A P P E N D I C E S

Appendix 1: List of rock samples

(1) Tunceli area

Sample No.	Locality	Coordinates		Thin Section	Polish	X-ray	Analysis
		N	E				
TAR 009	Kört	43 49 100	5 31 850		o		o
TAR 035	Kamıslık	43 33 400	5 28 600	o			
TAR 045	Sultanscyit Tepe	43 33 400	5 25 850	o			
TAR 053	Sarısaltık	43 35 550	5 19 600	o			
TAR 118	Mamlis	43 43 300	5 24 200				o
TAR 119	Mamlis	43 43 300	5 24 200		o		o
TAR 120	Mamlis	43 43 300	5 24 200				o
TAR 224	Gözerek Tepe	43 56 400	5 30 950	o			
TAR 231	Mamlis	43 43 550	5 24 50		o		o
TAR 232	Mamlis	43 43 450	5 23 925		o		
TAR 241	Varsilliyayla	43 43 750	5 27 550		o		
TAR 242	Venk	43 47 500	5 33 100	o			
TAR 351	Kurç Tepe	43 44 50	5 29 100			o	
TER 224	Mamlis	43 43 950	5 25 950				o
TMR 058	Kopkömü	43 48 800	5 39 750	o			
TMR 314	Garipuşağı	43 45 250	5 26 850				o
TMR 317	Garipuşağı	43 44 650	5 27 200		o		o
TMR 319	Karakaya	43 32 850	5 17 150	o			
TSR 016	Sorsivenk	43 54 900	5 30 100		o		o
TSR 039	Türk Tepe	43 51 700	5 31 350	o			
TSR 040	Türk Tepe	43 51 150	5 31 500	o			
TSR 324	Sin	43 37 50	5 34 950		o		
TSR 347	Mamlis	43 42 750	5 23 350				o
TSR 356	Mamlis	43 43 250	5 20 800				o
TSR 358	Mamlis	43 42 750	5 24 100		o		
TSR 462	Büyüktepeler	43 45 250	5 28 800			o	
TSR 483	Dikenli	43 42 100	5 29 300				o
TSR 485	Dikenli	43 42 300	5 29 950			o	
TSR 489	Aynalipozvenk	43 47 750	5 29 650			o	
TSR 550	Garipuşağı	43 45 450	5 26 950			o	
TSR 552	Garipuşağı	43 45 200	5 26 790				o
TSR 583	Aşagı Mamlis	43 44 410	5 25 050				o
TSR 590	Doludibek	43 43 800	5 25 850				o
TSR 597	Kultepe	43 44 750	5 24 500			o	
TSR 599	Garipuşagı	43 45 250	5 26 650				o

(1) Tunceli area (cont'd)

Sample No.	Locality	Coordinates		Thin Section	Polish	X-ray	Analysis
		N	E				
TWR 239	Mamlis	43 44 450	5 22 700				o
TYR 003	Murir Tepe	43 52 750	5 23 250	o			
M-1	Mamlis	43 42 950	5 24 650				o
M-2	Mamlis	43 42 900	5 24 500				o
M-4	Mamlis	43 42 850	5 24 100				o
M-5	Mamlis	43 42 800	5 23 900				o
M-9	Mamlis	43 42 750	5 23 400				o
M-11	Mamlis	43 43 300	5 23 550				o
M-21	Gözerek Tepe	43 42 700	5 22 850				o
M-33	Gözerek Tepe	43 42 800	5 23 100				o
M-50	Mamlis	43 43 250	5 20 800				o
S-4	Sin Mah	43 37 000	5 35 000				o
S-5	Sin Mah	43 37 000	5 34 950				o
S-6	Sin Mah	43 37 100	5 34 950				o
S-7	Sin Mah	43 37 150	5 34 900				o
	Total			10	9	6	30

(2) Kopdağ area

Sample No.	Locality	Coordinates		Thin Section	Polish	X-ray	Analysis
		N	E				
KM-201	C Kafa, Ezan	26.998	7.437	o			
KM-202	B Kafa, Ezan	26.808	7.111			o	
KM-203	"	26,865	7.076			o	
KM-204	Sulu Ocak, Ezan	26.718	7.744	o			
KM-205	"	27.085	8.006	o			
KM-206	Central Coşan	30.184	18.804			o	
KM-207	"	30.240	18.805	o			
KM-208	Southern Coşan	29.927	18.670	o		o	
KM-209	Southern Coşan	30.052	18.722			o	
KM-210	Northern Coşan	30.583	18.977			o	
KM-211	"	30.573	18.975	o			
KC-201	Civelek, Ezan	26.160	6.370	o			
KC-202	"	26.160	6.370	o			
KC-203	Northern Coşan	30.650	18.935	o			
KC-204	Trench TJT-1, Sulu Ocak	27.082	7.856		o		o
KC-205	"	27.082	7.856				o
KC-206	Trench TJT-2, Sulu Ocak	27.050	7.848				o
KC-207	"	27.050	7.858		o		o
KC-208	"	27.050	7.860				o
KC-209	Trench TJT-3, Sulu Ocak	27.030	7.866		o		o
KC-210	"	27.028	7.876				o
KC-211	"	27.028	7.880				o
KC-212	"	27.028	7.880		o		o
KC-213	"	27.025	7.908				o

(2) Kopdağ area (cont'd)

Sample No.	Locality	Coordinates		Thin Section	Polish	X-ray	Analysis
		N	E				
KC-230	Ortra Ezan	26.582	7.420	o			
KC-231	"	26.580	7.420	o			
KC-232	Batı Ezan	26.790	6.710	o			
KC-233	Doğu Ezan	26.620	7.385	o			
KC-234	Southern Coşan	30.017	18.689	o			
KC-236	Southern Coşan	30.805	18.828	o			
KC-237	Northern Coşan	30.488	18.864	o			
KC-238	"	30.486	18.847	o			
KC-249	Sulu Ocak	27.12	8.08				o
KC-250	"	27.14	8.08				o
KC-251	"	27.20	8.12				o
KC-259	Central Coşan	30.312	18.796		o		
	Drilling TJ-1, 69.5 m	26.356	6.846	o			
	" TJ-2, 64.0 m	26.422	6.630	o			
	" TJ-3, 26.0 m	26.905	6.810	o			
	" TJ-4, 12.5 m	27.216	7.660	o			
	" TJ-4, 20.30 m	27.216	7.660	o			
	" TJ-5, 60.00 m	26.888	7.000	o			
	" TJ-5, 70.00 m	26.888	7.000	o			
	" TJ-6, 34.0 m	26.926	7.245	o			
	" TJ-8, 61.0 m	26.600	7.035	o			
	" TJ-2, 23.20 m	26.422	6.630			o	
	" TJ-4, 45.0 m	27.216	7.660			o	
	" TJ-6, 35.0 m	26.926	7.245			o	
	" TJ-7, 16.20 m	27.125	7.655			o	
	Total			27	9	11	32

Appendix 2: Microscopic observation of thin section

a) Tunceli area

Rock name	Sample No.	Locality	Microscopic features	Formation
Calacreous schist	TAR 242	Venk	The rock shows a microfold texture, and is mainly composed of muscovite, calcite and quartz.	Munzur F.
Limestone	TMR 058	Kopkömü	The rock shows a clastic texture, and is mainly composed of calcite. size of calcite is < 1mm, fossils were found in it.	Munzur F.
Limestone	TSR 040	Türk tepe	The rock shows a clastic texture, and is mainly composed of calcite and siliceous fragment. fossils were found in it.	Bentepe F.
Dacitic tuff-breccia	TAR 035	Kamışlık	The rock remains unaltered. A large amount of fragments consists of hornblende dacite, a little quartz and plagioclase occupy interspaces.	Düzpelit F.
Limestone	TAR 053	Sarısaltık Tepe	The rock contains organic debris, rounded fossils and fossil fragments are embedded in a fine-grained calcite matrix.	Tırnas F.
Clino-pyroxenite	TAR 224	Gözerek Tepe	The rock consists of a large amount of clinopyroxene, a little carbonate, and talc, and shows porphyritic texture.	Ophiolite belt
Pyroxene Andesite	TYR 003	Murir Tepe	The rock remains unaltered. Plagioclase and augite phenocrysts lie in a matrix of rich in plagioclase and pyroxene.	Savular F.
Dacite	TMR 319	Karakaya	The rock remains unaltered and shows a porphyritic texture. Plagioclase, biotite, hornblende and augite phencrysts lie in a matrix grass rich in plagioclase, quartz, hornblende and biotite.	

a) Tunceli area (cont'd)

Rock name	Sample No.	Locality	Microscopic features	Formation
Dacite	TSR 039	Türk Tepe	The rock remains unaltered and shows a porphyritic texture. Plagioclase and hypersthene phenocrysts lie in a matrix glass rich quartz, plagioclase and pyroxene.	
Diorite	TAR 045	Sultanseyit Tepe	The rock shows a hollocrystalline texture and consists of plagioclase, augite, olivine, biotite and magnetite.	Daloren diorite

b) Kopdağ area

Rock name	Sample No.	Locality	Microscopic features	Original rock
Clino-pyroxene	KC 201	Civelek Ocak	The rock consists of 75% clinopyroxene, 20% serpentine, 2% orthopyroxene, 2% chromite and 1% brucite. Euhedral chromite is present in clinopyroxene.	
	KC 231	Orta Ezan	The rock consists of 90% clinopyroxene, 5% serpentine, 2% chromite, 1% calcite and 2-3% chromiangarnet. Euhedral chromite is present in clinopyroxene, calcite vein along a fracture in clinopyroxene was observed.	
	KM 204	Sulu Ocak	The rock consists of 90% clinopyroxene, 2-3% orthopyroxene, 2-3% chromiangarnet and 5% serpentine. Fracture structure is dominant, calcite vein was observed along it.	
Harzburgite	KC 232	Batı Ezan	The rock consists of 87% olivine, 5% serpentine, 5% orthopyroxene and 3% chromite. Olivine is 3 mm in size, and aggregation of olivine has a granular texture. Alteration indicates first stage of serpentinization.	
Serpentinite	KC 202	Civelek Ocak	The rock consists of 90% serpentine, 7% magnetite and 3% chromite. Serpentine replacing olivine or pyroxene has not a mesh texture, judging from the shape of serpentine, olivine, and also pyroxene was converted serpentine.	Dunite (?)
	KC 203	Coşan	The rock consists of 60% serpentine, 30% brucite, 6% magnetite, 2% pyrite and 1% chromite. Serpentine has mosaic texture, brucite is fine-grained and clustered.	Dunite
	KC 230	Orta Ezan	The rock consists of 87% serpentine, 10% chromite and 3% carbonate. Serpentine with dominant mesh texture, bastite is not present.	Dunite

b) Kopdağ area (cont'd)

Rock name	Sample No.	Locality	Microscopic features	Original rock
Serpentinite (cont'd)	KC 233	Doğu Ezan	The rock consists of 85% serpentine, 10% brucite and 5% chromite. Seprentine with dominant mesh texture, Chromite is < 0.6 mm in size, its crystal is cubic.	Dunite
	KC 234	Coşan	The rock consists of 95% serpentine and 5% chromite. Serpentine has a mosaic texture, chromite is < 0.7 mm in size, its crystal is cubic.	Dunite
	KC 236	Coşan	The rock consists of 80% serpentine, 10% brucite, 7% chromite and 3% talc. Serpentine has mosaic texture, spotted brucite and veined talc < 0.1 mm in width are distributed in serpentine.	Dunite
	KC 205	Sulu Ocak	The rock consists of 92% serpentine, 3% brucite and 5% chromite. Serpentine has a dominant mesh texture, bastite is not present, brucite is lath-shaped and cuts the mesh texture.	Dunite
	KM 208	Coşan	The rock consists of 95% serpentine, 3% brucite and 2% chromite. Serpentine and brucite have mesh texture, bastite is not present.	
	KC 237	Coşan	The rock consists of 85% serpentine, 10% brucite and 5% chromite. Serpentine has a mosaic texture, prismatic brucite is < 0.2 mm, granular chromite is < 0.35 mm.	Dunite
	KC 238	Coşan	The rock consists of 92% serpentine, 5% chromite and 3% calcite. Serpentine is fibrous and has bastite texture, almost all of serpentine is considered to be altered from orthopyroxene.	Orthopyroxinite
	TJ-1	69.50 m	The rock consists of 80% serpentine, 10% brucite and 10% chromite. Serpentine exhibits a mesh texture, granular chromite is < 0.5 mm, the olivine is completely altered to serpentine, and yet the original shape of each olivine crystal can be recognized.	Dunite

b) Kopdeğ area (cont'd)

Rock name	Sample No.	Locality	Microscopic feature	Original rock
Serpentinite (cont'd)	TJ-2	64.00 m	The rock consists of 85% serpentine, 10% chromite and 5% brucite. Serpentine exhibits a mosaic texture, cubic and granular chromite is < 0.5 mm, brucite is < 0.35 mm in length.	Dunite (?)
	TJ-3	26.00 m	The rock consists of 70% serpentine, 20% brucite and 10% chromite. Serpentine exhibits a wood louse-like texture, brucite of veined aggregation is < 0.7 mm, granular and cubic chromite is < 1.2 mm.	Dunite (?)
	TJ-4	12.50 m	The rock consists of 70% serpentine, 20% brucite, 4% kaemmererite, 4% chromite and 2% talc. Serpentine exhibits a wood louse-like texture, brucite of veined aggregation is < 0.2 mm, cubic and granular chromite is < 0.9 mm, veined talc is < 0.15 mm in width.	Dunite (?)
	TJ-4	20.30 m	The rock consists of 70% serpentine, 7% uvarovite, 6% brucite, 5% chromite, 3% talc, 2% calcite and 7% Fe-Ti oxide. Serpentine exhibits a wood louse-like texture, size of uvarovite and chromite is < 0.5 mm and < 0.35 mm, a small amount of serpentine is considered to be altered from orthopyroxene.	Harzburgite (?)
	TJ-5	60.00 m	The rock consists of 60% serpentine, 25% chromite and 15% brucite. Serpentine has a mesh texture, and exhibits a wood louse-like texture along fractures, granular and massive chromite is < 1.2 mm.	Dunite
	TJ-5	70.00 m	The rock consists of 60% serpentine, 35% brucite and 5% chromite. Serpentine exhibits a mesh texture, prismatic brucite of < 0.7 mm is aggregated, granular chromite is < 0.7 mm.	Dunite

b) Kopdeğ area (cont'd)

Rock name	Sample No.	Locality	Microscopic features	Original rock
Serpentinite (cont'd)	TJ-6	34.00 m	The rock consists of 60% serpentine, 30% brucite, 8% chromite and 2% talc. Serpentine exhibits a mesh texture, prismatic brucite of < 0.7 mm is aggregated, cubic and granular chromite is < 0.9 mm.	Dunite
	TJ-6	61.00 m	The rock consists of 60% serpentine, 30% brucite, 5% chromite and 5% magnetite. Serpentine has a mesh texture, and exhibits a wood louse-like texture along fractures, granular chromite is < 0.35 mm.	Dunite
Disseminated ore	KM 201	C Kafa	The ore consists of 40% serpentine, 25% chromite, 17% kaemmererite, 3% uvarovite and 15% Fe-Ti oxide?. Granular and cubic chromite is fine grained (< 0.35 mm), kaemmererite is considered to be converted from orthopyroxene. (Fine-grained disseminated ore).	Harzburgite
Massive ore	KM 207	Coşan	The ore consists of 50% serpentine and 50% chromite. Serpentine has a mesh texture, bastite is not present, granular chromite is coarse grained (< 2 mm). (Massive chromitite)	Dunite
Massive ore	KM 211	Coşan	The ore consists of 60% chromite, 20% serpentine and 20% brucite. Granular chromite is coarse grained (< 3.5 mm), ferritchromite is present in the fracture and cleavage of chromite. (Massive chromitite)	
Massive ore	KC 259	Coşan	The ore consists of a large amount of chromite and a trace amount of pyrite. Massive and granular chromite is > 3 mm, pyrite in gangue minerals is < 0.01 mm, networked gangue minerals (mainly serpentine) is present in chromite. (Massive chromitite)	

Appendix 3: Microscopic observation of polished section

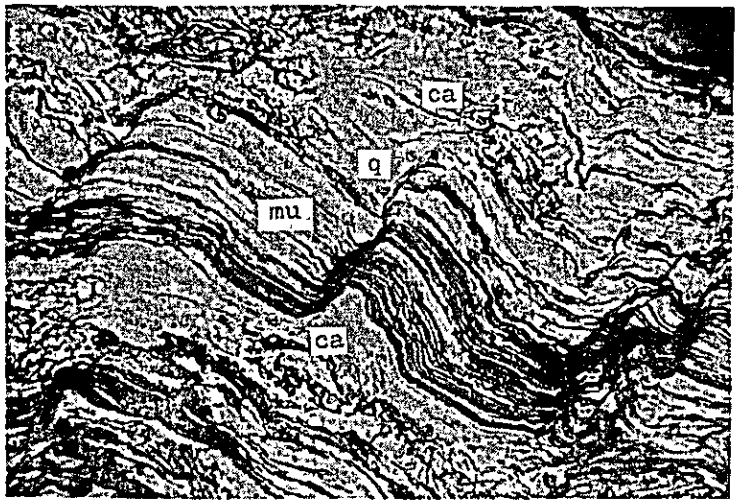
a) Tunceli area

Name of ore deposits	Sample No.	Locality	Ore	Microscopic feature
Sorsivenk	TSR 016	Sorsivenk	Cu-barite	Pyrite, chalcopyrite > secondary copper mineral Chalcopyrite veinlet was found filling along crack of irregular pyrite.
Mamlis	TAR 231	Mamlis	Pb-Zn quartz vein	Galena (5 x 7 mm) ≫ chalcopyrite (0.2 x 0.2 mm) sphalerite (0.15 x 0.15 mm)
Kört mine	TAR 009	Kört	Cu-Pb-Zn ore	Sphalerite > bornite > chalcopyrite > chalcocite.Chalcopyrite shows dotted shape in sphalerite.
Varsilli yayla	TAR 241	Varsilli yayla	Cu-Pb-Zn ore	A large amount of hematite shows lath-shape (0.1 mm in length), a trace of chalcopyrite (0.035 x 0.035 mm) was observed in gangue minerals.
Garipuşağı	TMR 317	Garipuşağı	Gossan	A large amount of hematite shows lath-shape, sometimes irregular form. Goethite was oberved.
Sin	TSR 324	Sin	Zn-cu ore	Chalcopyrite, pyrite, chalcocite > sphalerite Chalcocite is present around chalcopyrite (< 0.15 x 0.35 mm), cubic and granular pyrite is < 0.07 x 0.1 mm, sometimes hematite and goethite were observed.
Mamilis	TAR 119	Mamlis	Gossan	A large amount of goethite shows irregular form, primary sulphide mineral and secondary oxide mineral could not be found in the gossan.
Mamlis	TSR 358	Mamlis	Gossan	
Mamlis	TAR 232	Mamlis	Gossan	

b) Kopdağ area (cont'd)

Name of ore deposits	Sample No.	Locality	Ore	Microscopic feature
Coşan	KC 207	Central portion	Massive ore	Chromite ≫ magnetite > pyrite Magnetite veinlets < 0.001 mm filling cracks in chromite, pyrite of > 0.007 mm distributed in gangue minerals.
Ezan	KC 204	Sulu Ocak	Massive ore	Chromite ≫ magnetite ≫ pyrite Magnetite veinlets < 0.007 mm filling in chromite, cubic pyrite of < 0.15 mm being distributed in gangue minerals.
	KC 209	Sulu Ocak (TJT-3)	Massive ore	Chromite ≫ magnetite > pyrite Magnetite veinlets < 0.001 mm filling cracks in chromite, pyrite of > 0.007 mm distributed in gangue minerals
	KC 212	Sulu Ocak (TJT-3)	Massive ore	Chromite ≫ pyrite Magnetite not found, pyrite < 0.02 mm distributed in gangue minerals.

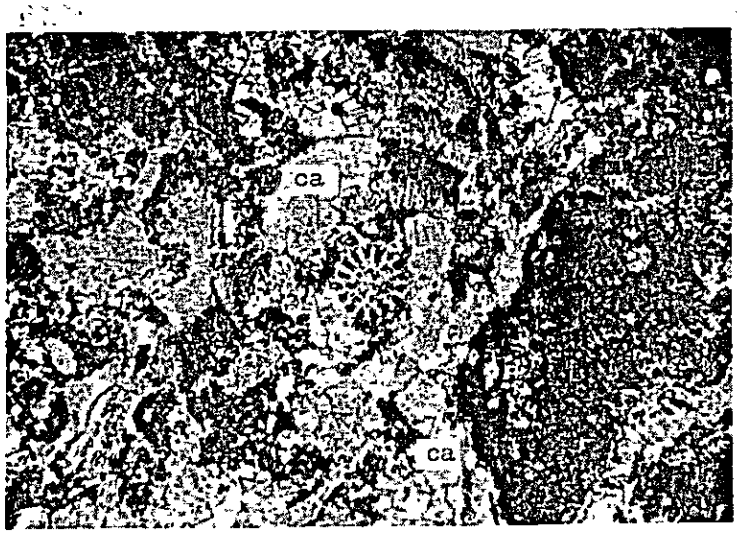
Appendix 4: Microphotographs of thin section



Sample No.: TAR 242
Locality : Venk
Rock name : Calcareous schist
(Munzur F.)

0 1.0mm

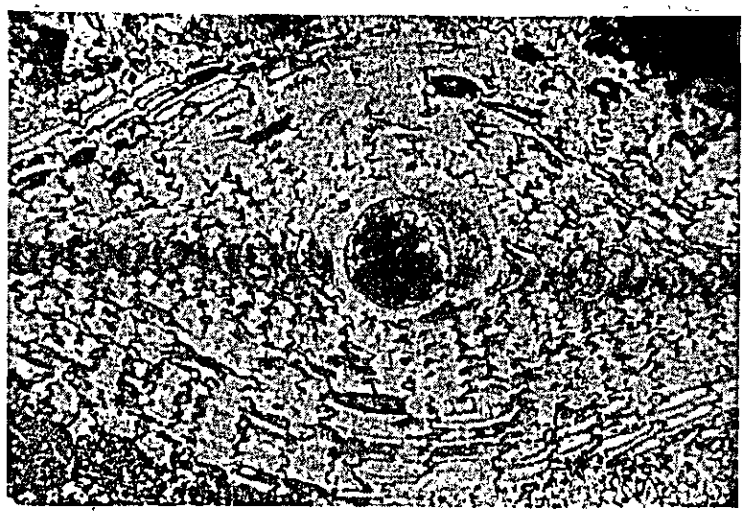
ca: calcite
q : quartz
mu: muscovite



Sample No.: TMR 058
Locality : Kopkömü
Rock name : Limestone
(Munzur F.)

0 1.0mm

ca: calcite



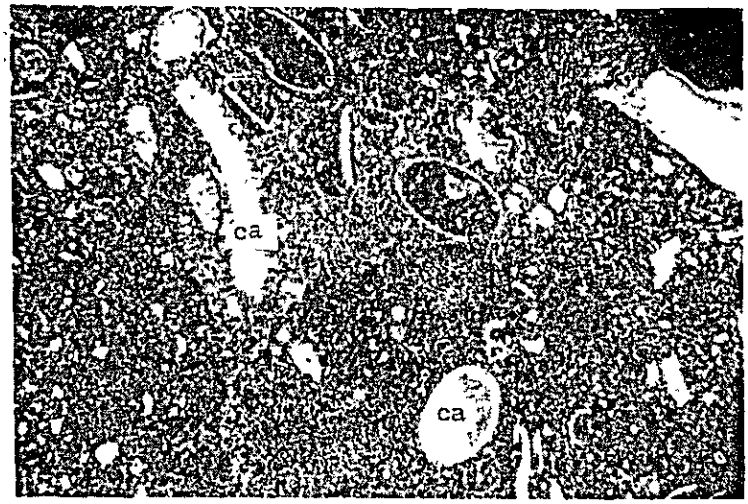
Sample No.: TSR 040
Locality : Türk Tepe
Rock name : Limestone
(Bentepe F.)

0 1.0mm

0 1.0mm

Sample No.: TAR 035
Locality : Kamışlık
Rock name : Dacitic tuff-breccia
(Düzpelit F.)

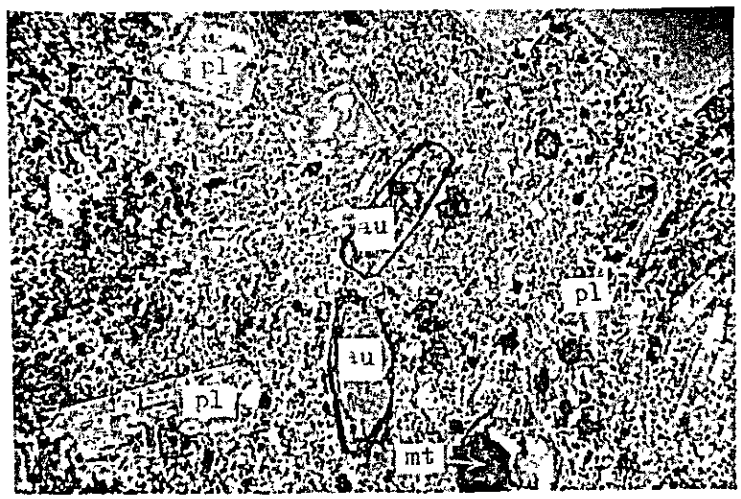
pl: plagioclase
ho: hornblende



Sample No.: TAR 053
Locality : Sarısaltık
Rock name : Limestone
(Tırnas F.)

0 1.0mm

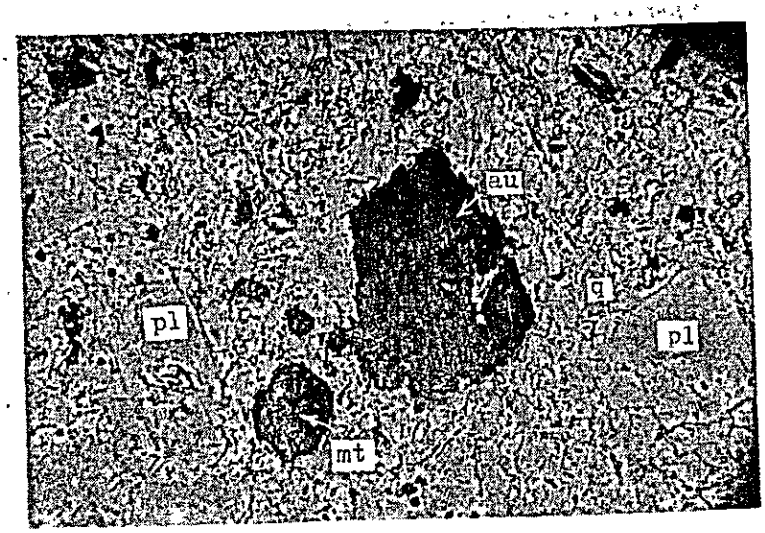
ca: calcite



Sample No.: TYR 003
Locality : Murir Tepe
Rock name : Pyroxene andesite
(Savular F.)

0 1.0mm

au: augite (clinopyroxene)
pl: plagioclase
mt: magnetite



Sample No.: TSR 039
Locality : Türk Tepe
Rock name : Dacite

0 1.0mm

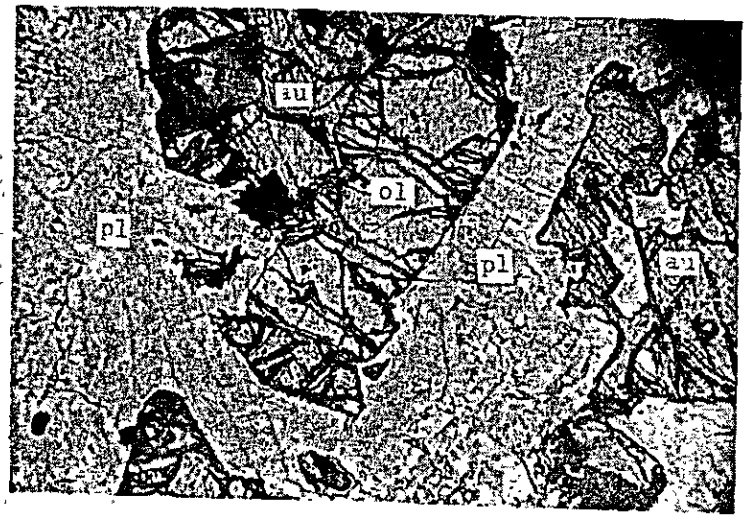
Open nicol

au: augite (clinopyroxene)
mt: magnetite
pl: plagioclase
q : quartz

Sample No.: TAR 039
Locality : Türk Tepe
Rock name : Dacite

0 1.0mm

Crossed nicols

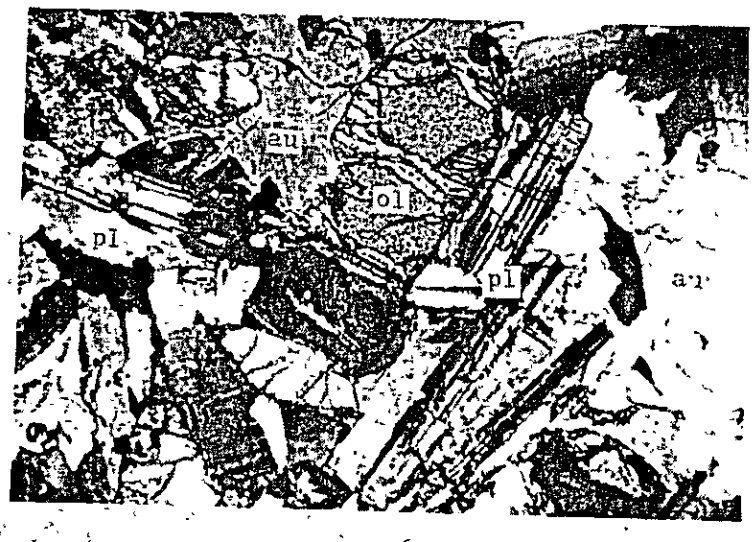


0 1.0mm

Sample No.: TAR 045
Locality : Sultanscyit Tepe
Rock name : Dalören diorite

Open nicol

au: augite (clinopyroxene)
ol: olivine
pl: plagioclase



0 1.0mm

Sample No.: TAR 045
Locality : Sultanseyit Tepe
Rock name : Dalören diorite

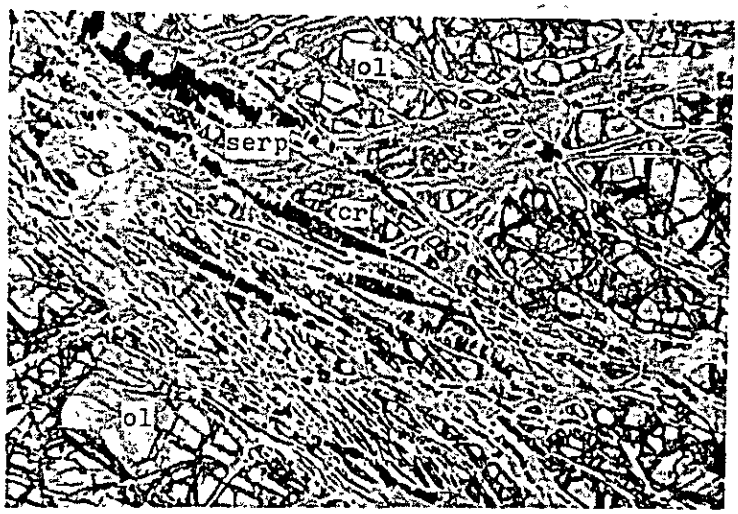
Crossed nicols

0 1.0mm

Crossed nicols

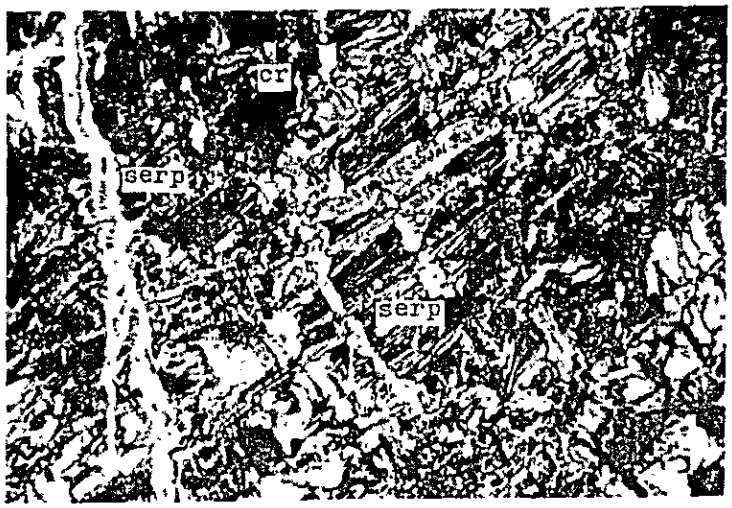
Sample No.: KC-232
Locality : Batı Ezan
Rock name : Harzburgite

serp: serpentine
cr : chromite
ol : olivine



0 1.0mm

Open nicol

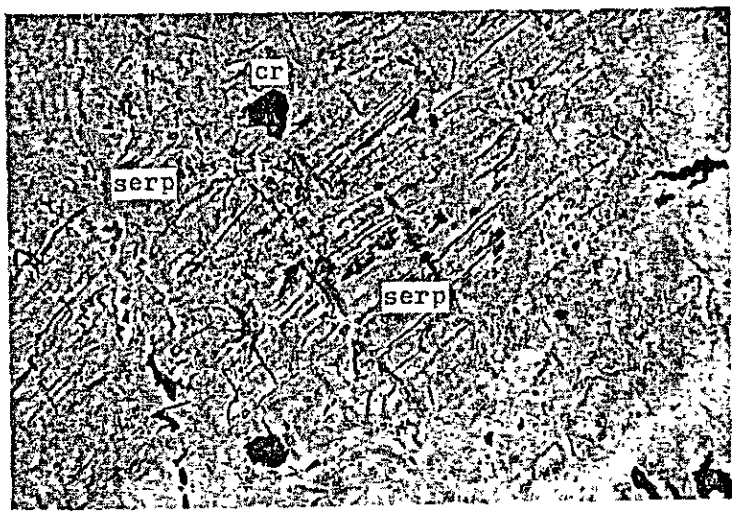


0 1.0mm

Crossed nicols

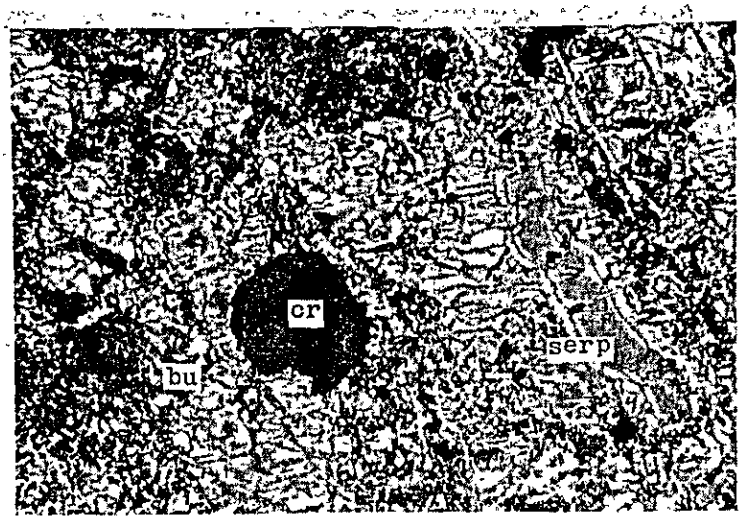
Sample No.: KC-202
Locality : Civelek
Rock name : Serpentinite

serp: serpentine
cr : chromite



0 1.0mm

Open nicol

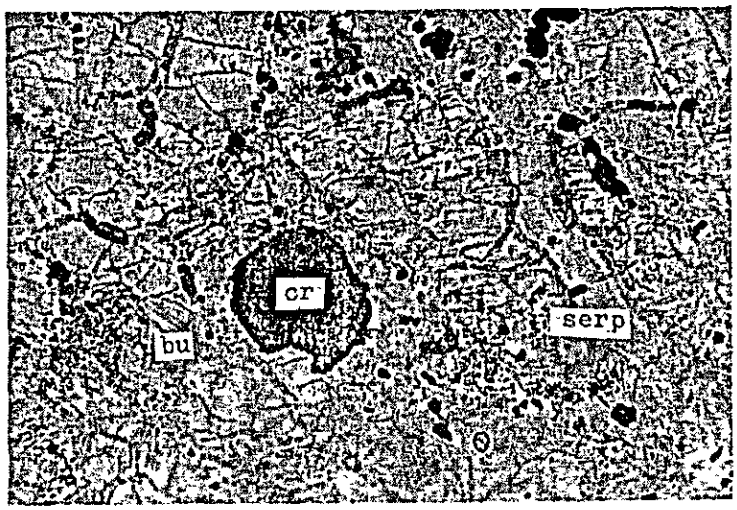


0 1.0mm

Crossed nicols

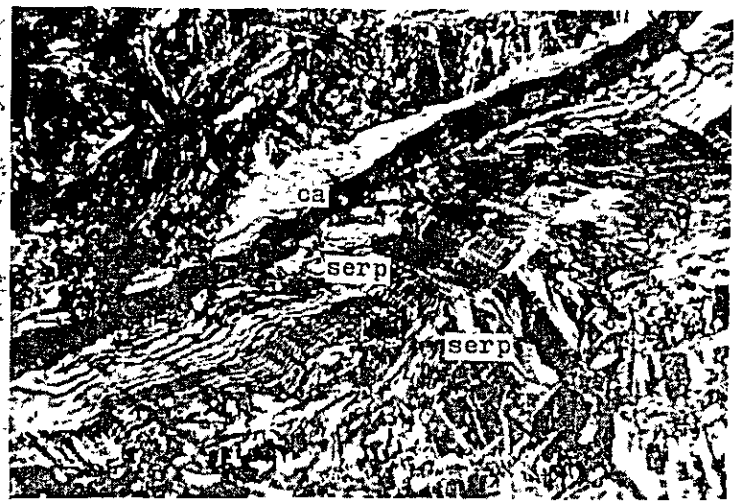
Sample No.: KM-205
Locality : Sulu Ocak
Rock Name : Serpentinite

serp: serpentine
bu : brucite
cr : chromite



0 1.0mm

Open nicol

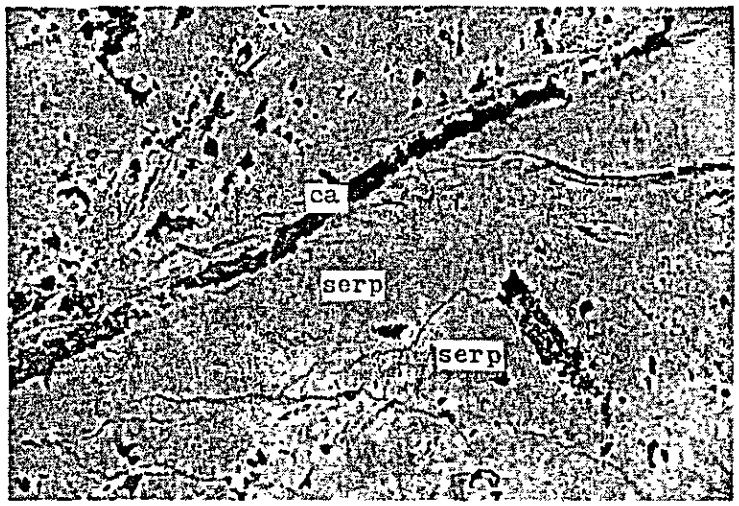


Sample No.: KC-230
Locality : Orta Ezan
Rock name : Serpentinite

0 1.0mm

Crossed nicols

serp: serpentine
ca : calcite



0 1.0mm

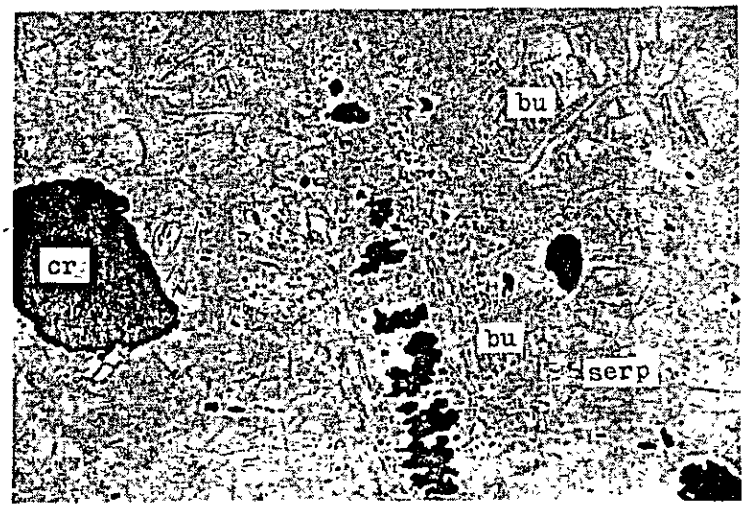
Open nicol

0 1.0mm

Crossed nicols

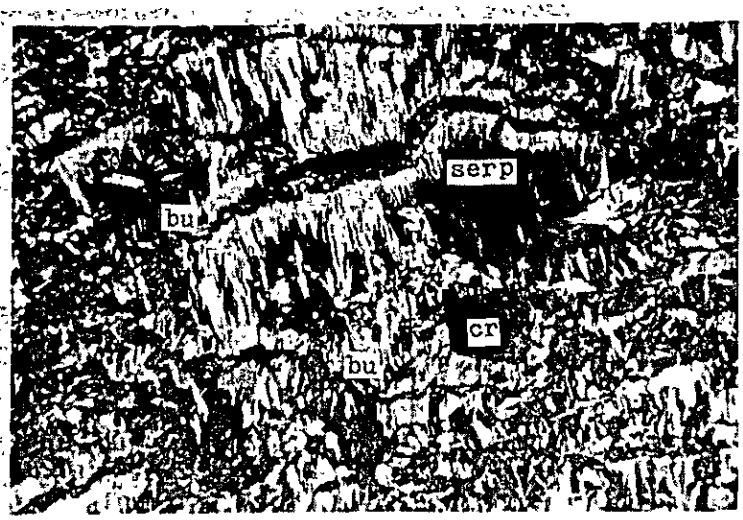
Sample No.: TJ-1 69.5 m
Locality : Armutlu
Rock name : Serpentinite

serp: serpentine
bu : brucite
cr : chromite



0 1.0mm

Open nicol

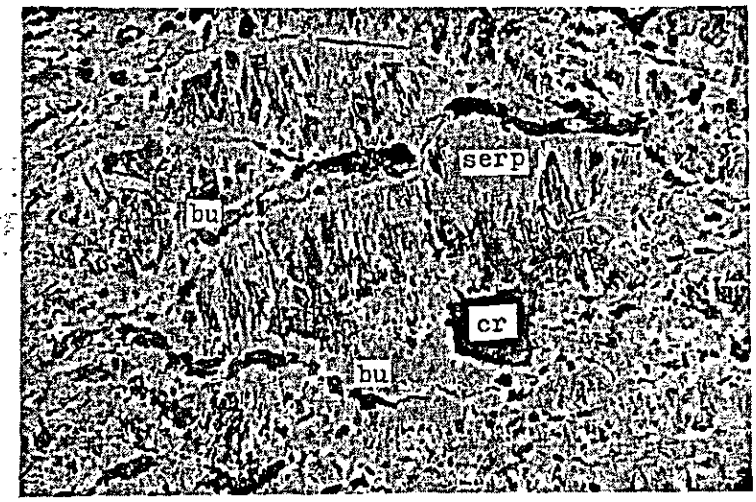


0 1.0mm

Sample No.: TJ-2 64.0 m
Locality : Armutlu
Rock name : Serpentinite

Crossed nicols

serp: serpentine
bu : brucite
cr : chromite



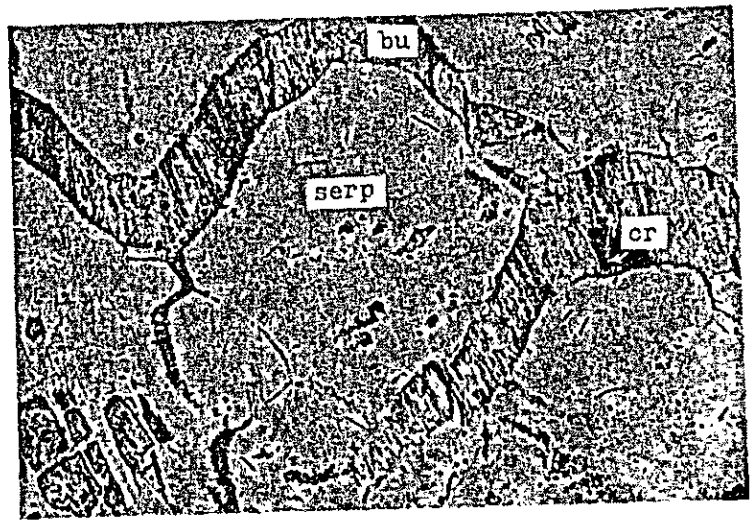
0 1.0mm

Open nicol

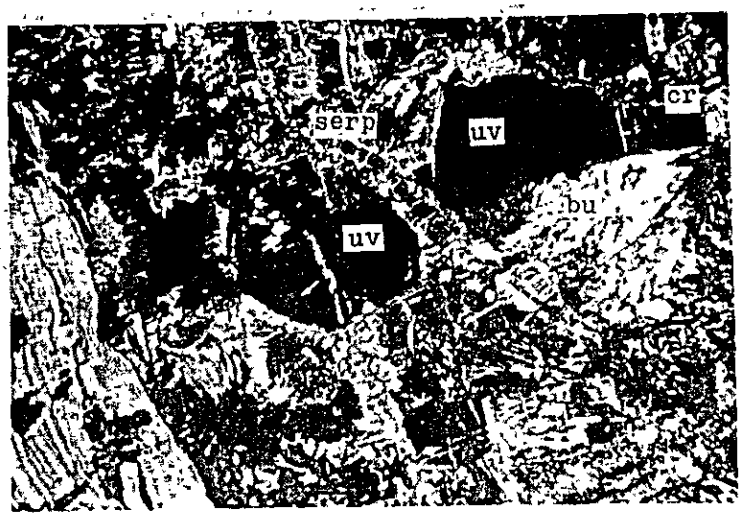
Sample No.: TJ-3 26.0 m
Locality : Batı Ezen
Rock name : Serpentinite

0 1.0mm
Crossed nicols

serp: serpentine
bu : brucite
cr : chromite



0 1.0mm
Open nicol

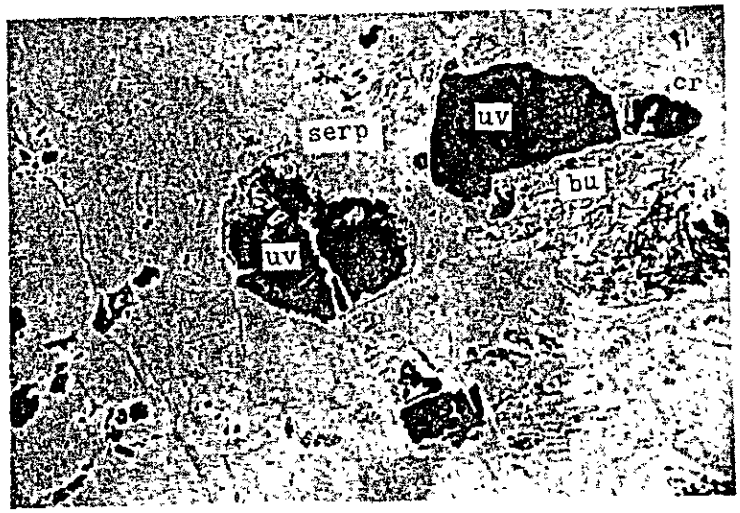


Sample No.: TJ-4 20.3 m
Locality : Sulu Ocak
Rock name : Serpentinized harzburgite

0 1.0mm

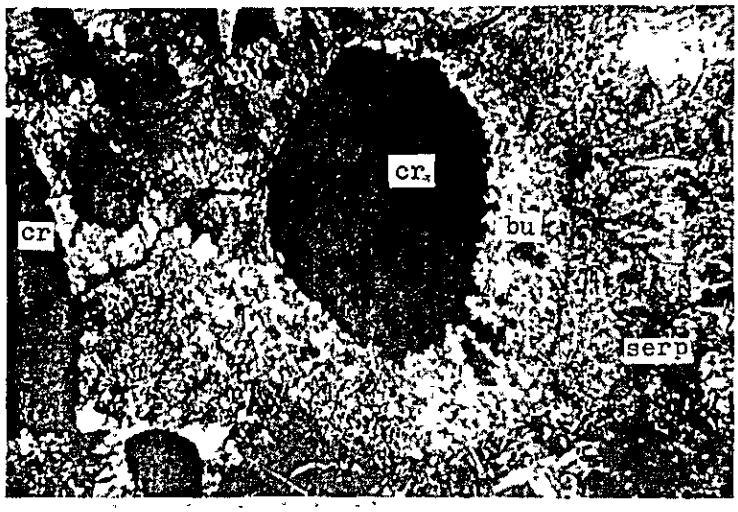
Crossed nicols

serp: serpentine
bu : brucite
cr : chromite
uv : uvarovite



0 1.0mm

Open nicol



0 1.0mm

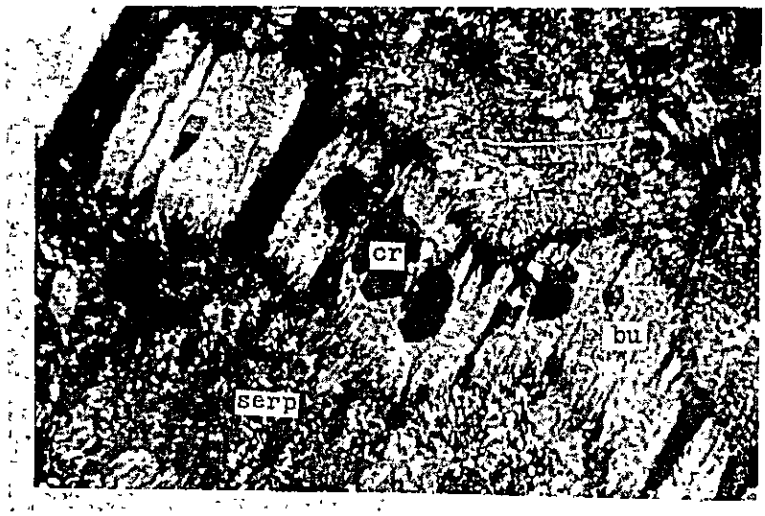
Crossed nicols

Sample No.: TJ-5 60 m
Locality : Batı Ezan
Rock name : Serpentinite

serp: serpentine
bu : brucite
cu : chromite

0 1.0mm

Open nicol

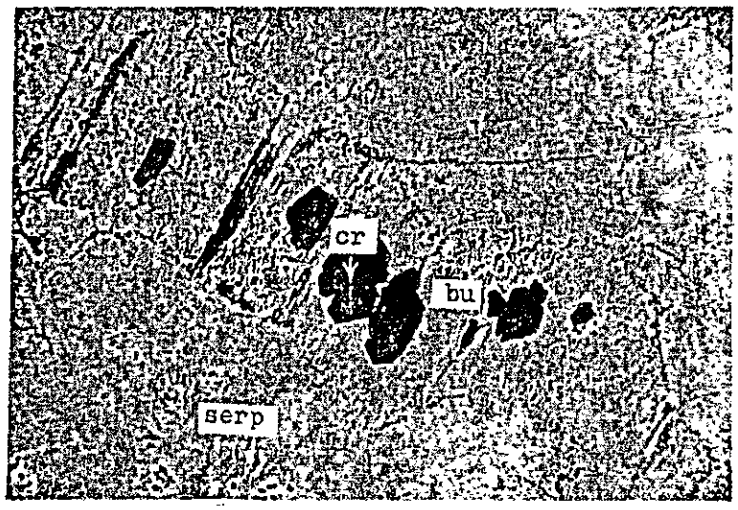


0 1.0mm

Sample No.: TJ-6 34 m
Locality : B Kafa
Rock name : Serpentinite

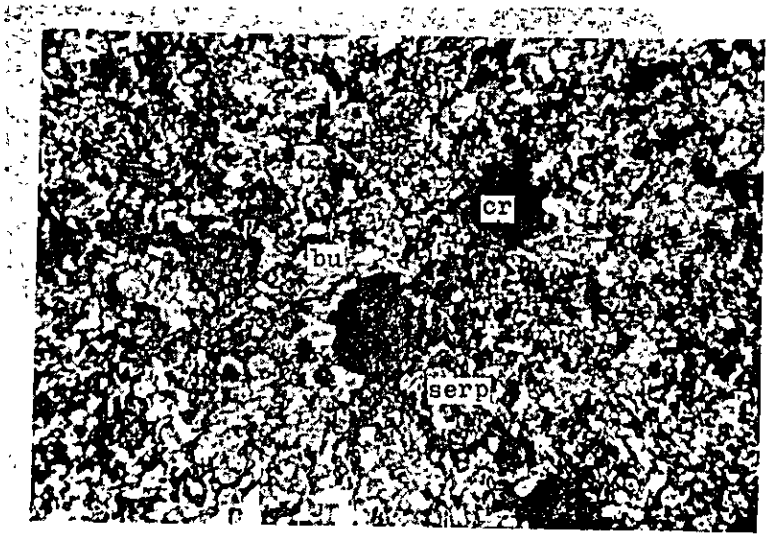
Crossed nicols

serp: serpentine
bu : burcite
cr : chromite



0 1.0mm

Open nicol

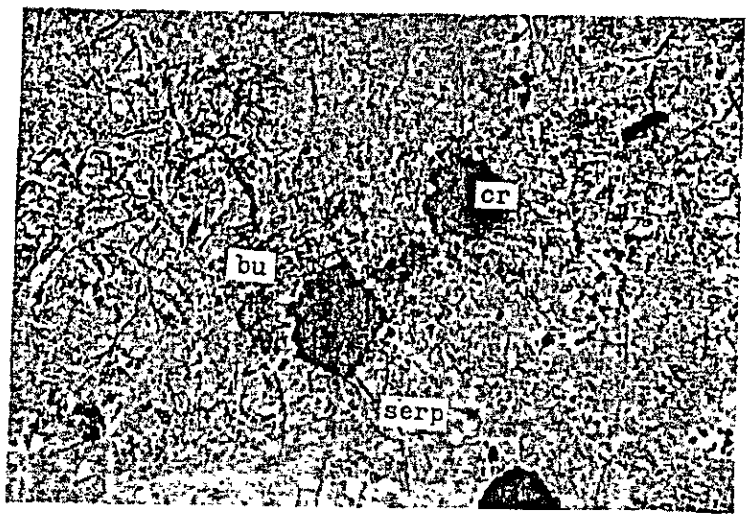


0 1.0mm

Sample No.: KC-203
Locality : Coşan
Rock name : Serpentinite

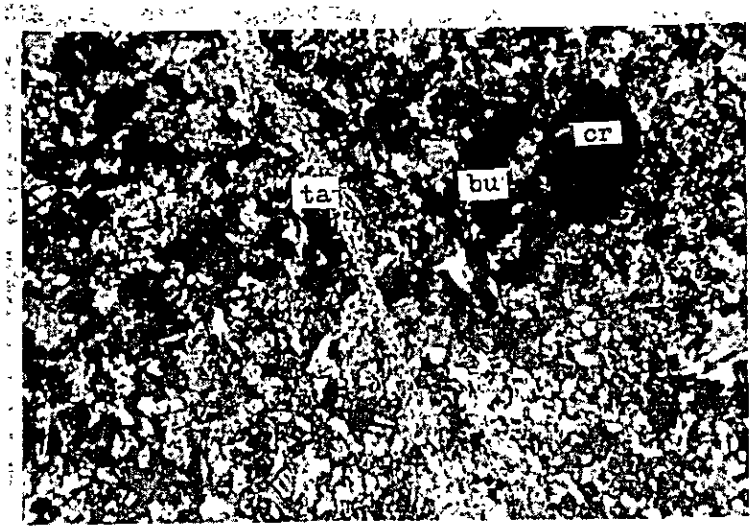
Crossed nicols

serp: serpentine
bu : brucite
cr : chromite



0 1.0mm

Open nicol

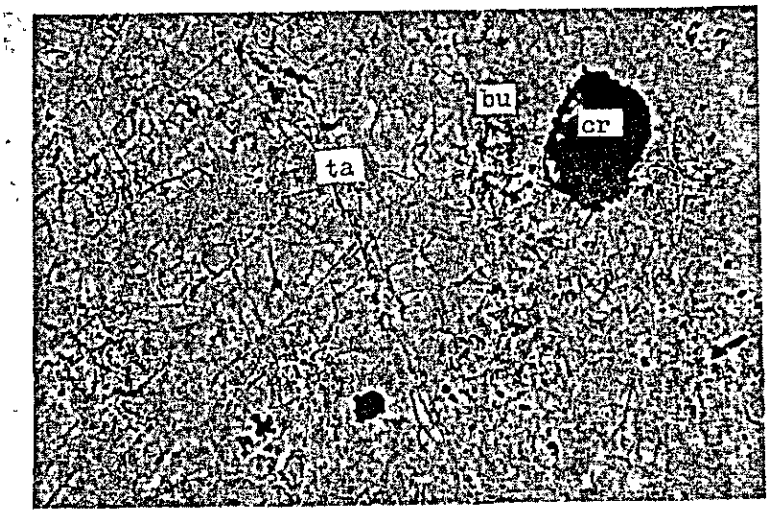


0 1.0mm

Crossed nicols

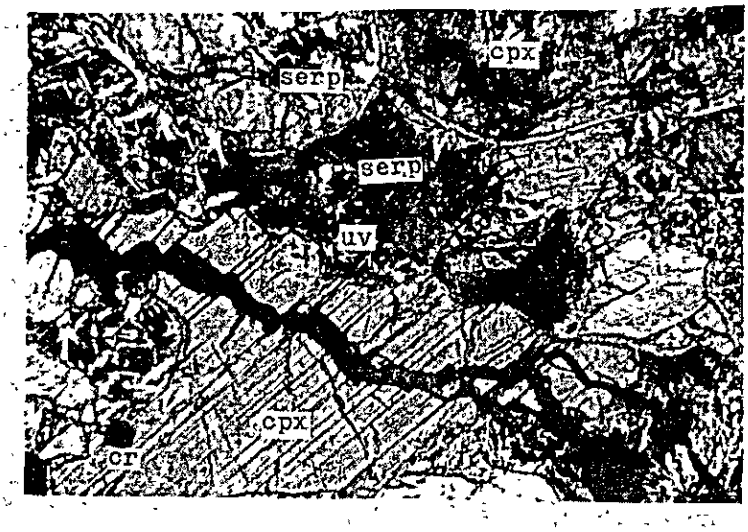
Sample No.: KC-236
Locality : Coşan
Rock name : Serpentinite

serp: serpentine
bu : burcite
cr : chromite
ta : talc



0 1.0mm

Open nicol

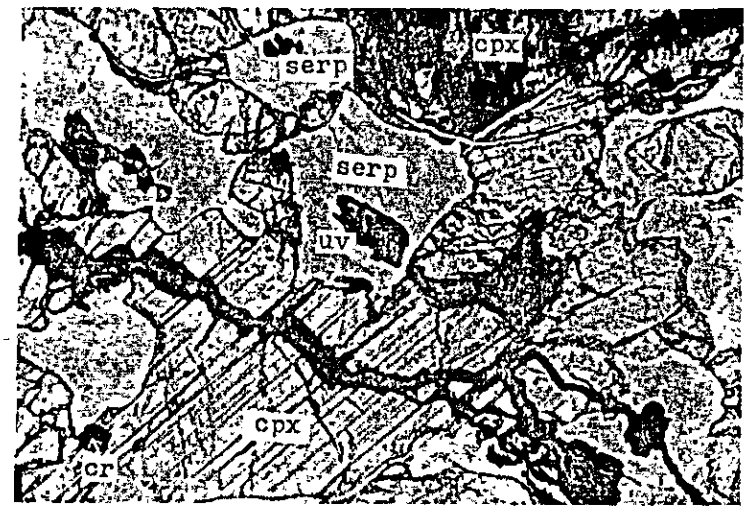


0 1.0mm

Sample No.: KC-231
Locality : Orta Ezan
Rock name : Clinopyroxenite

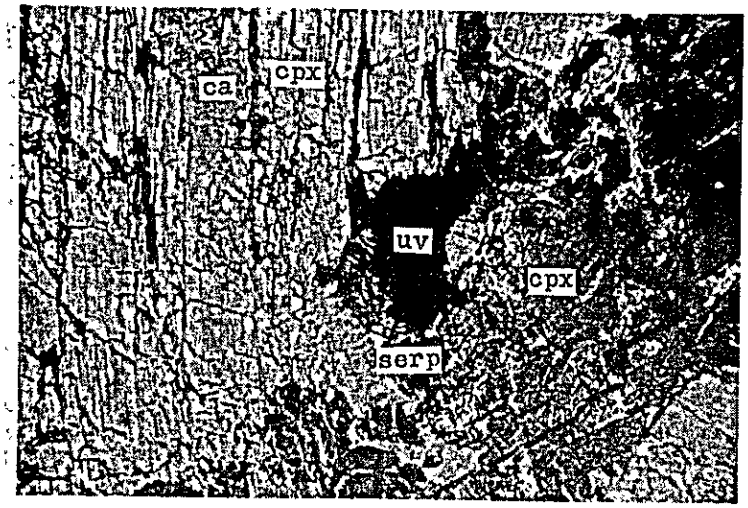
Crossed nicols

cr : chromite
uv : uvarovite
cpx : clinopyroxene
serp: serpentine



0 1.0mm

Open nicol

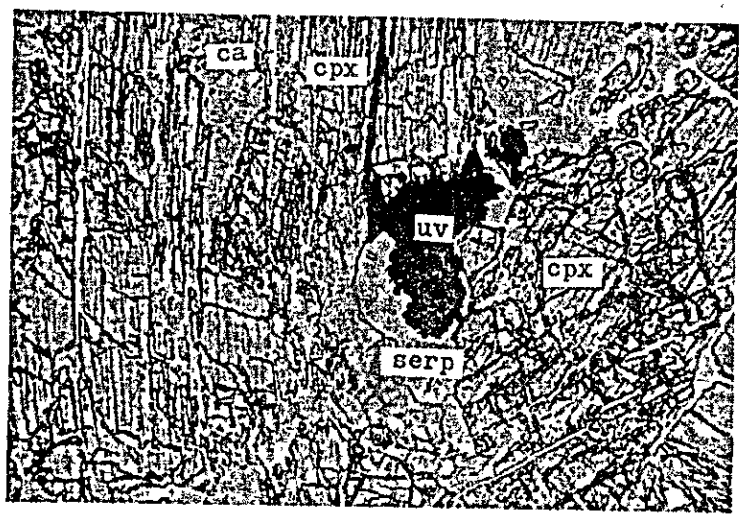


0 1.0mm

Crossed nicols

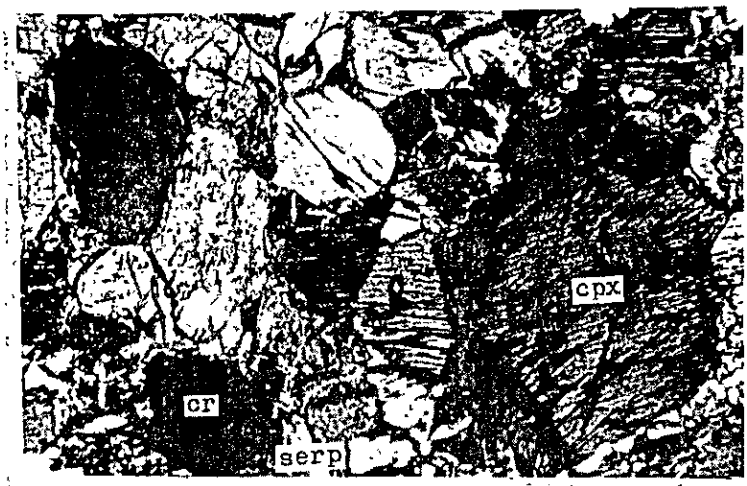
Sample No.: KM-204
Locality : Sulu Ocak
Rock name : Clinopyroxenite

serp: serpentine
uv : uvarovite
cpx : clinopyroxene
ca : calcite



0 1.0mm

Open nicol

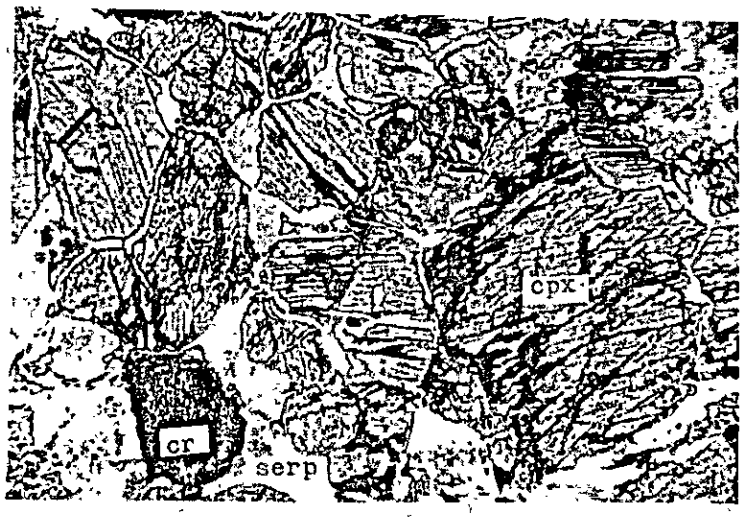


0 1.0mm

Crossed nicols

Sample No.: KC-201
Locality : Civelek
Rock name : Clinopyroxenite

serp: serpentine
cr : chromite
cpx : clinopyroxene



0 1.0mm

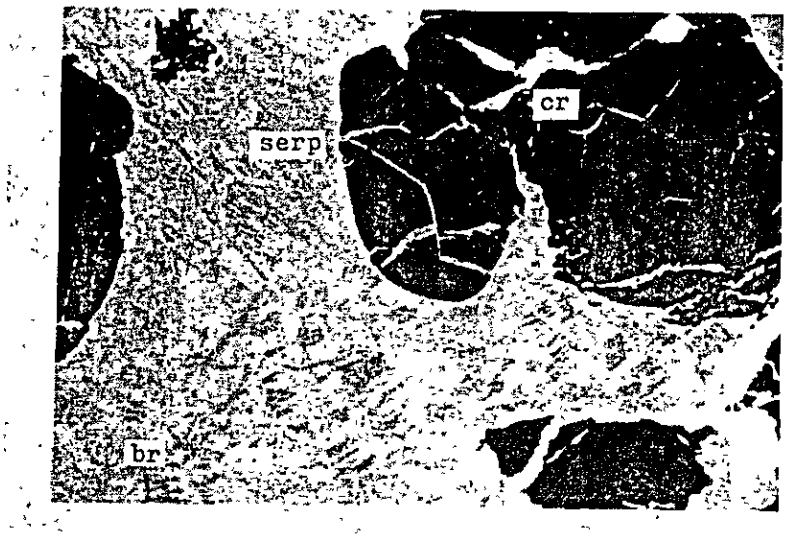
Open nicol

0 1.0mm

Crossed nicols

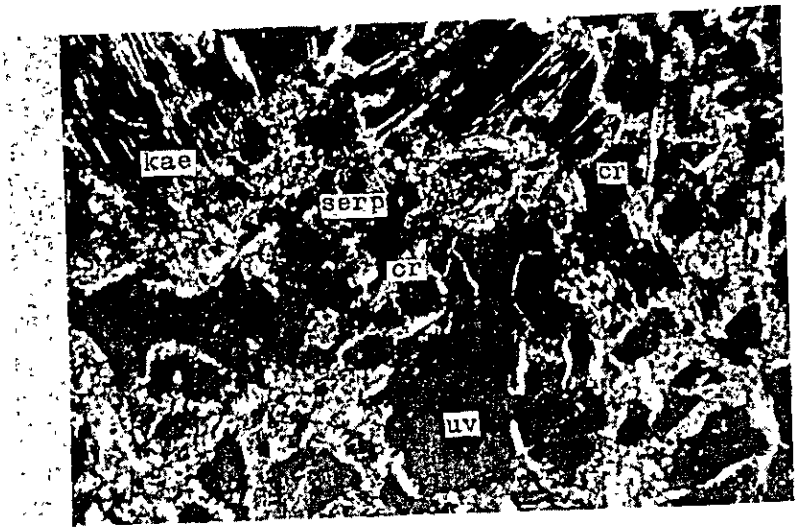
Sample No.: KM-209
Locality : Coşan
Rock name : Massive ore

serp: serpentine
cr : chromite
br : brucite



0 1.0mm

Open nicol

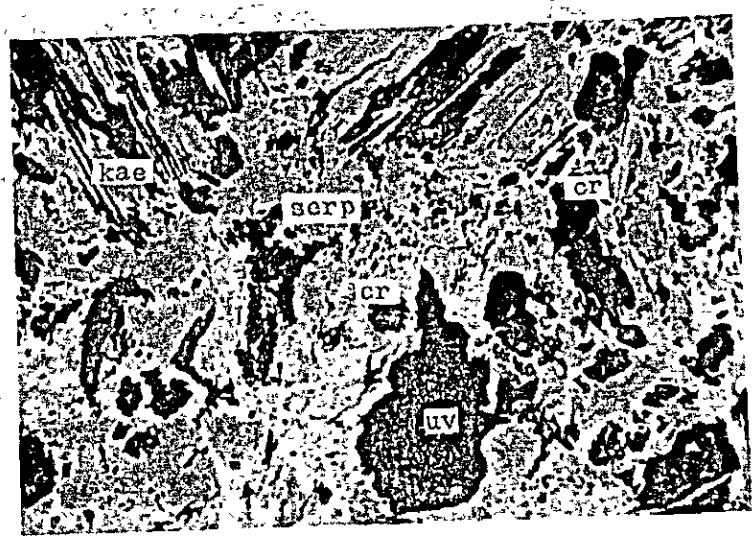


0 1.0mm

Crossed nicols

Sample No.: KM-201
Locality : C Kafa
Rock name : Disseminated ore

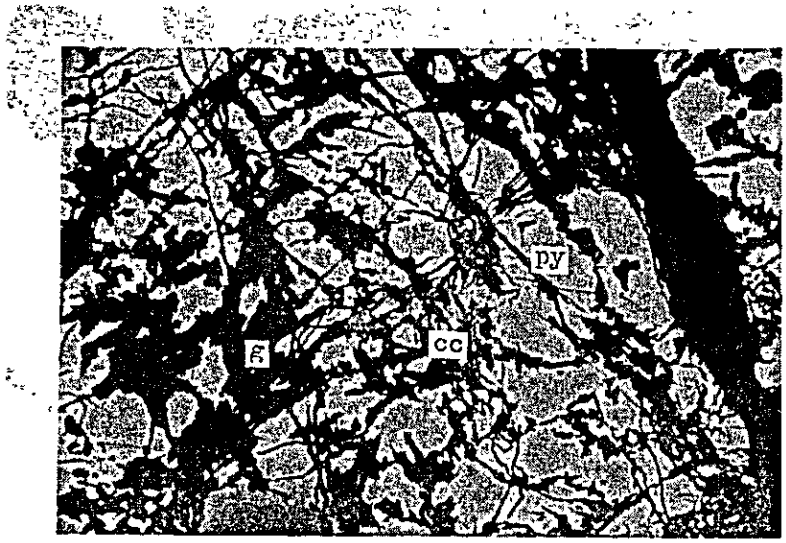
serp: serpentine
cr : chromite
uv : uvarovite
kae : kaemmererite



0 1.0mm

Open nicol

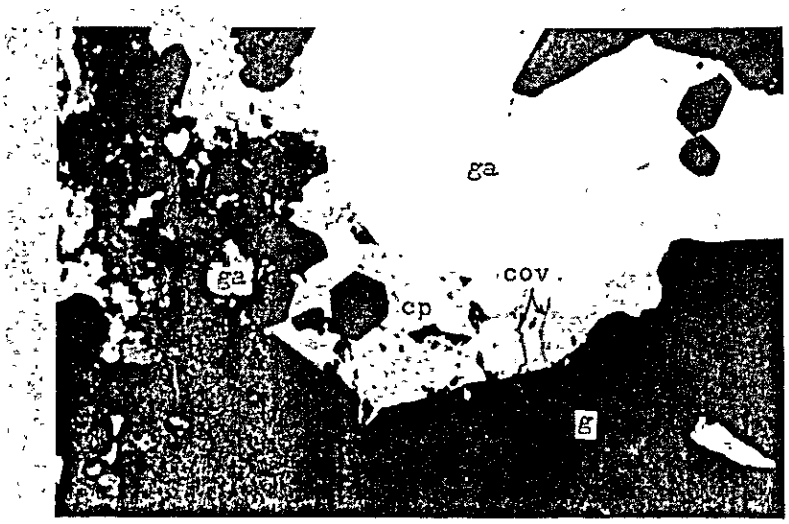
Appendix 5: Microphotographs of polished section



0 0.5mm

Sample No.: TSR 016
Locality : Sorsivenk
Rock name : Cu-ore

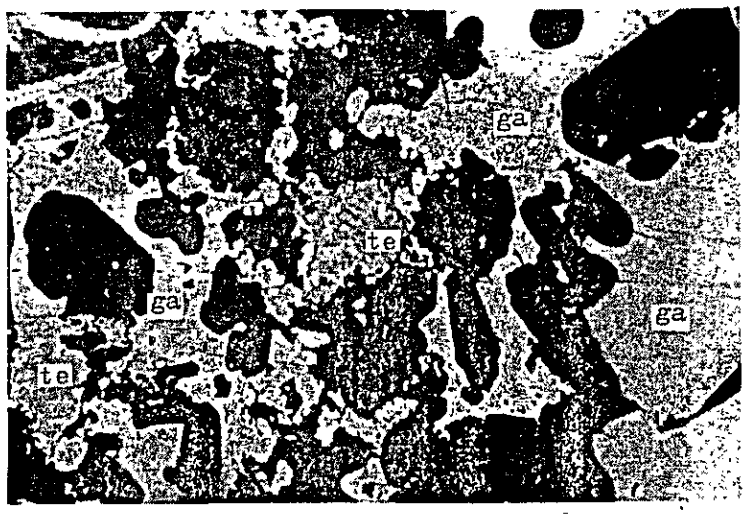
cc: chalcocite
py: pyrite
g : gangue minerals



0 0.5mm

Sample No.: TAR 231
Locality : Mamlis
Rock name : Cu-Pb-qt vein

ga : galena
cp : chalcopyrite
cov: covelline
g : gangue minerals



0 0.5mm

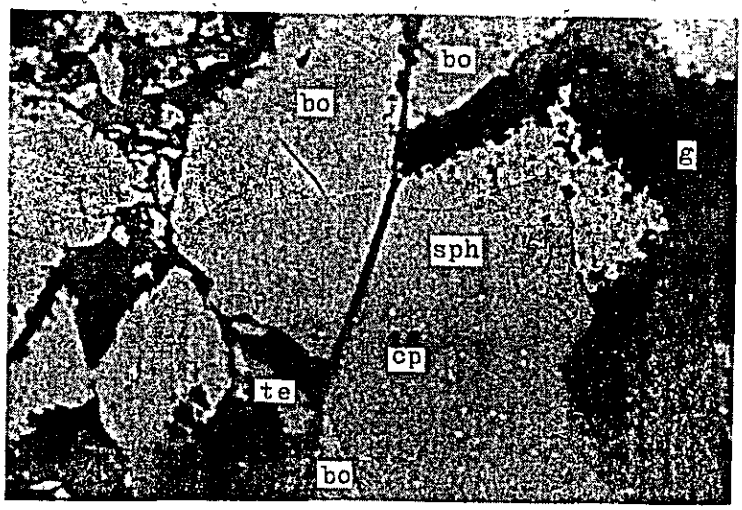
Sample No.: TAR 231
Locality : Mamlis
Rock name : Cu-Pb-qt vein

ga: galena
te: tetrahedrite

0 0.5mm

Sample No.: TAR 119
Locality : Mamlis
Rock name : Gossan

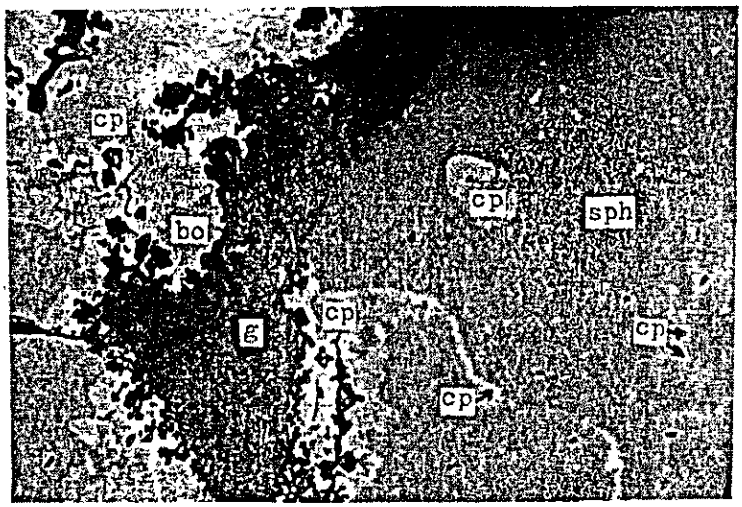
fe-m: Fe-minerals
g : gangue minerals



0 0.5mm

Sample No.: TAR 009
Locality : Kört
Rock name : Cu-Pb-Zn ore

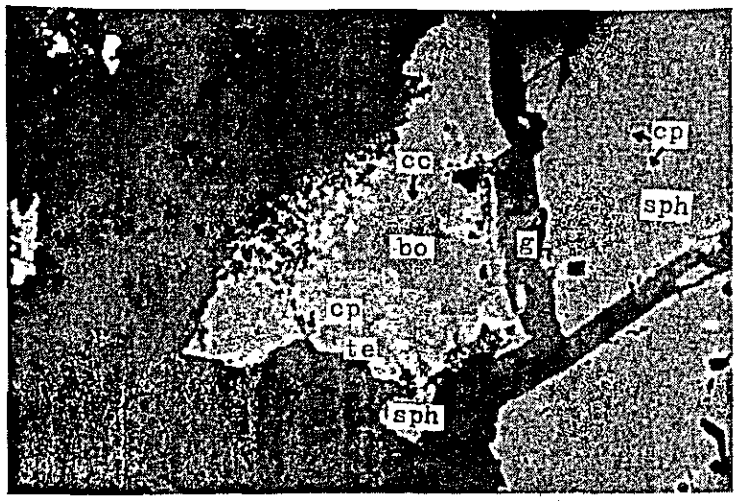
bo : bornite
te : tetrahedrite
cp : chalcopyrite
sph: sphalerite
g : gangue minerals



0 0.5mm

Sample No.: TAR 009
Locality : Kört
Rock name : Cu-Pb-Zn ore

bo : bornite
cp : chalcopyrite
sph: sphalerite
g : gangue minerals



0 0.5mm

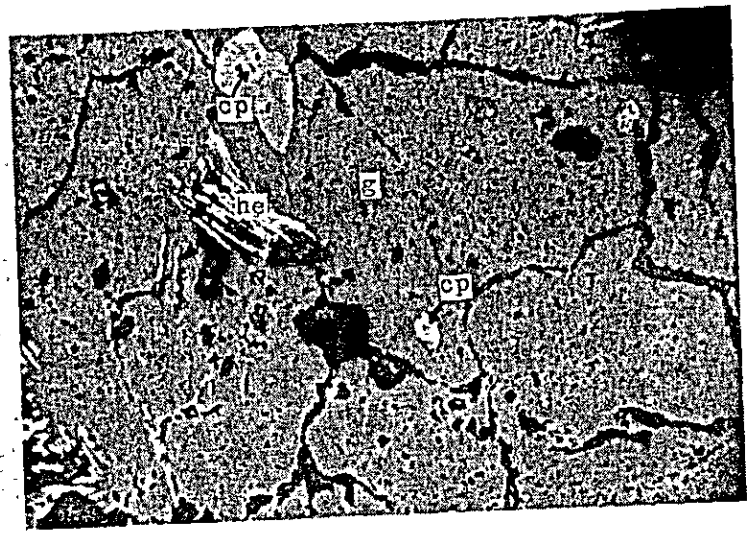
Sample No.: TAR 009
Locality : Kört
Rock name : Cu-Pb-Zn ore

cc : chalcocite
bo : bornite
te : tetrahedrite
cp : chalcopyrite
sph: sphalerite
g : gangue minerals

0 0.5mm

Sample No.: TAR 241
Locality : Varsilli yayla
Rock name : Cu-Hematite

he: hematite



0 0.5mm

Sample No.: TAR 241
Locality : Varsilli yayla
Rock name : Cu-Hematite

cp: chalcopyrite
he: hematite
g : gangue minerals

0 0.5mm

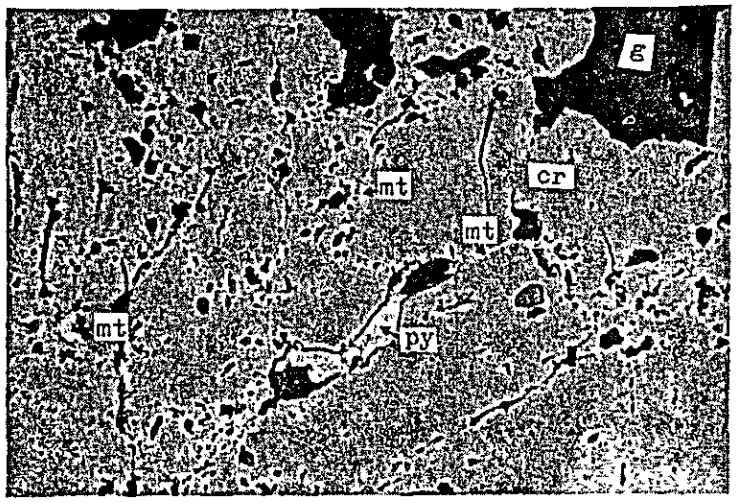
Sample No.: TMR 317
Locality : Garipuşağı
Rock name : Gossan

he: hematite

0 0.5mm

Sample No.: TSR 324
Locality : Sin
Rock name : Zn-Cu ore

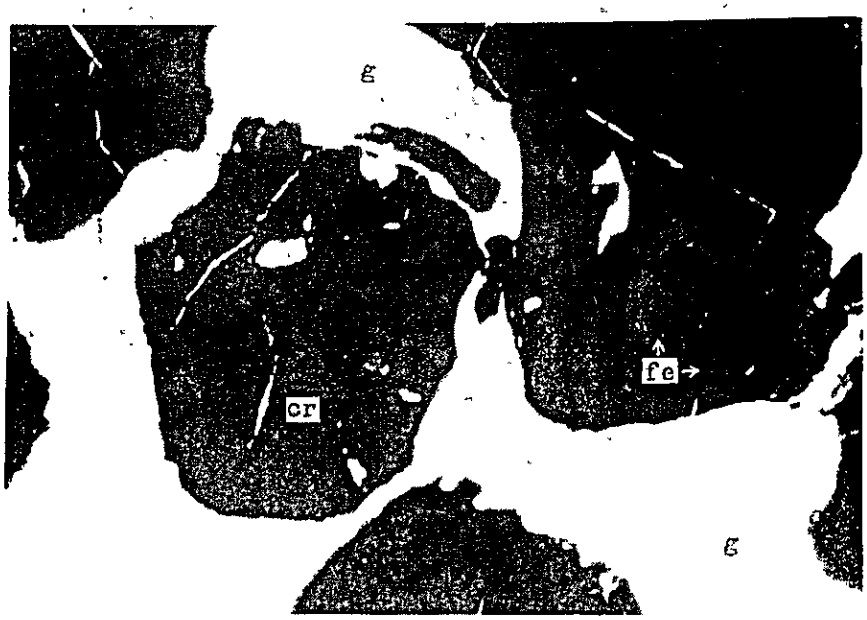
cc: chalcocite
cp: chalcopyrite
py: pyrite
g : gangue minerals



0 1.0mm

Sample No.: KC-204
Locality : Sulu Ocak
Rock name : Massive ore

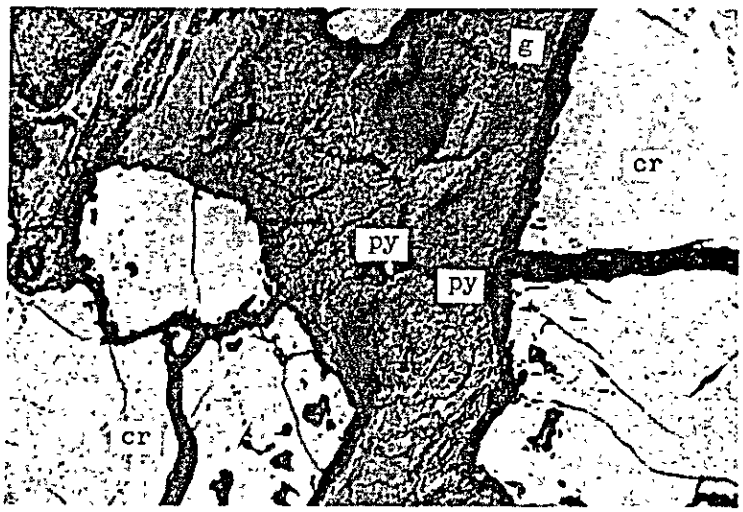
cr: chromite
mt: magnetite
g : gangue minerals
py: pyrite



0 1.0mm

Sample No.: KM-211
Locality : Coşan
Rock name : Massive ore

fe: ferritchromite
cr: chromite
g : gangue minerals



0 0.5mm

Sample No.: KC-212
Locality : Coşan
Rock name : Brecciated ore

cr: chromite
g : gangue minerals
py: pyrite

Appendix 6: Chemical composition of ore and Gossan samples

a) Tunuli area

Sample No.	Rock name	Locality	Analysis										
			Au	Ag	Cu	Pb	Zn	As	Sb	W	Sn	$BaSO_4$	Mo
TAR 009	ore	Kört			% 4.73	% 0.14	% 5.55			%	%	% 1.45	ppm
TMR 314	Dacite	Garipuşağı			<0.01	<0.01	0.01					0.41	
TSR 016	ore	Sorsivenk			1.15	0.01	0.06					73.50	
TSR 356	ore	Mamlis			0.15	36.70	0.02					0.50	
M-50	ore	Mamlis			1.17	25.47	0.70			0.01	0.01		10
TAR 118	sili-rock	Mamlis	ppm <0.2	ppm <2		ppm 623	ppm 114	ppm 7	ppm 7				
TAR 119	sili-rock	Mamlis	"	3		52	1,070	10	3				
TAR 120	sili-rock	Mamlis	"	<2		75	583	9	8				
TAR 231	Dacitic tuff (diss. Pb,Zn)	Mamlis	"	3		8,659	191	56	62				
TMR 317	Dacitic tuff	Garipuşağı	"	<2		81	66	6	7				
TSR 347	Gossan	Mamlis	"	4		526	1,608	13	6				
TWR 239	sili-zone	Mamlis	"	<2		224	868	8	2				
TER 224	Gossan	Mamlis		4	40	37	120						
TSR 483	Dacitic tuff (arg.)	Dikenli		2	10	25	70						
TSR 552	Dacite (Hematite?)	Garipuşağı			-	-	-						ppm 5
TSR 583	Dacite (arg.)	Aşagı mamlis			-	-	-						5
TSR 590	sili-zone	Mamlis		11	630	2,500	225						

Sample No.	Rock name	Locality	Analysis										
			Au	Ag	Cu	Pb	Zn	As	Sb	W	Sn	$BaSO_4$	Mo
TSR 599	Dacite (Hematite?)	Garipuşağı		ppm	ppm	ppm	ppm						ppm 5
M-1	Gossan	Mamlis		3	60	87	535						
M-2	Gossan	Mamlis		7	50	56	3,300						
M-4	Gossan	Mamlis		5	70	68	375						
M-5	Gossan	Mamlis		26	300	787	45						
M-9	Gossan	Mamlis		6	20	187	490						
M-11	Dacitic tuff (sili,arg.)	Mamlis		2	55	37	60						
M-21	Gossan	Gözerek T.		6	20	25	620						
M-33	Gossan	Gözerek T.		6	30	25	790						
S-4	Dacite (sili.)	Sin Mah		3	400	56	150						
S-5	Dacite (sili,Mal.)	Sin Mah		5	2,250	56	610						
S-6	Dacite (sili,Mal.)	Sin Mah		3	7,850	37	180						
S-7	Dacite (Sili.)	Sin Mah		3	60	87	535						

* Abbreviations
  sili. = Silicification
  arg. = Argillization
  Diss. = Dissemination
  Mal. = Malachite

b) Kopdağ area

Sample No.	Locality	Cr_2O_3 (%)	FeO + Fe_2O_3 (%)	SiO_2 (%)	Al_2O_3 (%)	MgO (%)	Remarks
KC-204	Trench T.J.T-1 Sulu Ocak	34.79	15.99	7.57	17.75	19.90	
KC-205	"	27.65	15.29	9.91	13.88	23.41	
KC-206	Trench T.J.T-2 Sulu Ocak	27.23	15.90	14.45	7.23	25.48	
KC-207	"	42.08	17.28	3.36	18.35	16.30	
KC-208	"	46.33	17.54	4.07	15.97	16.07	
KC-209	Trench T.J.T-3 Sulu Ocak	44.97	17.51	5.27	13.10	17.14	
KC-210	"	24.99	20.54	12.92	16.80	19.46	
KC-211	"	37.85	15.80	6.58	17.39	19.52	
KC-212	"	32.86	14.62	10.32	20.00	21.36	
KC-213	"	36.49	18.16	7.90	17.13	16.50	

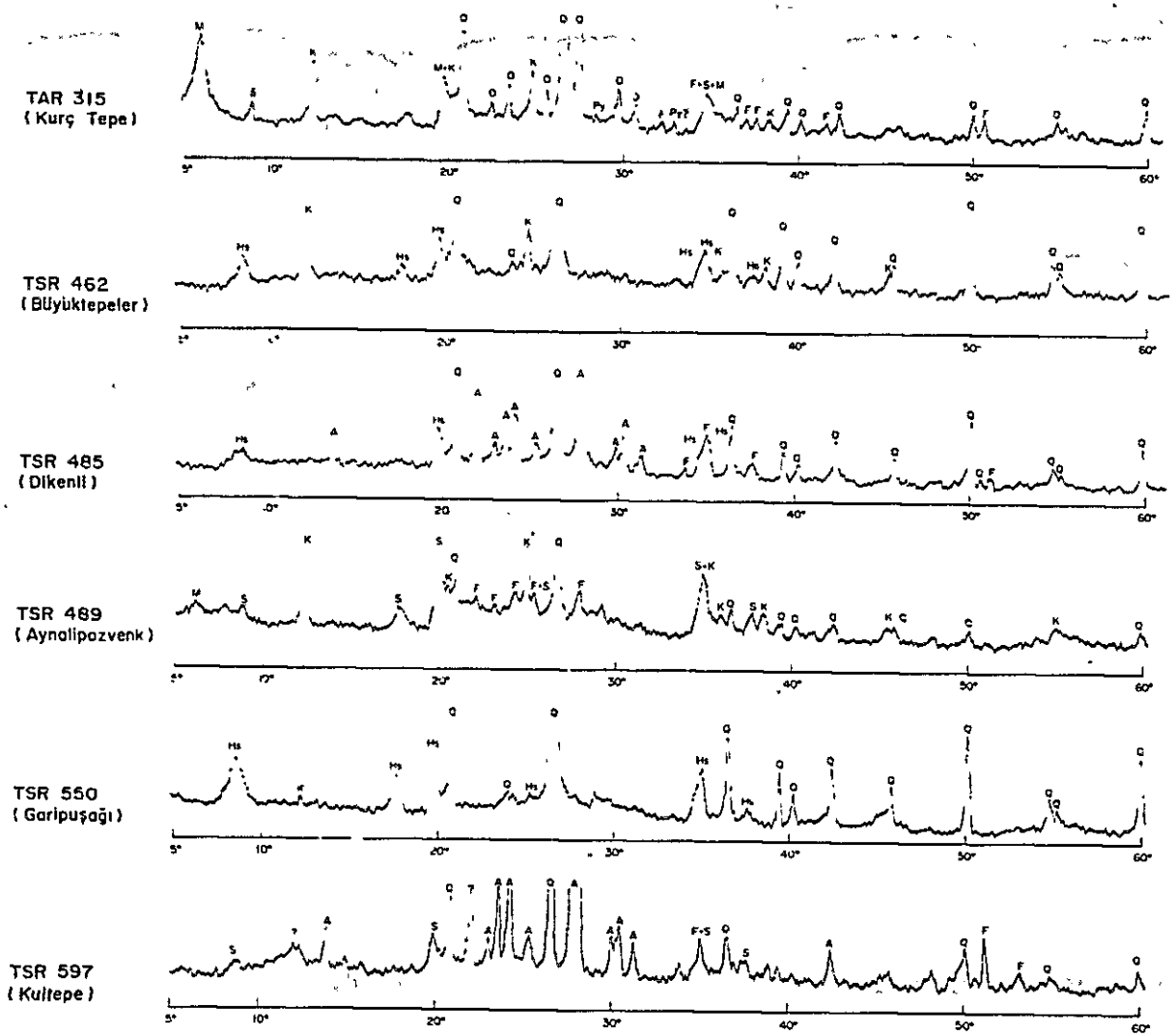
Appendix 7: Result of X-ray diffraction test

	Sample No.	Type of sample	Locality	Serpentine group			Brucite	Pyroaurite	Hydro-magnesite	Chromite	Talc	Magnetite
				Antigorite	Lizardite	Chrysotile						
Kopdağ area	KM 206	Foliated serpentinite	Coşan			+ + +						
	KM 208	Massive serpentinite		+ +	+	+		+				
	KM 209	Foliated serpentinite		?	+	+ + +						+
	KM 210	Foliated serpentinite				+ + +						
	KM 202	Foliated serpentinite	Batı Ezan~B kafa	?	+	+ +		+ +	+		+	
	KM 203	Foliated serpentinite	Batı Ezan~B kafa	+		+		+	+			
	TJ-2 23.2m		Armutlu	+ +	?	+ +						-
	TJ-4 45.0m		Batı Ezan	+		+ +	+					-
	TJ-6 35.0m		B kafa	+		+	+ +					
	TJ-7 16.2m		Sulu Ocak			+ +		+		+ +		
	KC 221	White clay			+			+	+ + +			

	Sample No.	Type of sample	Locality	Quartz	Feldspar	Orthoclase	Albite	Montmori-llonite	Sericite	Hydrous-sericite	Kaoline	Pyrite
Tunceli area	TAR 315			+ + +		+ + +		+	-		+	-
	TSR 462			+ + +						+	+	
	TSR 485			+ + +			+ +			+		
	TSR 489			+	+			-	+		+ +	
	TSR 550			+ + +						+	-	
	TSR 597			+ +			+ + +		+			

Intensity of X-ray diffracted is shown:
+ + + very strong
+ + strong
+ moderate
- weak
? uncertain

Appendix 7; Charts of X-ray diffraction test (A)

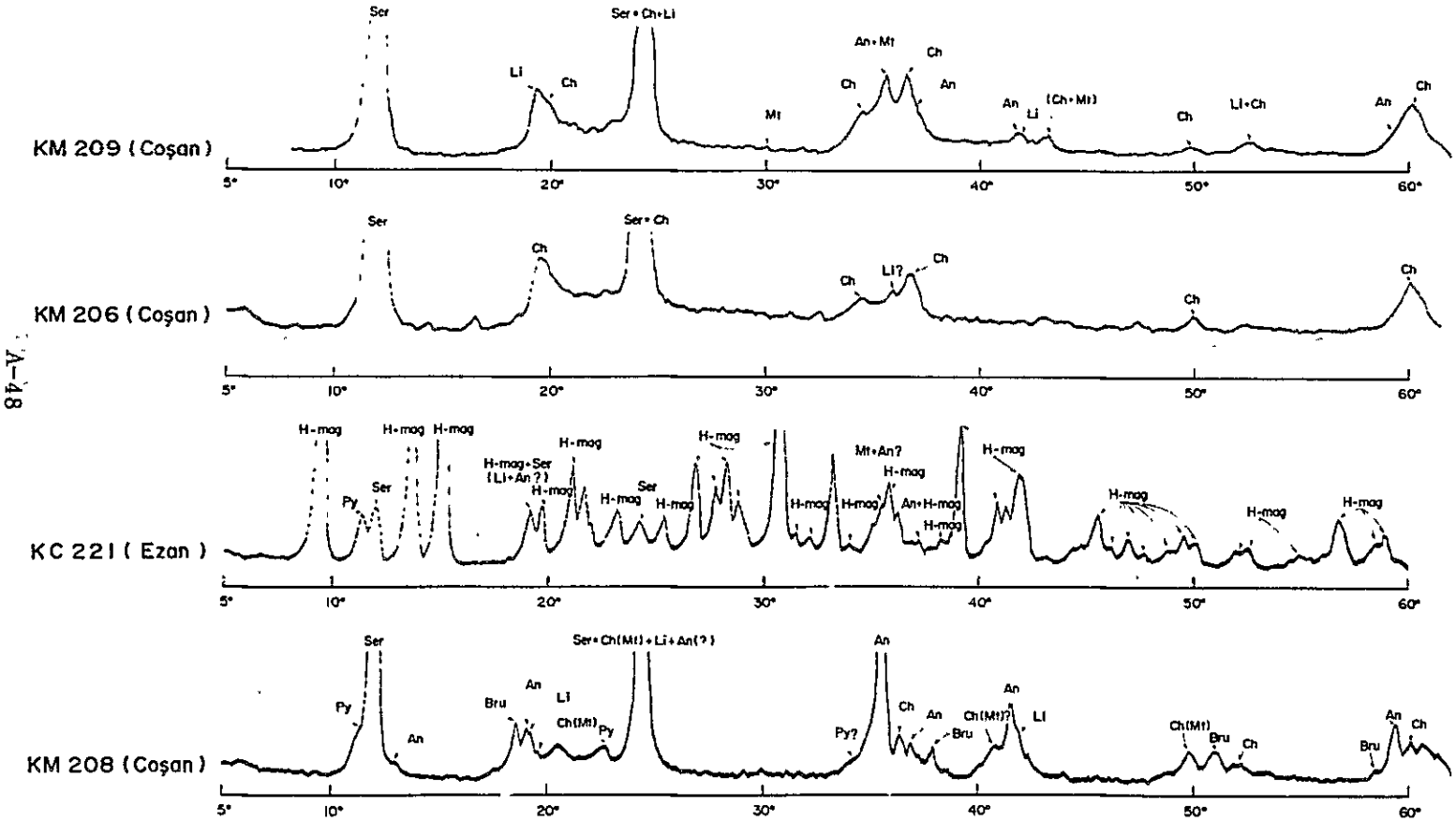


X-ray diffraction data

Target	;	Cu
Filter	;	Ni
Voltage	;	30kv
Current	;	15mA
Time constant	;	2sec
Scanning speed	;	2°/min
Slit	;	1°ps-1°ss-0.3mm

Q	;	Quartz
F	;	Feldspar
O	;	Orthoclase
A	;	Albite
M	;	Montomorillonite
Hs	;	Hydrous sericite
S	;	Sericite
K	;	Kaoline
Py	;	Pyrite

Appendix 7; Charts of X-ray diffraction test (B)

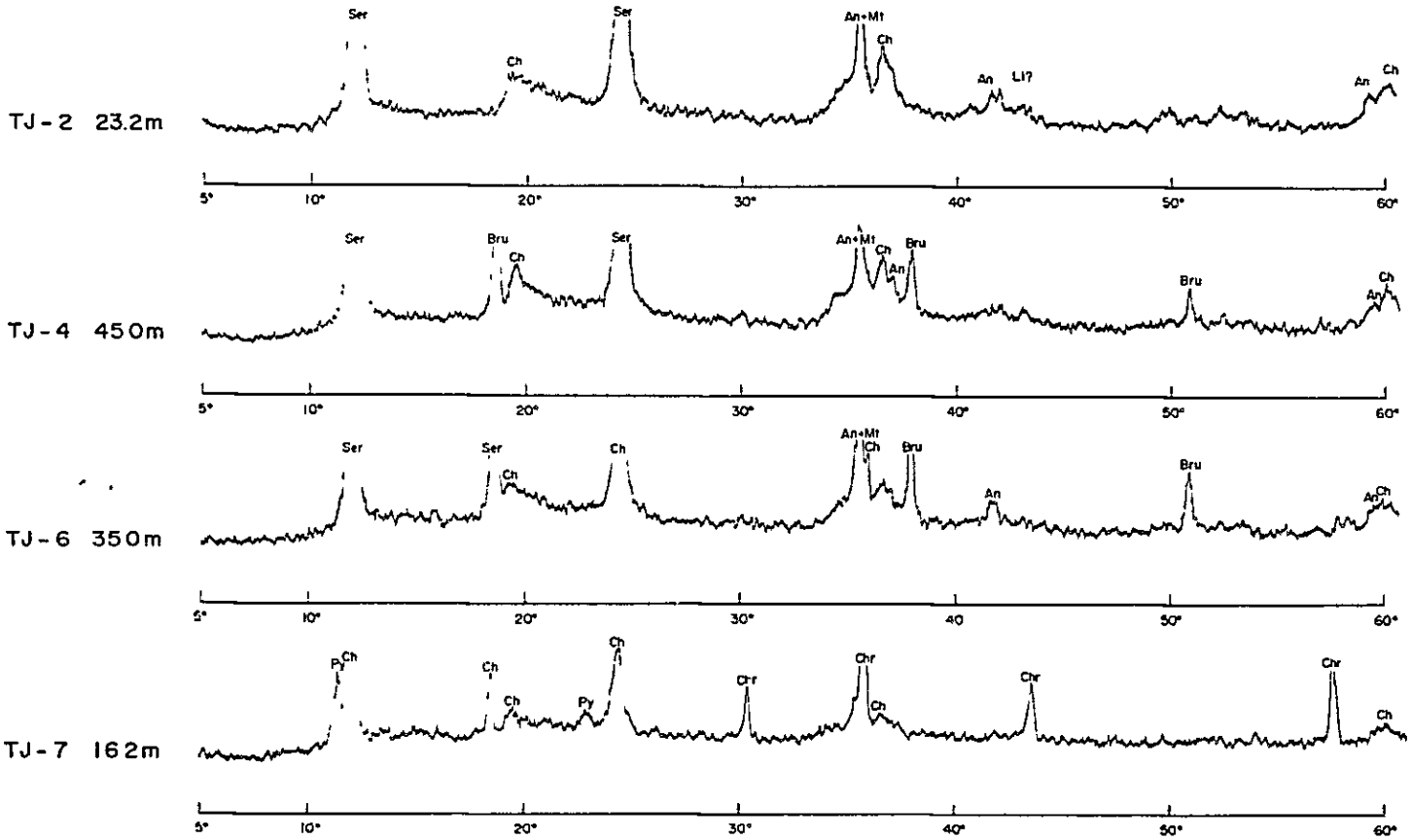


X-ray diffraction data

Target ; Cu
Filter ; Ni
Voltage ; 35kv
Current ; 10mA
Time constant ; 5sec
Scanning speed ; 2°/min
Slit ; 1°os-1°ss-0.3mm

Ser ; Serpentine group
An ; Antigorite
Li ; Lizardite
Ch ; Chrysotile
Bru ; Brucite
Py ; Pyroaurite
H-mag ; Hydromagnesite
Mt ; Magnetite

Appendix 7; Charts of X-ray diffraction test (C)



X-ray diffraction data

Target ; Cu
Filter ; Ni
Voltage ; 30kv
Current ; 15mA
Time constant ; 2sec
Scanning speed ; 2°/min
Slit ; 1°ds-1°ss-0.3mm

Ser ; Serpentine group
An ; Antigorite
Ch ; Chrysotile
Bru ; Brucite
Py ; Pyroaurite
Chr ; Chromite
Mt ; Magnetite
Li ; Lizardite

Appendix 8

Geochemical analysis of soil samples

Geological index

Formation

Düzpelit F. : Dm

Kamışlık F. : Ke

Bentepe F. : Be

Atadoğdu F. : Ae

Igneous rocks

Andesite : Aq

Dacite : Dt

Granodiorite : Gt

Appendix 8: Geochemical contents of soil samples

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TAS-301	J42-C1	Be	40	50	70	2.5
TAS-302	"	Be	60	50	50	5
TAS-303	"	Gt	80	38	60	5
TAS-304	"	Gt	100	50	50	5
TAS-305	"	Gt	50	38	70	0
TAS-306	"	Gt	80	50	60	2.5
TAS-307	"	Gt	60	38	60	10
TAS-308	"	Gt	60	50	30	7.5
TAS-309	"	Gt	80	25	60	5
TAS-310	"	Gt	60	38	100	5
TAS-311	"	Gt	50	38	50	7.5
TAS-312	"	Be	60	38	80	5
TAS-313	"	Be	40	25	50	7.5
TES-2	J42-b4	Gt	40	38	80	0
TES-3	"	Gt	30	38	60	8.5
TES-5	"	Gt	20	38	70	0
TES-7	"	Ke	50	75	130	2.5
TES-8	"	Gt	50	50	140	0
TES-10	"	Gt	40	63	130	2.5
TES-15	"	Gt	20	38	50	0
TES-23	"	Gt	10	38	50	10
TES-25	"	Ke	10	63	90	10
TES-29	"	Gt	10	163	310	10
TES-31	"	Gt	20	38	80	12.5
TES-34	"	Dmd	10	50	65	7.5
TES-39	"	Gt	30	38	90	2.5
TES-42	"	Gt	45	50	40	2.5
TES-44	"	Gt	30	50	40	2.5
TES-50	"	Gt	80	38	100	5
TES-52	"	Gt	80	38	30	5
TES-54	"	Gt	30	38	50	5
TES-59	"	Dm	30	25	30	2.5

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TES-69	J42-b4	Dm(Dt)	30	25	130	2.5
TES-70	"	Dm	20	50	80	2.5
TES-71	"	Dm	30	25	50	5
TES-74	"	Dm	30	38	70	2.5
TES-79	"	Dm	20	25	90	2.5
TES-81	"	Dm	10	175	500	5
TES-82	"	Dm	20	38	90	7.5
TES-83	"	Dm	20	38	150	7.5
TES-84	"	Dm	20	38	90	5
TES-86	"	Gt	30	25	60	7.5
TES-88	"	Gt	65	38	80	2.5
TES-89	J42-C1	Gt	30	63	110	2.5
TES-90	"	Dm	80	88	100	2.5
TES-91	"	Dm	20	75	120	2.5
TES-92	"	Dm	20	38	60	2.5
TES-93	"	Dm	10	25	60	2.5
TES-100	J42-b4	Dm	35	38	90	2.5
TES-103	J42-C1	Dm	25	38	60	2.5
TES-104	"	Gt	50	63	70	5
TES-105	"	Dm	20	50	100	5
TES-106	"	Gt	50	38	70	2.5
TES-108	"	Dm	10	43	50	2.5
TES-109	"	Dm	5	63	80	2.5
TES-110	J42-b4	Dm	25	63	120	2.5
TES-111	"	Dm	5	63	230	2.5
TES-112	"	Dm	15	56	120	2.5
TES-113	"	Dm	45	87	120	10
TES-114	"	Dm	55	75	300	2.5
TES-116	"	Dm	30	38	80	5
TES-117	"	Dm	65	537	540	2.5
TES-118	"	Dm	25	43	130	2.5
TES-119	"	Be	10	50	90	2.5
TES-120	"	Be	10	87	115	2.5
TES-121	"	Be	10	63	210	2.5
TES-122	"	Ke	15	75	65	2.5

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TES-123	J42-C1	Dm	140	218	510	2.5
TES-124	"	Be	50	375	520	5
TES-125	"	Be	20	106	170	2.5
TES-126	"	Be	60	38	32	2.5
TES-127	"	Be	50	50	250	2.5
TES-128	"	Ke	55	50	90	2.5
TES-129	"	Be	45	100	200	2.5
TES-130	"	Be	45	63	250	2.5
TES-131	"	Be	45	63	110	2.5
TES-132	"	Be	75	150	2000	5
TES-133	J42-b4	Dm	40	75	105	5
TES-134	"	Dm	40	63	75	2.5
TES-135	"	Dm	30	250	50	2.5
TES-136	"	Dm	75	175	140	10
TES-137	"	Ke	140	275	220	10
TES-138	"	Ke	35	219	240	5
TES-139	"	Ke	110	397	640	2.5
TES-140	"	Ke	50	81	120	2.5
TES-141	"	Ke	70	144	210	5
TES-142	"	Ke	120	138	200	5
TES-143	"	Ke	75	288	575	2.5
TES-144	"	Ke	6400	3875	53000	5
TES-145	"	Be	1050	650	5000	5
TES-146	"	Dm	80	94	160	2.5
TES-147	"	Dm	80	113	160	2.5
TES-148	"	Dm	40	88	180	5
TES-149	"	Dm	35	100	175	2.5
TES-150	"	Dm	50	113	160	15
TES-151	"	Dm	45	250	150	5
TES-152	"	Dm	40	113	75	5
TES-153	"	Dm	20	38	95	2.5
TES-154	"	Dm	55	38	15	2.5
TES-155	"	Dm	30	175	13	2.5
TES-156	"	Dm	75	175	14	2.5
TES-157	"	Dm	50	213	16	2.5

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TES-158	J42-b4	Dm	20	94	90	2.5
TES-159	"	Dm	20	107	60	2.5
TES-160	"	Dm	20	88	80	2.5
TES-161	"	Dm	55	113	80	2.5
TES-162	"	Dm	40	300	170	2.5
TES-163	"	Dm	25	125	120	2.5
TES-164	"	Dm	30	150	150	2.5
TES-165	"	Dm	65	413	580	5
TES-166	"	Dm	25	238	100	2.5
TES-167	"	Dm	60	225	215	2.5
TES-168	"	Dm	50	50	100	2.5
TES-169	J42-C1	Gt	60	63	160	2.5
TES-170	"	Gt	160	88	110	2.5
TES-171	"	Gt	80	69	110	2.5
TES-172	"	Gt	65	88	110	2.5
TES-173	"	Gt	105	57	70	2.5
TES-174	"	Gt	105	63	80	2.5
TES-175	"	Gt	90	75	90	2.5
TES-176	"	Gt	365	100	70	2.5
TES-177	"	Gt	70	163	140	2.5
TES-178	"	Gt	140	100	80	5
TES-179	"	Gt	70	88	80	2.5
TES-180	"	Gt	90	50	100	2.5
TES-181	"	Gt	120	88	140	2.5
TES-182	"	Gt	60	88	95	2.5
TES-183	"	Gt	170	75	75	2.5
TES-184	"	Gt	165	125	60	2.5
TES-185	"	Gt	155	125	90	5
TES-186	J42-b4	Dm	545	675	320	2.5
TES-187	"	Dm	50	113	125	5
TES-188	"	Dm(Dt)	30	88	90	2.5
TES-189	J42-C1	Dm	75	138	105	5
TES-190	J42-b4	Dm	45	165	125	5
TES-191	J42-C1	Dm	1200	350	145	20
TES-192	J42-b4	Dm	80	188	75	20

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TES-193	J42-C1	Gt	40	82	35	2.5
TES-194	J42-b4	Dm	35	88	50	5
TES-195	J42-C1	Gt	65	82	110	5
TES-196	"	Gt	75	100	140	5
TES-197	J42-b4	Dm	30	88	90	5
TES-198	J42-C1	Gt	40	63	85	2.5
TES-199	J42-b4	Dm	25	50	80	2.5
TES-200	"	Dm	25	50	120	2.5
TES-201	"	Dm	30	107	75	2.5
TES-202	"	Dm	40	113	100	2.5
TES-203	"	Dm	30	100	125	2.5
TES-204	"	Dm	20	125	150	10
TES-205	J42-C1	Dm	70	75	100	5
TES-208	J42-b4	Dm	50	400	50	5
TES-210	J42-C1	Gt	60	100	90	5
TES-211	"	Gt	90	88	175	5
TES-212	"	Gt	75	63	120	7.5
TES-213	"	Gt	75	63	190	2.5
TES-214	"	Gt	40	38	140	2.5
TES-215	"	Gt	80	63	110	7.5
TES-216	"	Gt	70	63	100	5
TES-220	"	Gt	70	75	90	10
TES-221	"	Gt	70	94	100	2.5
TES-222	"	Gt	75	88	110	2.5
TES-223	"	Gt	50	100	190	2.5
TES-224	J42-b4	Dm	30	25	150	2.5
TES-225	"	Dm	30	50	100	2.5
TES-226	"	Dm	40	25	100	2.5
TES-227	"	Dm	35	50	110	2.5
TES-228	"	Dm	30	75	150	10
TES-229	"	Dm	30	88	155	2.5
TES-230	"	Dm	40	88	115	2.5
TES-231	"	Dm	20	57	150	5
TES-232	"	Dm	40	63	130	5
TES-233	"	Dm	30	50	120	5

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TES-234	J42-b4	Dm	20	57	90	5
TES-235	"	Dm	90	3500	700	5
TES-236	"	Dm	150	63	140	5
TKS-001	J42-b4	Be	80	50	100	2.5
TKS-002	"	Be	40	13	90	5
TKS-003	"	Ke	65	25	150	5
TKS-004	"	Ke	35	63	210	5
TKS-005	"	Ke	50	88	310	20
TKS-006	"	Ke	20	38	210	2.5
TKS-007	"	Dm	40	63	160	2.5
TKS-008	"	Dm	10	25	90	0
TKS-009	"	Ke	10	25	170	25
TKS-010	"	Ke	20	25	110	5
TKS-011	"	Dm	20	13	60	2.5
TKS-012	"	Dm	30	13	80	2.5
TKS-013	"	Dm	20	13	60	2.5
TKS-014	"	Dm	20	13	70	5
TKS-015	"	Ke	10	25	40	0
TKS-016	"	Ke	25	38	80	0
TKS-017	"	Ke	35	63	60	2.5
TKS-018	"	Ke	10	38	35	0
TKS-019	"	Ke	25	38	80	2.5
TKS-020	"	Ke	35	150	130	2.5
TKS-021	"	Ke	55	25	80	0
TKS-022	"	Ke	30	25	50	5
TKS-023	"	Ke	45	50	70	10
TKS-024	"	Ke	25	38	60	2.5
TKS-025	"	Ke	15	25	60	2.5
TKS-026	"	Ke	45	50	60	2.5
TKS-027	"	Ke	60	100	250	2.5
TKS-028	"	Ke	25	25	60	2.5
TKS-029	"	Ke	35	25	60	2.5

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TKS-030	J42-b4	Ke	55	38	90	2.5
TKS-031	"	Ke	45	38	110	5
TKS-032	"	Ke	40	38	100	5
TKS-033	"	Ke	40	38	60	0
TKS-034	"	Ke	55	38	100	0
TKS-035	"	Ke	55	38	90	2.5
TKS-036	"	Ke	40	25	80	2.5
TKS-037	"	Ke	20	25	50	10
TKS-038	"	Ke	20	25	50	7.5
TKS-039	"	Ke	20	25	60	10
TKS-040	"	Ke	10	13	50	7.5
TKS-041	"	Ke	50	25	60	10
TKS-042	"	Be	60	50	120	2.5
TKS-043	"	Ke	20	25	60	2.5
TKS-044	"	Ke	35	25	80	2.5
TKS-045	"	Ke	20	25	70	2.5
TKS-046	"	Ke	50	50	90	5
TKS-047	"	Ke	60	100	150	7.5
TKS-048	"	Ke	50	163	220	7.5
TKS-049	"	Ke	50	38	100	10
TKS-050	"	Ke	130	100	970	25
TKS-051	"	Dm	20	38	140	2.5
TKS-052	"	Dm	10	25	80	2.5
TKS-053	"	Dm	20	38	130	2.5
TKS-054	"	Dm	10	38	80	5
TKS-055	"	Ke	10	13	50	7.5
TKS-056	"	Dm	20	25	20	7.5
TKS-057	"	Dm	15	25	80	10
TKS-058	"	Dm	20	25	60	5
TKS-059	"	Dm	20	38	60	5
TKS-060	"	Ke	10	38	90	2.5
TKS-061	"	Ke	15	38	90	2.5
TKS-062	"	Ke	10	25	80	8
TKS-063	"	Ke	10	25	70	7.5
TKS-064	"	Ke	10	13	70	10

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TKS-065	J42-b4	Ke	15	13	70	10
TKS-066	"	Ke	20	13	80	5
TKS-067	"	Dm	30	13	80	2.5
TKS-068	"	Dm	15	13	60	10
TKS-069	"	Dm	10	25	40	2.5
TKS-070	"	Dm	20	13	30	5
TKS-071	"	Dm	10	25	50	5
TKS-072	"	Dm	20	13	20	10
TKS-073	"	Dm	40	25	90	10
TKS-074	"	Gt	30	38	50	5
TKS-075	"	Dm	50	38	60	10
TKS-076	"	Dm	20	25	50	10
TKS-077	"	Dm	40	25	70	7.5
TKS-078	"	Dm	40	13	70	5
TKS-079	"	Dm	35	13	70	5
TKS-080	"	Dm	40	25	110	5
TKS-081	"	Dm	25	13	110	5
TKS-082	"	Dm	30	25	80	5
TKS-083	"	Dm	50	13	100	5
TKS-084	J42-C2	Dm	30	13	60	5
TKS-085	"	Be	40	13	60	2.5
TKS-086	"	Be	15	13	70	7.5
TKS-087	"	Dm	15	25	90	5
TKS-088	"	Be	25	25	70	10
TKS-089	J42-C1	Dm	10	13	70	10
TKS-090	"	Be	30	25	90	7.5
TKS-091	"	Be	35	50	85	5
TKS-092	"	Dm	50	50	100	5
TKS-093	"	Be	30	38	70	2.5
TKS-094	"	Be	55	50	85	7.5
TKS-095	J42-C2	Be	25	25	25	7.5
TKS-096	"	Be	255	25	65	7.5
TKS-097	"	Dm	35	50	100	7.5
TKS-098	J42-C1	Dm	20	38	150	7.5
TKS-099	"	Be	20	75	230	7.5

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TKS-100	J42-C1	Be	10	38	30	2.5
TKS-101	"	Dm	40	50	100	0
TKS-102	"	Dm	20	31	40	15
TKS-103	"	Dm	20	13	50	0
TKS-104	"	Dm	20	63	40	2.5
TKS-105	"	Dm	20	63	40	2.5
TKS-106	"	Be	10	50	50	2.5
TKS-107	"	Be	20	43	70	5
TKS-108	"	Dm	5	38	90	0
TKS-109	"	Dm	10	13	20	5
TKS-110	"	Dm	10	25	60	2.5
TKS-111	"	Dm	15	38	50	5
TKS-112	"	Dm	25	2125	220	2.5
TKS-113	"	Dm	10	125	90	2.5
TKS-114	"	Dm	20	63	10	0
TKS-115	"	Dm	10	100	40	0
TKS-116	"	Dm	10	75	50	0
TKS-117	"	Dm	15	63	40	2.5
TKS-118	"	Dm	5	31	110	2.5
TKS-119	"	Dm	10	56	20	2.5
TKS-120	"	Be	20	50	40	2.5
TKS-121	"	Dm	30	38	50	2.5
TKS-122	"	Gt	40	68	30	2.5
TKS-123	"	Gt	80	56	20	2.5
TKS-124	"	Gt	80	56	30	2.5
TKS-125	"	Gt	160	31	20	5
TKS-126	J42-b4	Gt	65	56	30	5
TKS-127	J42-C1	Gt	90	38	30	5
TKS-128	"	Gt	90	31	20	5
TKS-129	"	Gt	80	38	30	0
TKS-131	J42-b4	Gt	50	87	40	2.5
TKS-132	J42-C1	Gt	70	63	40	2.5
TKS-133	J42-b4	Gt	65	63	30	2.5
TKS-134	J42-C1	Gt	90	112	70	2.5
TKS-135	"	Gt	50	75	50	2.5

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TKS-136	J42-C1	Gt	85	100	40	5
TKS-137	"	Gt	80	81	30	7.5
TKS-138	"	Gt	75	81	30	5
TKS-139	"	Gt	70	87	30	5
TKS-140	"	Gt	60	63	20	2.5
TKS-141	"	Gt	50	150	30	2.5
TSS-361	J42-b4	Be	60	63	110	5
TSS-362	"	Be	280	25	50	2.5
TSS-363	"	Be	10	63	20	2.5
TSS-364	"	Be	25	75	30	0
TSS-365	"	Ke	30	150	50	2.5
TSS-366	"	Ke	30	75	40	2.5
TSS-367	"	Ke	140	4375	150	5
TSS-369	"	Be	70	93	170	5
TSS-370	"	Be	190	75	100	2.5
TSS-371	"	Ae	40	50	60	0
TSS-372	"	Ae	50	63	110	5
TSS-374	"	Be	15	63	50	5
TSS-375	"	Be	10	50	50	2.5
TSS-376	"	Be	5	38	40	0
TSS-377	"	Dm	10	43	50	5
TSS-378	"	Dm	10	31	40	2.5
TSS-279	"	Dm	10	43	50	2.5
TSS-380	"	Be	40	175	250	2.5
TSS-382	"	Be	70	113	350	5
TSS-384	"	Be	10	38	200	5
TSS-385	"	Be	70	50	200	2.5
TSS-387	"	Dm	30	38	30	2.5
TSS-388	"	Dm	180	31	50	2.5
TSS-389	"	Gt	50	43	40	2.5
TSS-391	"	Gt	120	31	100	5
TSS-392	"	Gt	5	38	40	0

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TSS-393	J42-b4	Dm	55	63	60	0
TSS-394	"	Dm	15	56	80	0
TSS-395	"	Dm	20	175	90	0
TSS-396	"	Dm	10	100	60	2.5
TSS-397	"	Dm	20	725	200	2.5
TSS-399	"	Dm	0	75	90	0
TSS-400	"	Dm	5	63	70	5
TSS-401	"	Gt	15	75	90	7.5
TSS-402	"	Gt	15	63	80	7.5
TSS-403	"	Gt	40	75	50	5
TSS-404	"	Gt	5	88	40	2.5
TSS-407	"	Dm	5	81	60	2.5
TSS-408	"	Dm	20	56	110	7.5
TSS-409	"	Dm	10	38	80	2.5
TSS-410	"	Dm	10	56	50	0
TSS-411	"	Dm	10	68	80	5
TSS-412	"	Dm	10	87.5	100	2.5
TSS-413	"	Dm	5	75	150	2.5
TSS-414	"	Dm	5	88	70	0
TSS-415	"	Dm	5	81	70	2.5
TSS-416	"	Dm	20	81	70	5
TSS-417	"	Dm	15	31	130	2.5
TSS-418	"	Dm	10	25	50	2.5
TSS-419	"	Dm	20	25	160	2.5
TSS-420	"	Dm	10	38	200	2.5
TSS-421	"	Dm	10	18	90	2.5
TSS-422	"	Dm	15	31	100	2.5
TSS-423	"	Dm	60	162	270	5
TSS-424	"	Dm	15	38	100	2.5
TSS-425	"	Dm	10	38	60	2.5
TSS-429	"	Gt	15	43	40	2.5
TSS-430	"	Gt	20	50	130	2.5
TSS-431	"	Gt	10	31	30	2.5
TSS-432	"	Gt	20	50	130	5
TSS-433	"	Gt	90	50	110	5

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TSS-434	J42-b4	Gt	20	63	40	5
TSS-435	"	Gt	60	50	80	5
TSS-436	"	Gt	20	56	50	2.5
TSS-437	"	Gt	10	31	40	2.5
TSS-438	"	Be	50	50	40	2.5
TSS-439	J42-C1	Gt	30	31	40	2.5
TSS-440	"	Gt	55	13	30	2.5
TSS-441	"	Gt	30	13	30	2.5
TSS-442	"	Gt	55	31	60	2.5
TSS-444	"	Gt	65	50	60	7.5
TSS-445	"	Gt	5	31	40	2.5
TSS-446	"	Gt	40	50	70	2.5
TSS-447	"	Gt	45	63	30	5
TSS-448	"	Dm	5	31	60	2.5
TSS-449	"	Dm	5	50	300	2.5
TSS-450	J42-b4	Dm	10	50	180	2.5
TSS-451	J42-C1	Dm	110	75	260	2.5
TSS-453	J42-b4	Dm	15	125	430	0
TSS-454	"	Dm	20	18	350	0
TSS-455	"	Dm	20	100	310	2.5
TSS-456	J42-C1	Dm	5	38	220	5
TSS-458	J42-b4	Dm	8	525	750	5
TSS-459	"	Dm	30	75	100	5
TSS-461	"	Dm	25	262	110	2.5
TSS-463	"	Dm	15	150	20	2.5
TSS-464	"	Dm	5	63	60	0
TSS-465	"	Dm	30	70	70	2.5
TSS-466	"	Dm	25	63	110	2.5
TSS-467	"	Dm	20	50	70	2.5
TSS-468	"	Dm	10	44	40	2.5
TSS-469	J42-C1	Dm	55	68	20	5
TSS-470	"	Dm	10	75	10	2.5
TSS-471	"	Dm	5	31	40	2.5
TSS-473	"	Be	25	56	80	2.5
TSS-474	"	Be	15	475	220	2.5

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TSS-475	J42-C1	Be	65	38	60	5
TSS-476	"	Gt	90	100	50	5
TSS-477	"	Gt	40	81	90	2.5
TSS-478	"	Dm	10	63	30	10
TSS-479	"	Be	140	31	60	2.5
TSS-480	"	Dm	15	50	10	5
TSS-481	"	Dm	15	13	20	5
TSS-486	"	Dm	10	25	50	2.5
TSS-493	J42-b4	Dm	15	75	160	10
TSS-494	"	Dm	5	75	120	5
TSS-495	"	Dm	15	75	70	10
TSS-496	"	Dm	50	75	80	5
TSS-497	"	Dm	40	63	70	10
TSS-498	"	Dm	15	63	85	10
TSS-499	"	Dm	30	94	115	5
TSS-500	"	Dm	130	63	300	5
TSS-501	"	Dm	25	13	120	2.5
TSS-503	"	Dm	15	25	125	2.5
TSS-504	"	Dm	45	50	125	2.5
TSS-505	"	Dm	10	38	100	2.5
TSS-506	"	Dm	20	75	90	5
TSS-507	"	Dm	4	44	75	2.5
TSS-508	"	Dm	30	63	100	10
TSS-509	"	Dm	30	57	90	5
TSS-510	"	Dm	35	75	60	10
TSS-514	J42-C1	Gt	80	88	180	10
TSS-515	"	Gt	85	63	90	5
TSS-516	"	Gt	60	63	75	2.5
TSS-517	"	Gt	70	38	80	2.5
TSS-518	"	Gt	140	75	90	2.5
TSS-519	"	Gt	180	50	110	2.5
TSS-520	"	Gt	65	50	120	5
TSS-521	"	Gt	60	57	100	5
TSS-522	"	Gt	65	63	70	2.5
TSS-523	"	Gt	45	57	45	5

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TSS-524	J42-C1	Gt	90	50	55	5
TSS-525	"	Gt	10	69	65	5
TSS-526	"	Gt	70	63	70	5
TSS-527	"	Gt	50	50	80	2.5
TSS-528	"	Gt	10	50	80	2.5
TSS-529	J42-b4	Dm	15	50	65	2.5
TSS-530	"	Dm	15	63	100	2.5
TSS-531	"	Dm(Dt)	15	50	80	2.5
TSS-532	"	Dm	20	82	100	2.5
TSS-533	"	Dm	15	113	145	2.5
TSS-534	"	Dm	5	50	95	7.5
TSS-536	"	Dm(Dt)	20	44	100	5
TSS-537	"	Dm(Dt)	20	50	90	5
TSS-538	"	Dm(Dt)	45	63	125	10
TSS-539	"	Dm	50	75	100	10
TSS-540	"	Dm	10	50	75	7.5
TSS-541	"	Dm	35	38	135	5
TSS-542	"	Dm	20	69	130	5
TSS-543	"	Dm	20	63	75	2.5
TSS-544	"	Dm	20	75	65	5
TSS-545	"	Dm	5	75	60	5
TSS-553	"	Dm	35	63	65	5
TSS-554	" "	Dm	30	63	115	5
TSS-555	"	Dm	5	63	60	5
TSS-557	J42-C1	Dm	25	63	40	5
TSS-558	"	Dm	20	63	45	10
TSS-559	"	Dm	40	88	45	5
TSS-560	"	Dm	30	82	55	10
TSS-561	"	Dm	30	57	75	10
TSS-562	"	Dm	70	75	85	7.5
TSS-563	"	Dm	30	75	45	5
TSS-564	"	Dm	25	50	20	5
TSS-565	"	Dm	40	75	60	5
TSS-566	"	Dm	30	107	55	5
TSS-567	"	Dm	30	125	60	7.5

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TSS-568	J42-b4	Dm	30	94	60	7.5
TSS-569	"	Dm	25	63	65	7.5
TSS-570	"	Dm	20	75	90	7.5
TSS-571	"	Dm	40	50	100	7.5
TSS-572	"	Dm	40	75	85	7.5
TSS-573	"	Dm(Dt)	15	50	50	7.5
TSS-574	J42-C1	Dm	30	119	145	10
TSS-575	"	Dm	35	94	13	12.5
TSS-576	"	Dm	30	75	100	10
TSS-579	"	Dm(Dt)	15	19	50	7.5
TSS-580	"	Dm	50	31	150	5
TSS-581	"	Dm	35	31	60	5
TSS-582	"	Dm	45	25	140	5
TSS-585	J42/b4	Dm	35	44	85	5
TSS-586	"	Dm	70	275	140	5
TSS-587	"	Dm	70	325	210	2.5
TSS-589	J42-C1	Gt(GO)	520	4500	430	25
TYS-249	J42-b4	Ke	70	50	90	2.5
TYS-250	"	Ke	170	38	40	5
TYS-251	"	Ke	55	25	50	0
TYS-252	"	Ke	10	13	40	2.5
TYS-254	"	Ke	310	25	50	2.5
TYS-255	"	Ke	110	25	20	37.5
TYS-257	"	Gt	50	25	60	2.5
TYS-259	"	Ke	200	400	690	7.5
TYS-261	"	Dm(Dt)	90	563	400	2.5
TYS-262	"	Dm(Dt)	40	75	80	2.5
TYS-265	"	Gt	80	50	30	10
TYS-266	"	Dm	50	75	70	7.5
TYS-267	"	Dm	40	50	30	15
TYS-268	"	Dm	10	38	30	2.5
TYS-269	J42-C1	Be	10	38	40	2.5

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TYS-270	J42-C1	Be	20	75	70	5
TYS-271	"	Gt	110	50	90	5
TYS-272	"	Gt	60	32	100	5
TYS-275	"	Dm	10	13	60	5
TYS-276	"	Dm	10	13	60	5
TYS-277	J42-C2	Dm	50	25	80	5
TYS-278	J42-C1	Dm	50	38	60	5
TYS-279	"	Dm	20	25	60	5
TYS-280	"	Dm	10	38	40	0
TYS-283	"	Dm	30	50	60	5
TYS-285	"	Be	20	125	80	7.5
TYS-287	"	Be	80	93	250	2.5
TYS-289	"	Ke	30	31	260	0
TYS-290	"	Dm	15	38	140	0
TYS-292	"	Dm	15	38	130	2.5
TYS-293	"	Dm	40	25	170	0
TYS-294	"	Dm	5	13	90	2.5
TYS-295	"	Dm	35	25	90	2.5
TYS-297	"	Ke	30	31	220	2.5
TYS-298	"	Dm	50	38	310	2.5
TYS-299	"	Dm	20	31	140	2.5
TYS-300	"	Dm	20	25	170	2.5
TYS-301	"	Dm	10	31	90	0
TYS-302	"	Dm	20	38	80	0
TYS-303	"	Dm	20	187	540	2.5
TYS-304	J42-b4	Dm	15	50	90	7.5
TYS-305	"	Dm	10	38	120	7.5
TYS-306	J42-C1	Ke	40	50	110	7.5
TYS-307	"	Ke	30	50	200	2.5
TYS-308	"	Ke	60	63	170	2.5
TYS-309	J42-b4	Ke	50	50	180	2.5
TYS-310	"	Dm	10	38	130	2.5
TYS-311	"	Ke	60	68	110	0
TYS-312	"	Dm	20	50	140	2.5
TYS-313	"	Dm	5	50	50	2.5

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TYS-314	J42-b4	Ke	65	63	130	5
TYS-315	"	Be	40	50	80	5
TYS-316	"	Be	25	63	90	2.5
TYS-318	"	Dm	30	44	95	5
TYS-319	"	Dm	75	163	360	2.5
TYS-320	"	Dm	30	63	120	2.5
TYS-321	"	Dm	35	57	145	5
TYS-323	"	Dm	35	50	95	5
TYS-324	"	Dm	35	38	95	5
TYS-325	"	Dm	45	38	100	5
TYS-326	"	Dm	25	38	120	5
TYS-328	"	Dm	50	38	65	5
TYS-329	"	Dm	35	25	95	2.5
TYS-330	"	Dm	50	44	125	5
TYS-331	"	Dm	20	118	135	2.5
TYS-332	"	Dm	5	31	90	2.5
TYS-333	"	Dm	5	38	150	2.5
TYS-334	"	Dm	10	25	60	5
TYS-335	"	Dm	5	38	110	5
TYS-336	"	Dm	40	63	140	5
TYS-337	"	Dm	45	63	125	7.5
TYS-338	"	Dm	75	38	90	5
TYS-339	"	Dm	75	69	100	7.5
TYS-340	"	Dm	55	1750	110	5
TYS-341	"	Dm	10.5	50	130	5
TYS-342	"	Dm	5	25	125	7.5
TYS-343	"	Dm	15	38	120	2.5
TYS-344	J42-C1	Gt	60	75	140	5
TYS-345	"	Gt	60	75	100	2.5
TYS-346	"	Gt	70	63	145	2.5
TYS-347	"	Gt	85	512	365	10
TYS-349	"	Gt	60	69	75	7.5
TYS-350	"	Gt	65	63	95	7.5
TYS-351	"	Gt	80	125	250	5
TYS-352	"	Gt	35	63	95	5

Sample No.	Locality	Geological Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)
TYS-353	J42-C1	Gt	65	100	100	5
TYS-354	"	Gt	85	107	75	7.5
TYS-355	"	Gt	80	175	160	5
TYS-356	"	Gt	35	88	110	5
TYS-357	"	Gt	200	125	100	2.5
TYS-358	"	Gt	120	82	85	2.5
TYS-359	"	Gt	75	56	45	5
TYS-360	"	Gt	70	56	60	2.5
TYS-361	"	Gt	90	112	120	5
TYS-363	"	Gt	320	225	80	5
TYS-365	J42-b4	Dm(Dt)	40	88	85	5
TYS-366	"	Dm	5	69	45	5
TYS-367	"	Dm	3	81	75	2.5
TYS-368	"	Dm	10	13	85	5
TYS-369	"	Dm(Dt)	5	25	85	5
TYS-370	"	Dm(Dt)	50	38	140	10
TYS-371	"	Dm(Dt)	5	25	100	7.5
TYS-375	"	Dm	35	38	100	7.5
TYS-376	"	Dm	10	38	85	7.5
TYS-377	"	Dm	20	38	95	2.5
TYS-378	"	Dm(Dt)	40	38	85	5
TYS-380	"	Dm	30	50	120	2.5
TYS-381	"	Dm	45	38	75	5
TYS-382	"	Dm(Dt)	30	50	85	5
TYS-383	"	Dm(Dt)	50	75	85	5
TYS-388	J42-C1	Dm	20	119	85	2.5
TYS-389	"	Dm	25	57	85	5
TYS-390	"	Dm	5	50	60	2.5
TYS-391	"	Dm	30	75	75	2.5
TYS-392	J42-b4	Dm	15	57	125	2.5
TYS-393	"	Dm	40	88	160	5
TYS-394	"	Dm	60	50	180	2.5
TYS-395	"	Dm	30	63	100	2.5
TYS-396	"	Dm	20	50	115	2.5
TYS-397	J42-C1	Dm	30	150	120	2.5