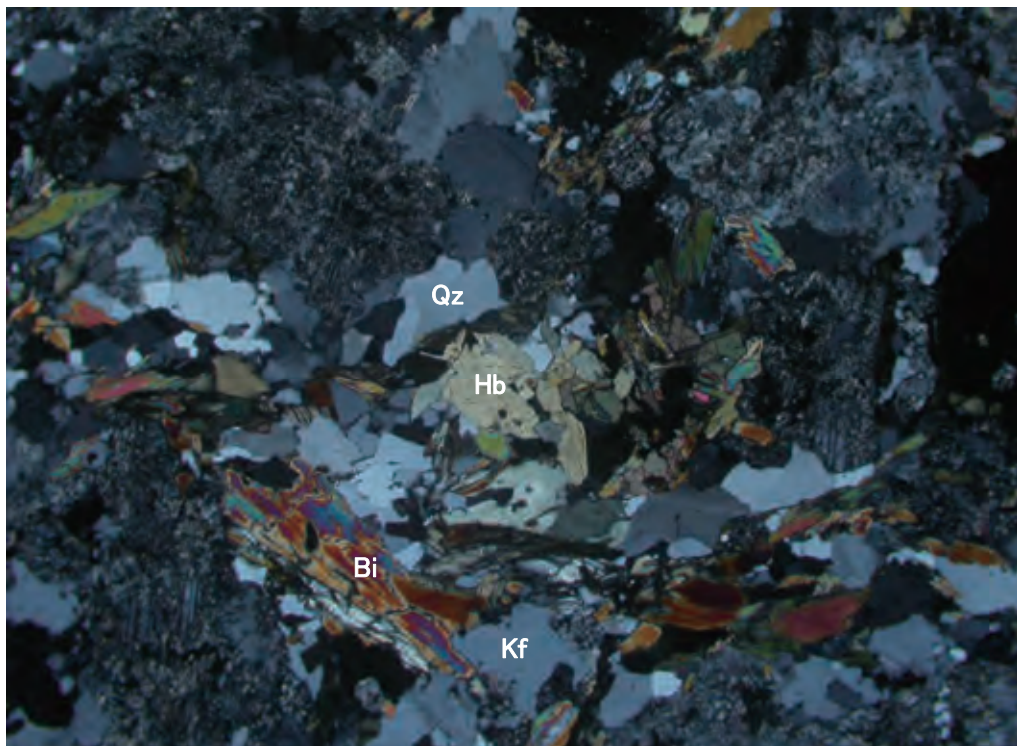
Locality : Riverbed outcrop

Rock name : Granodiorite (altered)

Open nicol



Crossed nicols



Scale 1.0mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

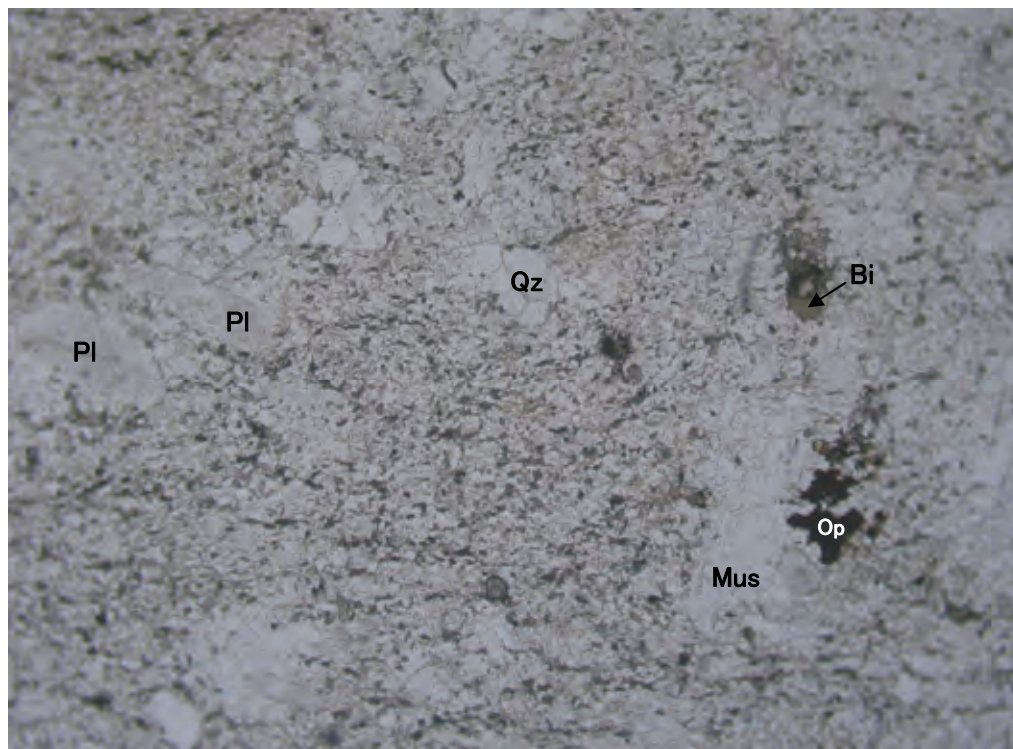
## Photomicrographs (25)

Sam.No. : RC013T

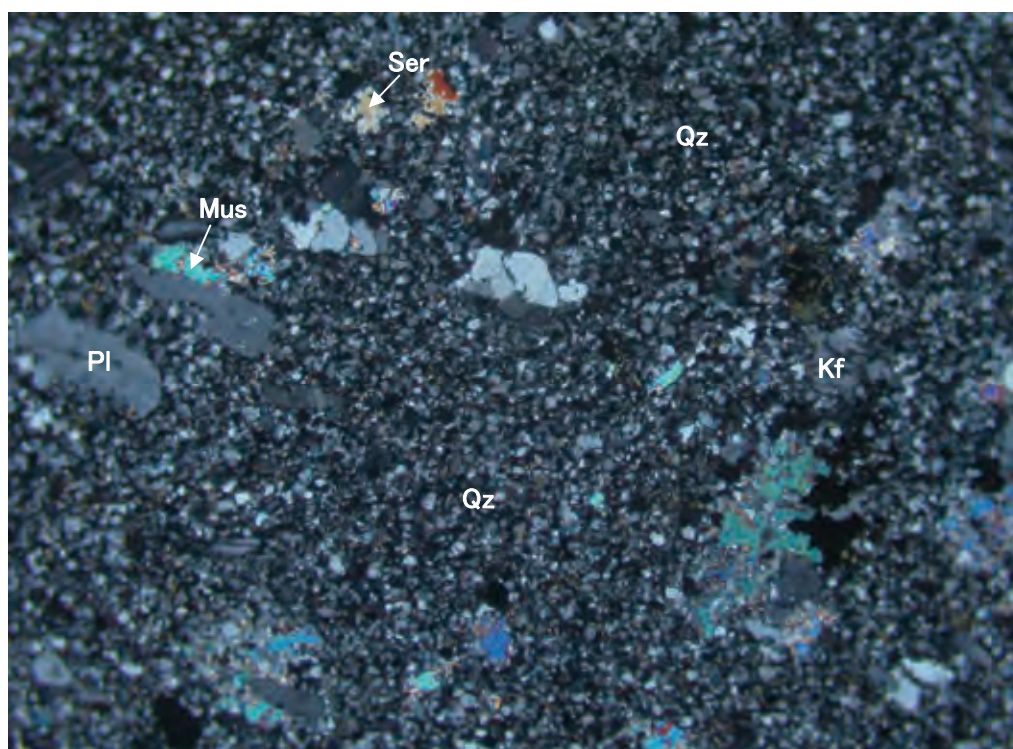
Locality : Riverbed outcrop

Rock name : Rhyolite(recrystallized)

Open nicol



Crossed nicols



Scale 1.0mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

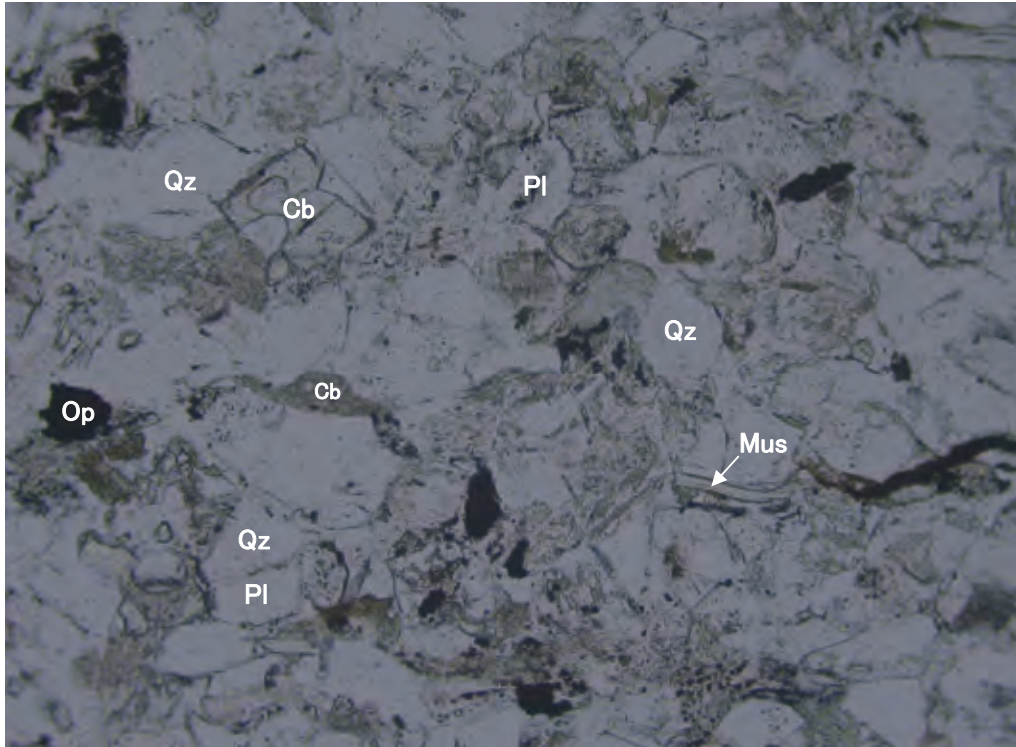
## Photomicrographs (10)

Sam.No. : RB008T

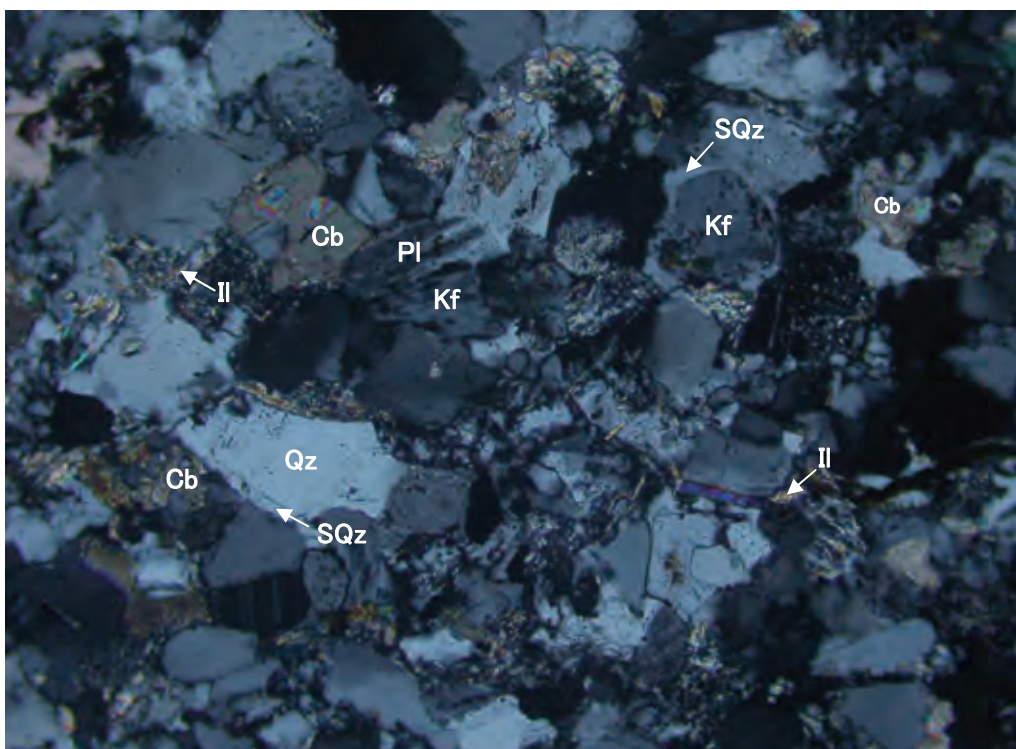
Locality :

Rock name : Fine-grained sandstone (wacke)

Open nicol



Crossed nicols



Scale 0.1mm ———

# Appendix V-7 Result of Microscopic Observation of Thin Section

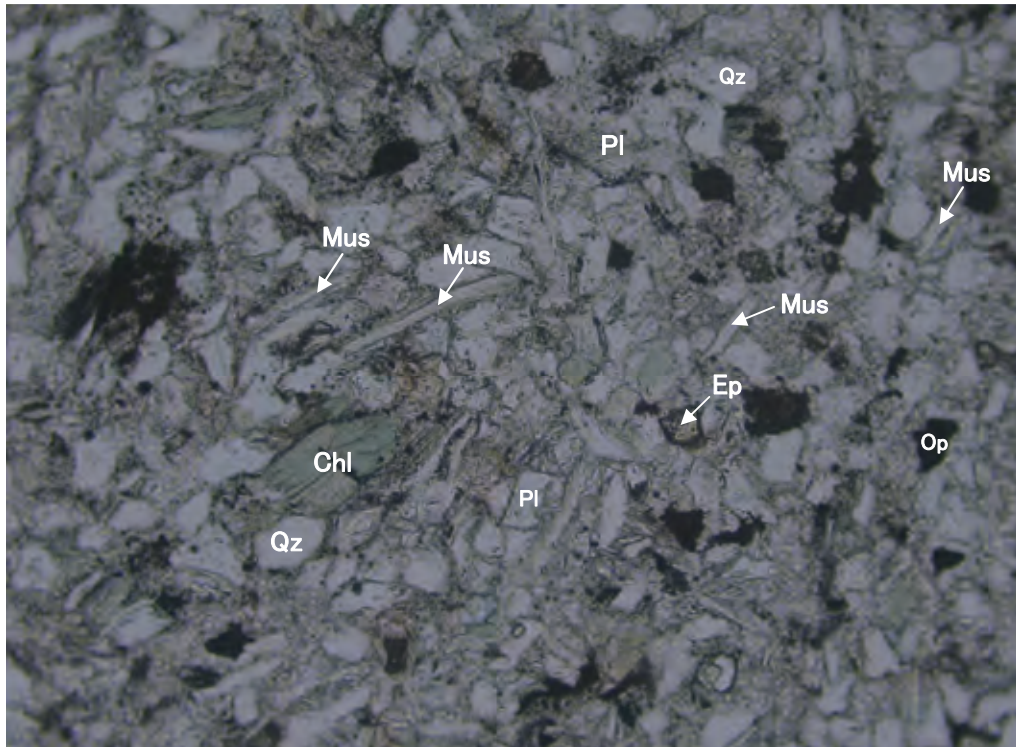
## Photomicrographs (6)

Sam.No. : RB001T

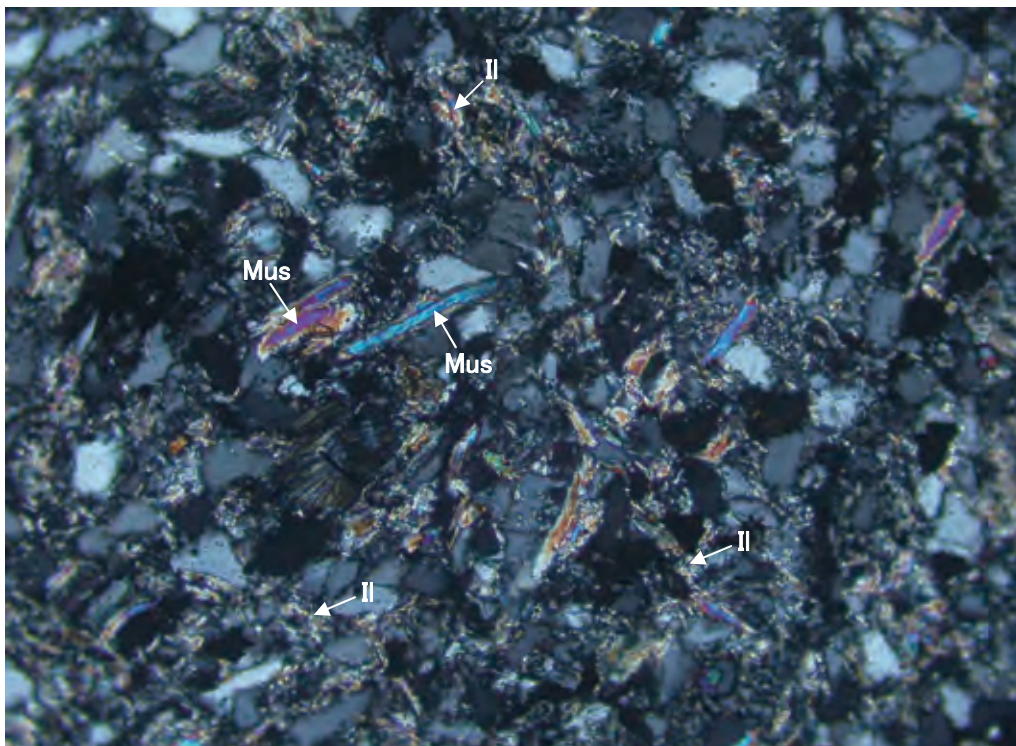
Locality : Kanchibia R.


Rock name : very fine-grained sandstone (wacke)

Open nicol



Crossed nicols



Scale 0.1mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

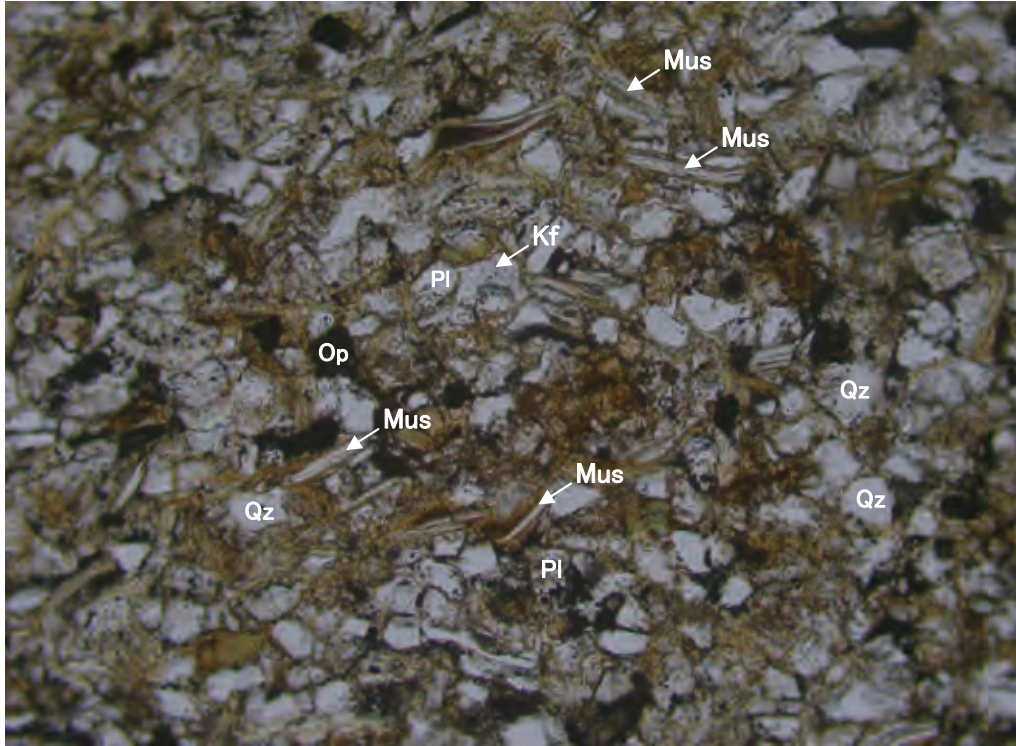
## Photomicrographs (7)

Sam.No. : RB002T

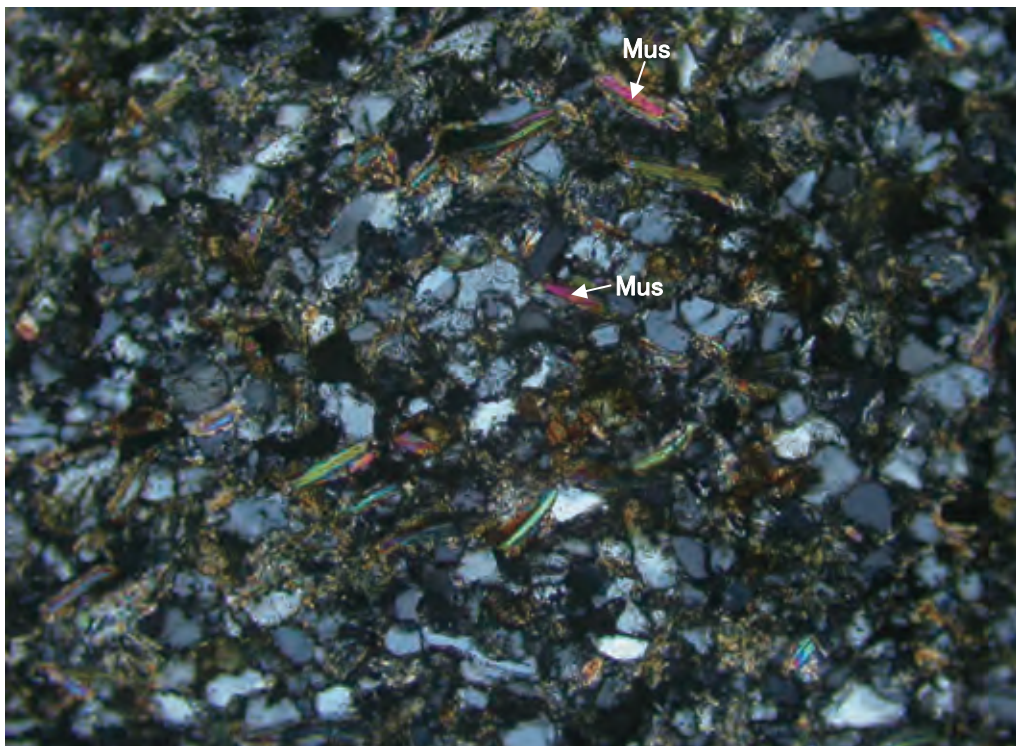
Locality : Luitikila R.

Rock name : Micaceous siltstone

Open nicol



Crossed nicols



Scale 0.1mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

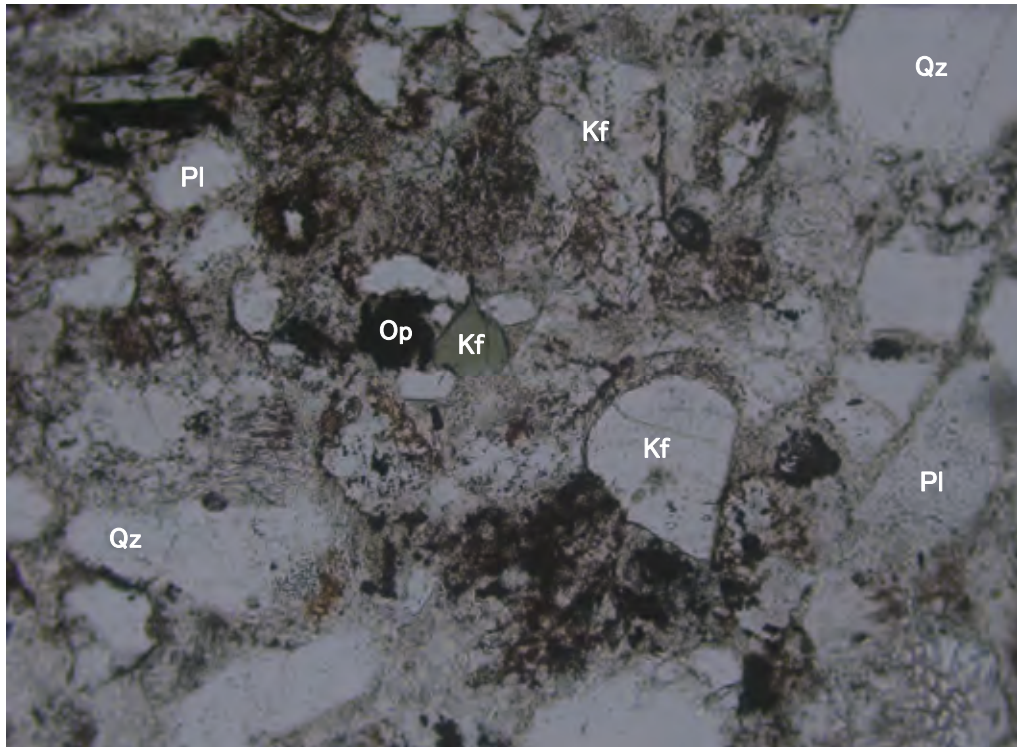
## Photomicrographs (8)

Sam.No. : RB004T

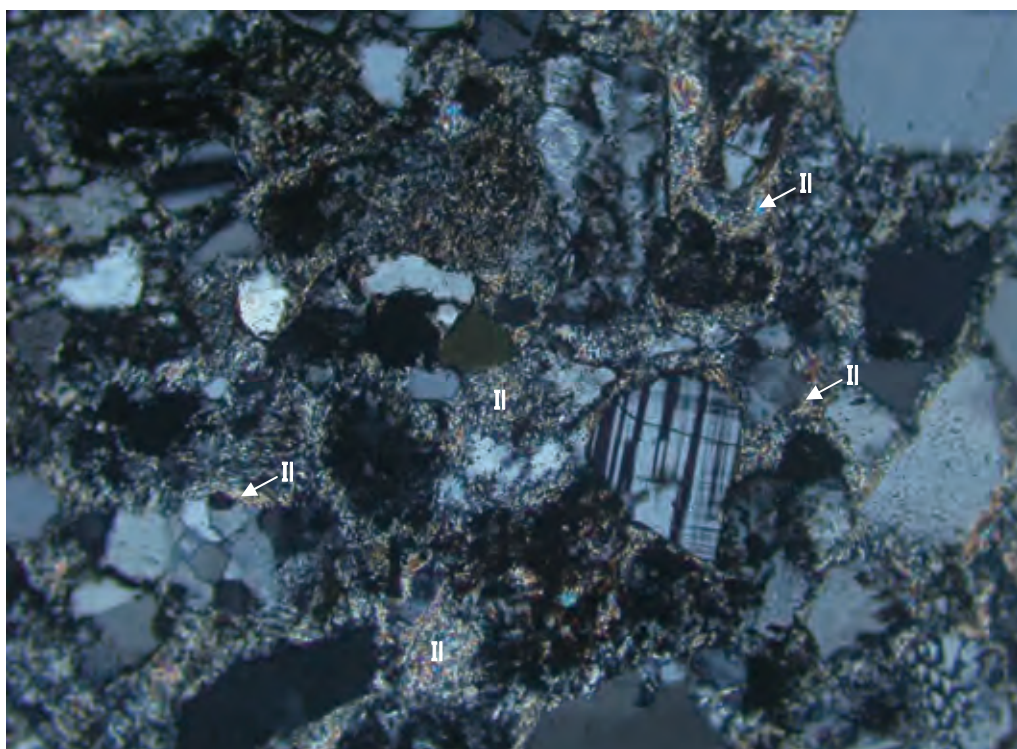
Locality : Luitikila R.

Rock name : Fine-grained sandstone (wacke)

Open nicol



Crossed nicols



Scale 0.1mm ———

# Appendix V-7 Result of Microscopic Observation of Thin Section

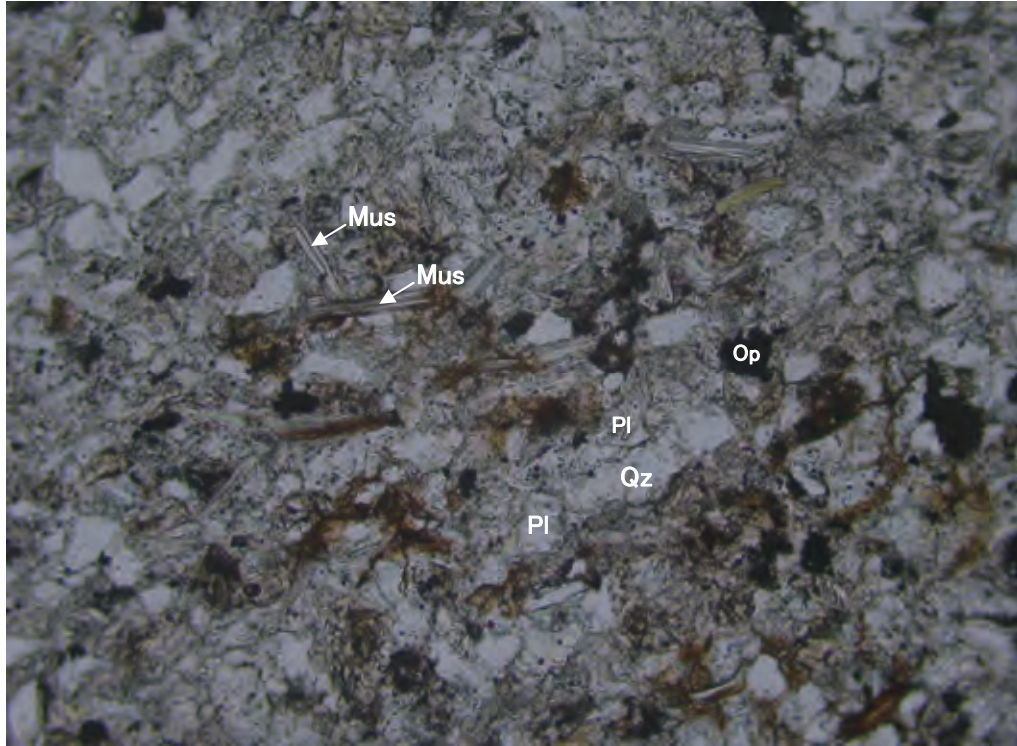
## Photomicrographs (9)

Sam.No. : RB007T

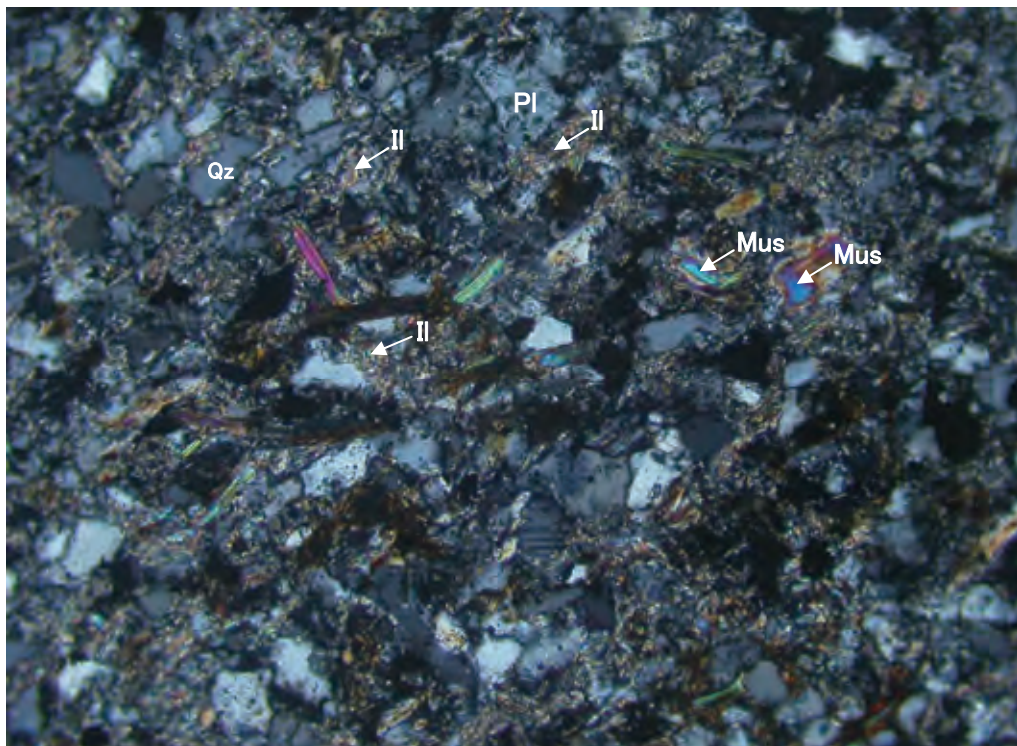
Locality : Kanchibia R.

Rock name : Siltstone

Open nicol



Crossed nicols



Scale 0.1mm 



# Appendix V-7 Result of Microscopic Observation of Thin Section

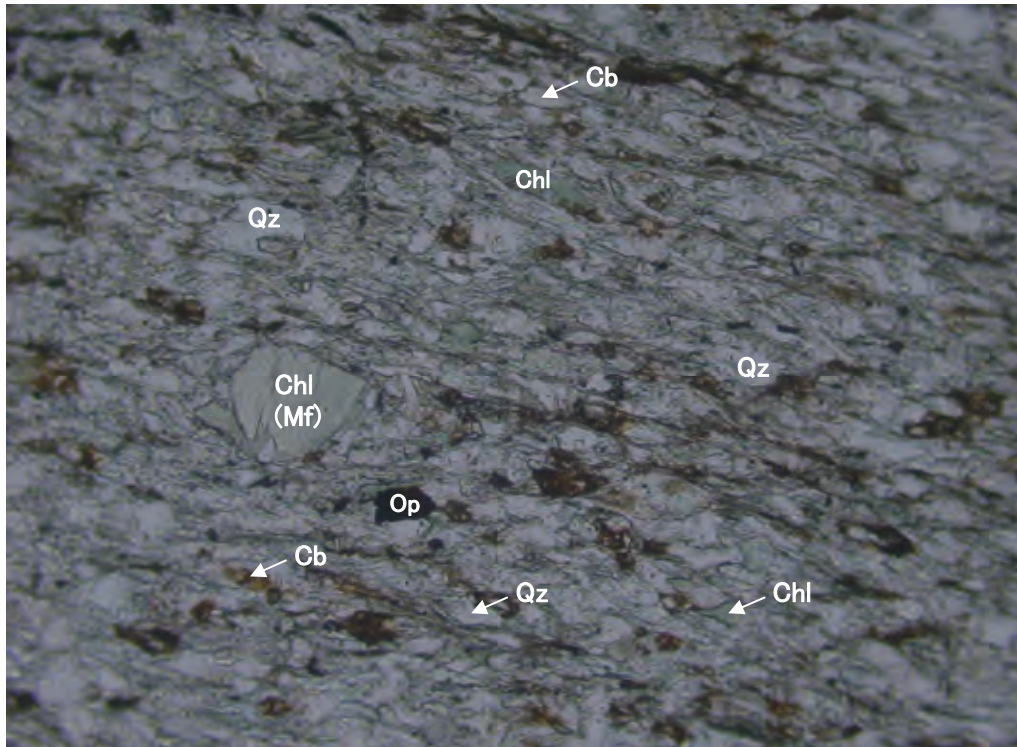
## Photomicrographs (19)

Sam.No. : RC002T

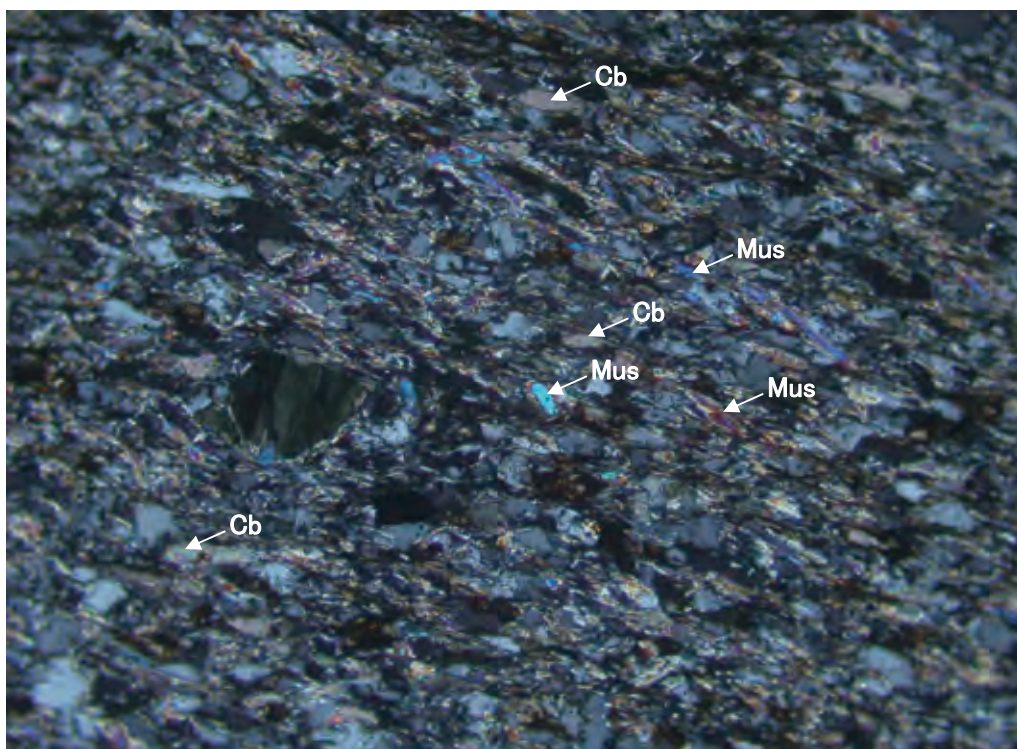
Locality : River

Rock name : Carbonate-quartz-muscovite shist

Open nicol



Crossed nicols



Scale 0.1mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

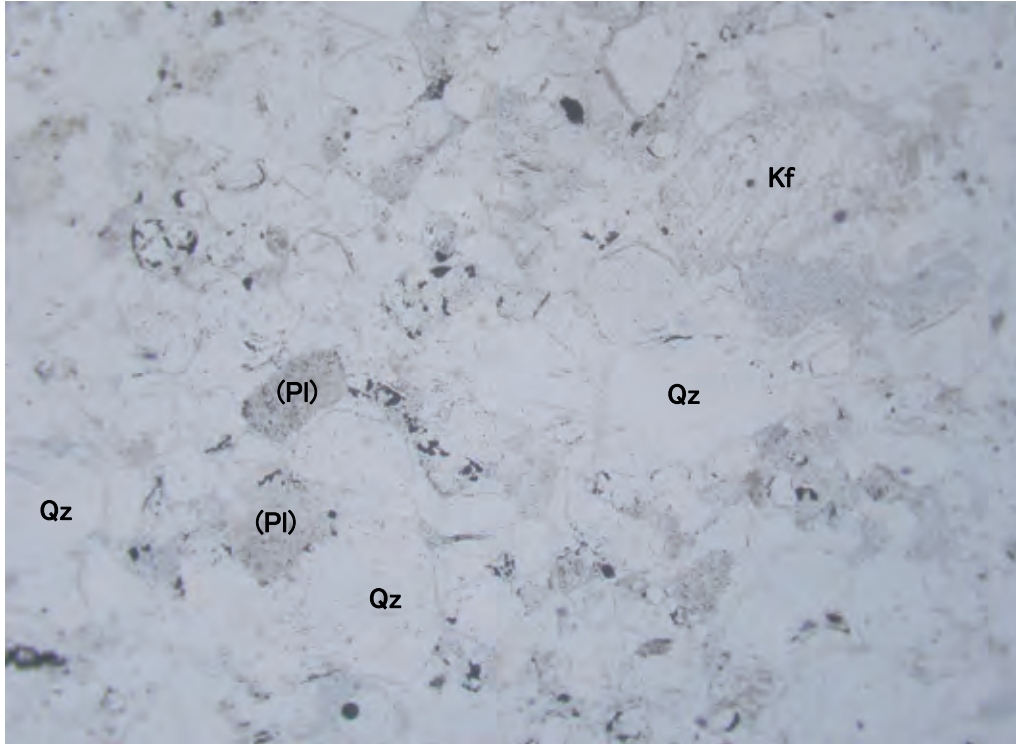
## Photomicrographs (20)

Sam.No. : RC003T

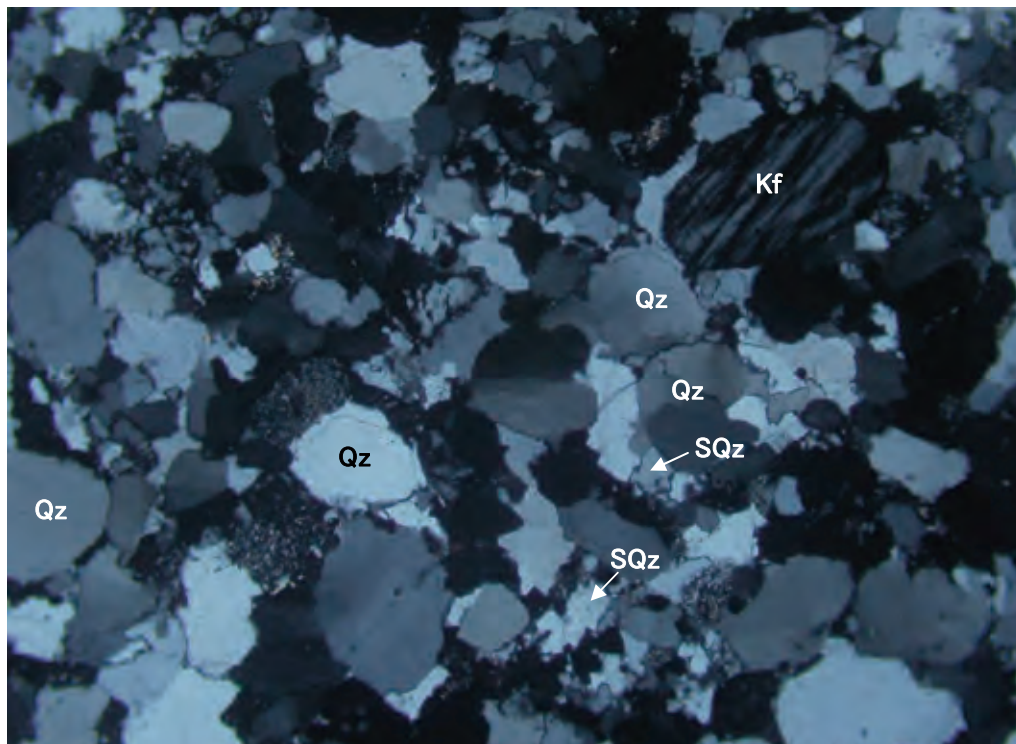
Locality : River

Rock name : Coarse grained sandstone (orthoquartzite)

Open nicol



Crossed nicols



Scale 1.0mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

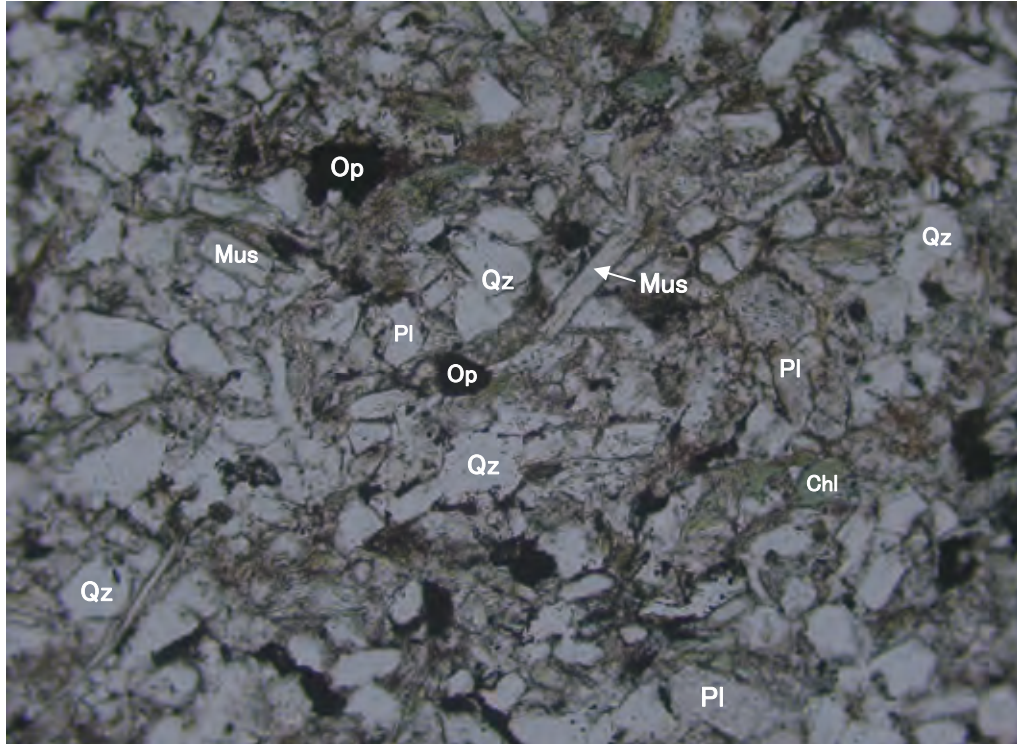
## Photomicrographs (21)

Sam.No. : RC005T

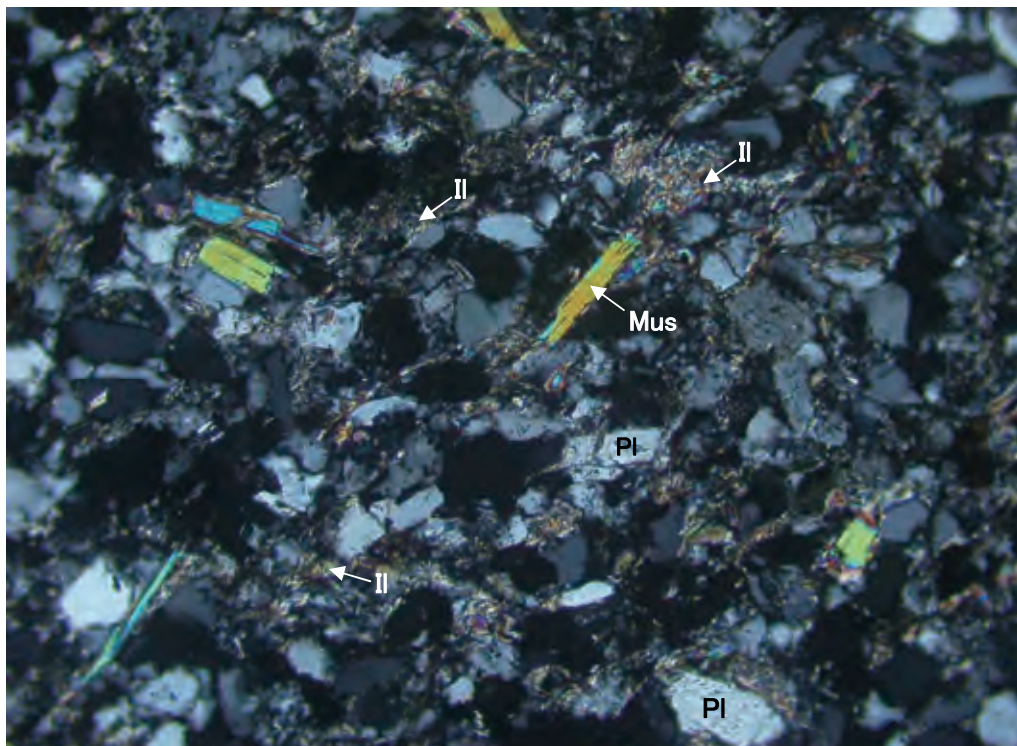
Locality : River outcrop

Rock name : Very fine-grained sandstone

Open nicol



Crossed nicols



Scale 0.1mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

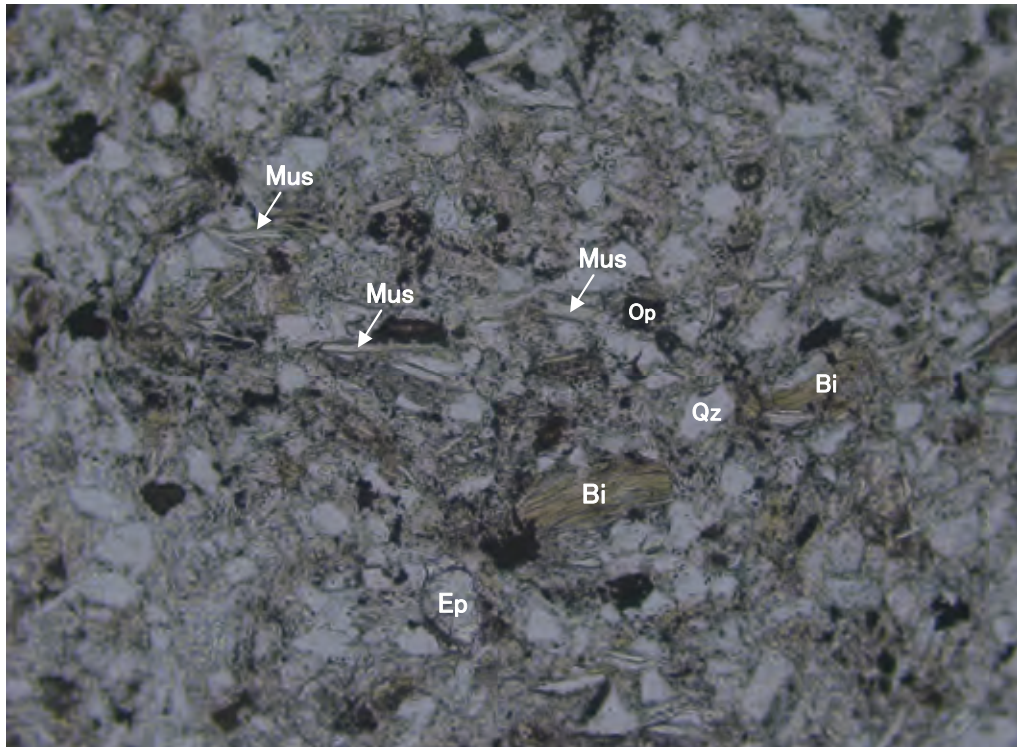
## Photomicrographs (22)

Sam.No. : RC010T

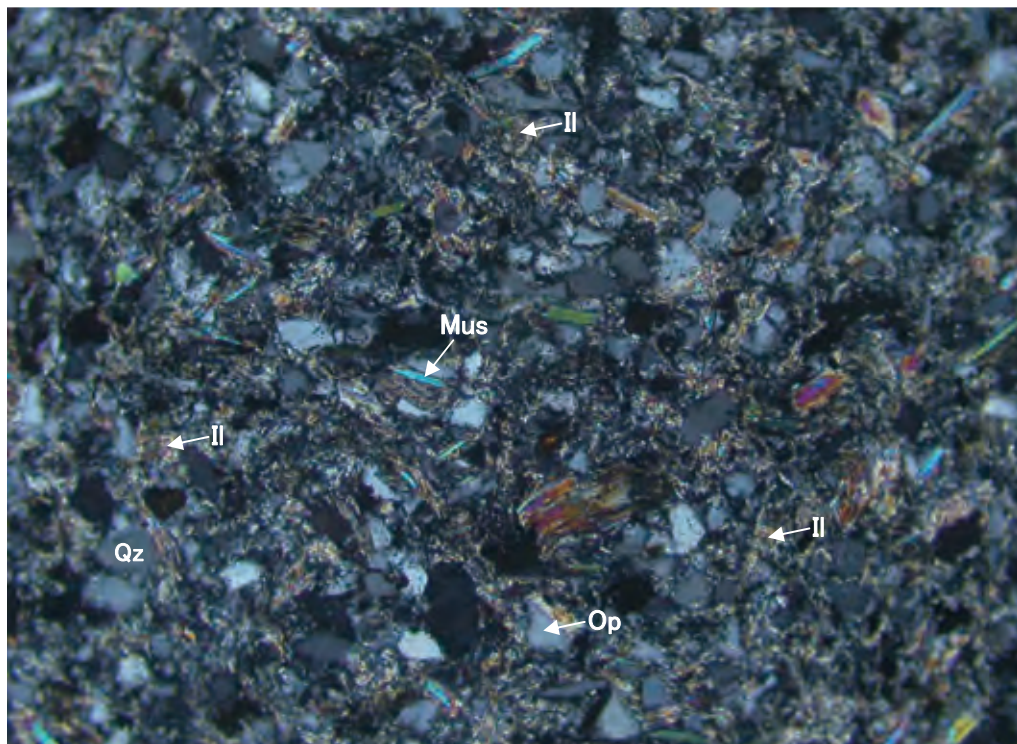
Locality : River outcrop

Rock name : Micaceous very fine-grained sandstone

Open nicol



Crossed nicols



Scale 0.1mm 

# Appendix V-7 Result of Microscopic Observation of Thin Section

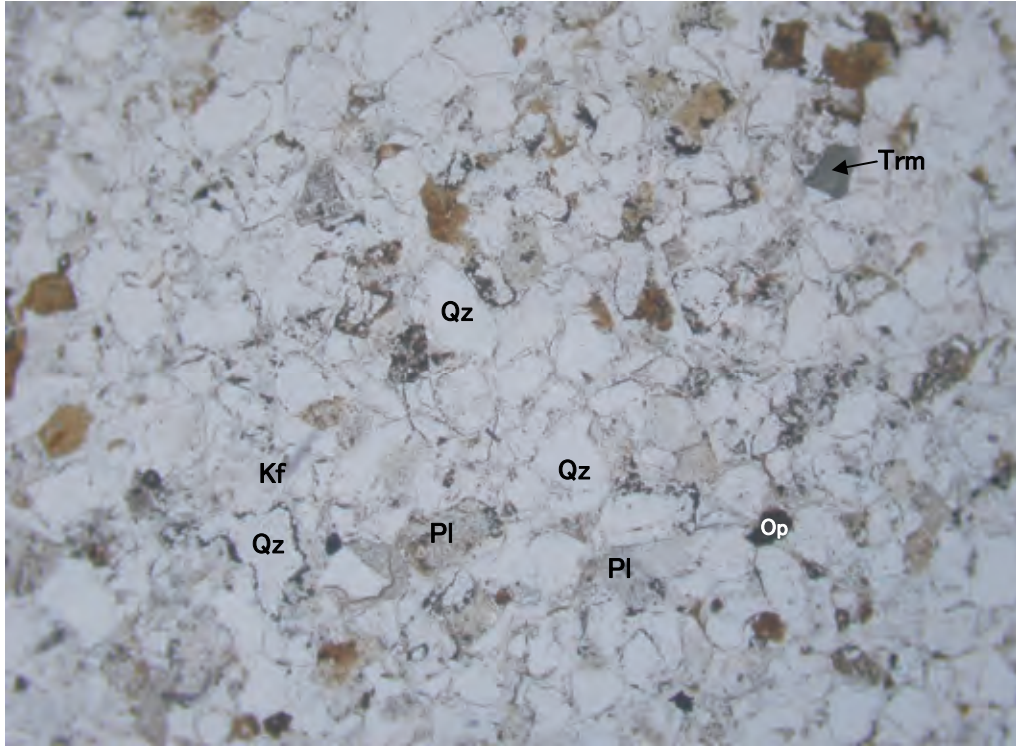
## Photomicrographs (26)

Sam.No. : RD001T

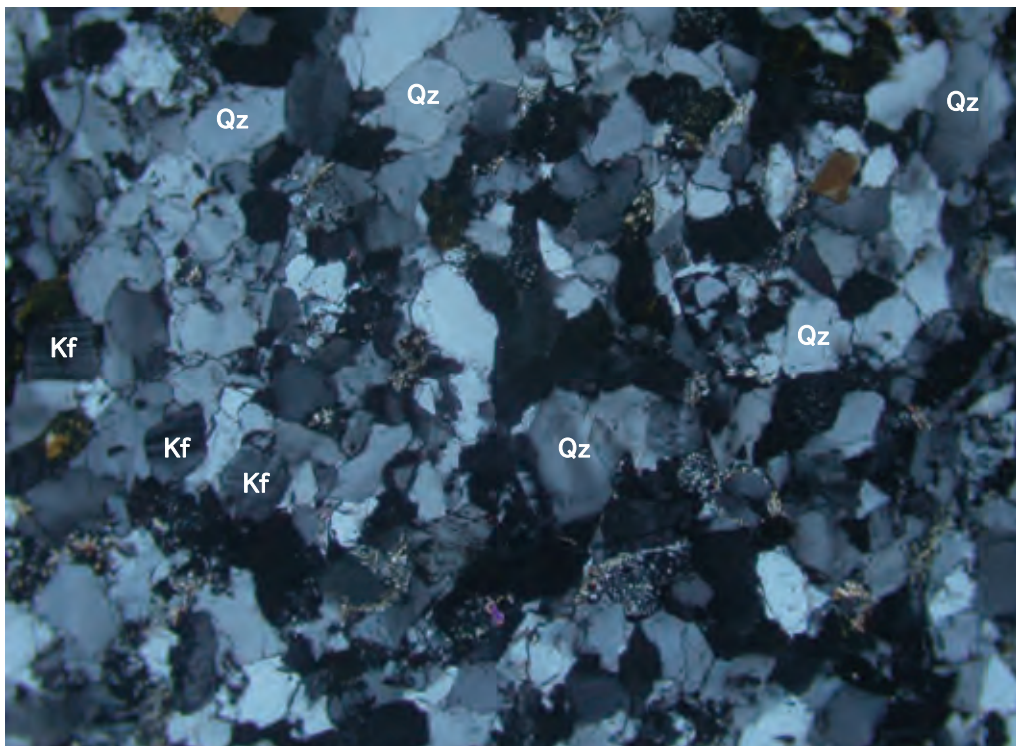
Locality : Water well

Rock name : Medium-grained sandstone

Open nicol



Crossed nicols



Scale 1.0mm 