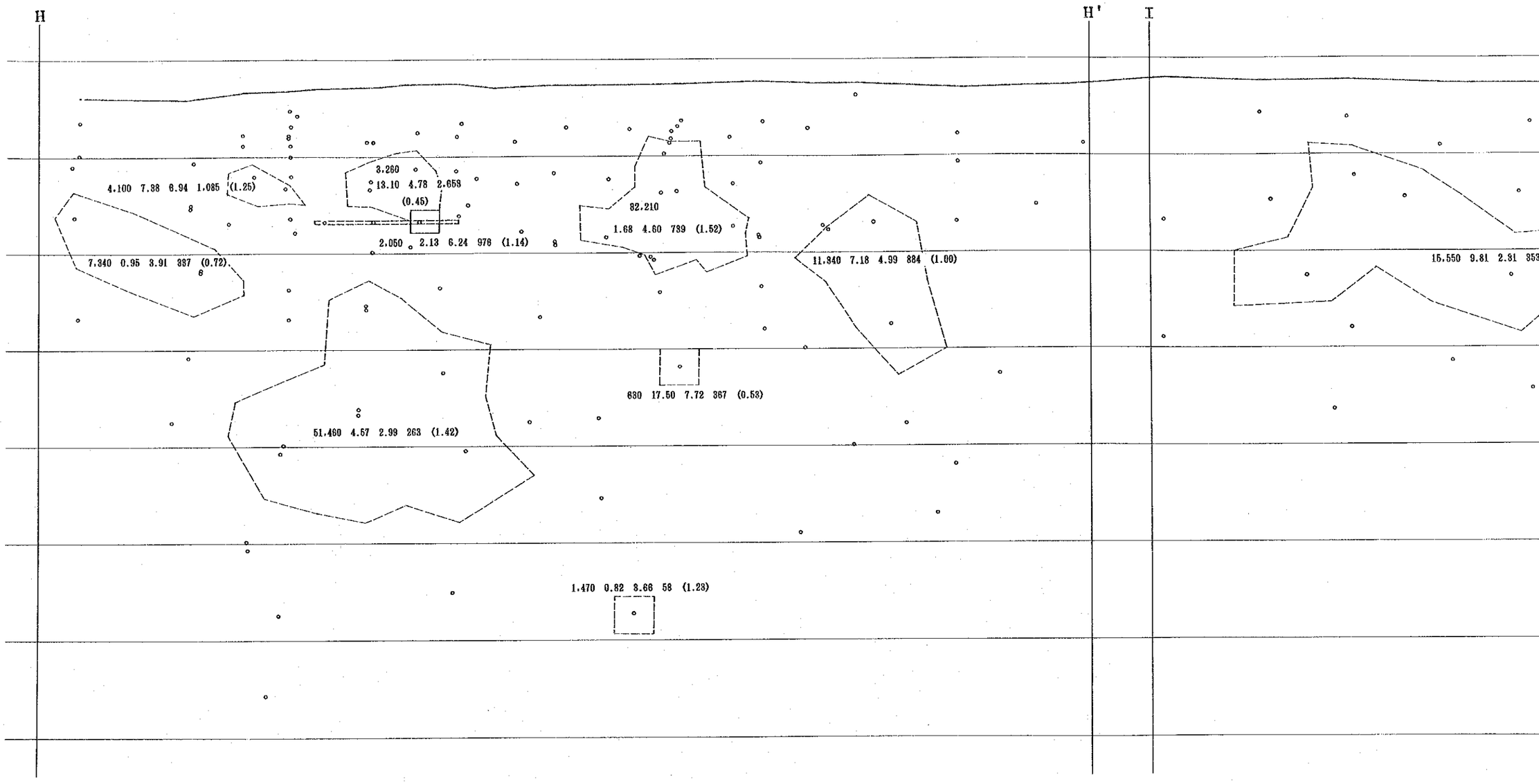
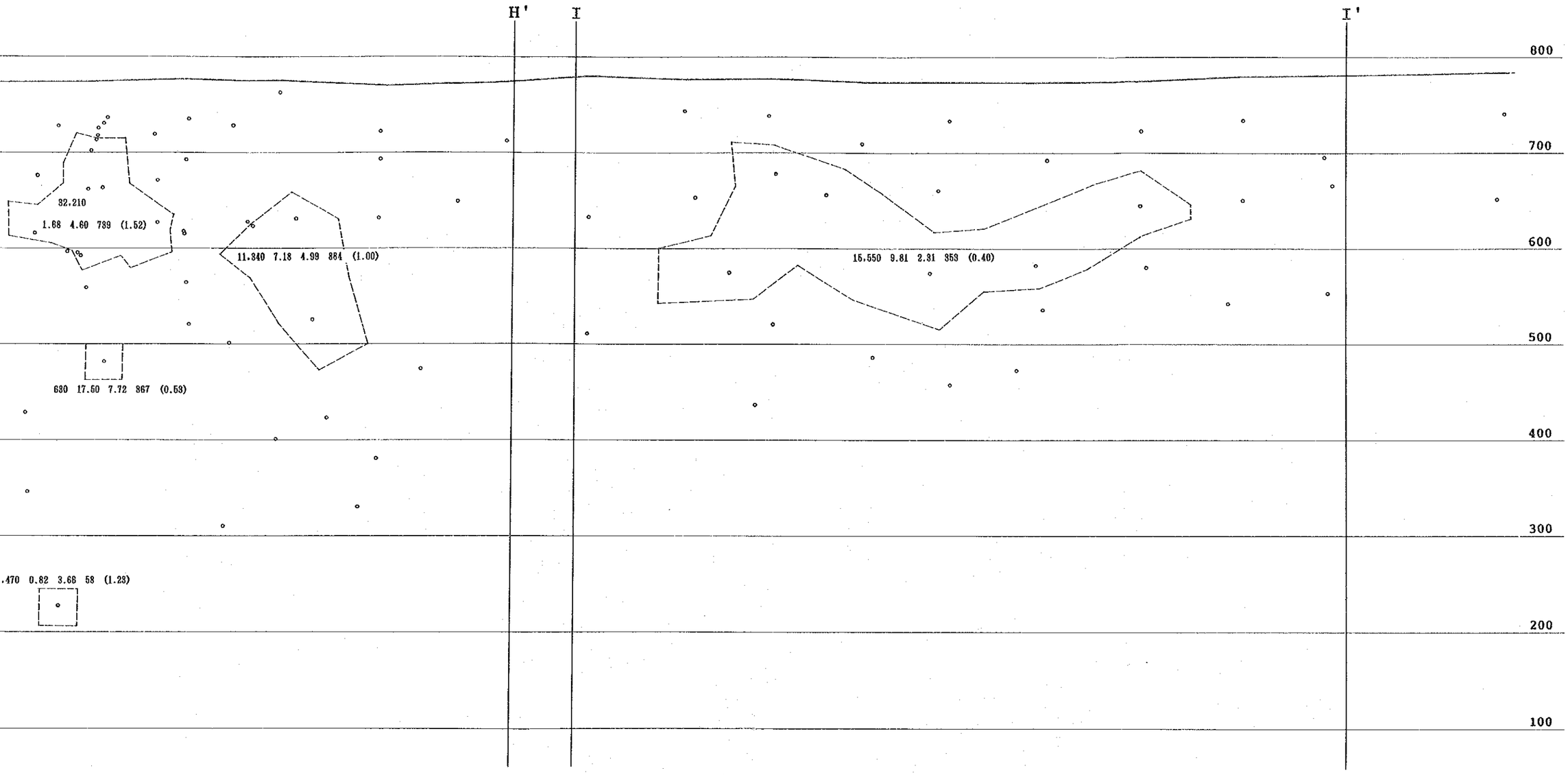


Probable Reserve

Possible Reserve

Quantity	Pb %	Zn %	Ag g/t	(width, m)
2,680	2.63	3.18	904	(0.60)

A - 4 - 10 Ore Blocks of the No.8 Vein



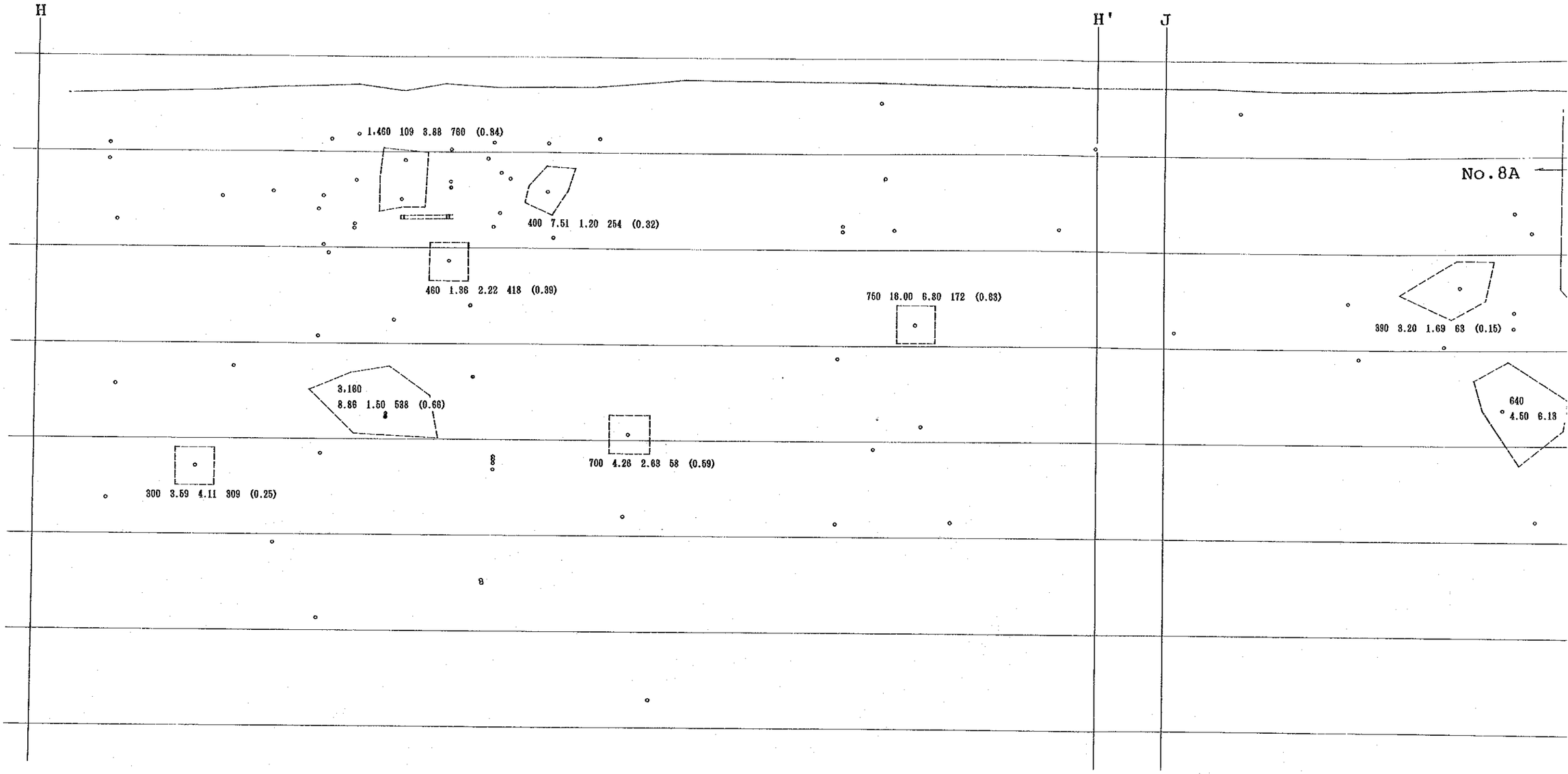
Probable Reserve

Possible Reserve

Quantity	Pb %	Zn %	Ag g/t	(width, m)
2,680	2.63	3.18	904	(0.60)

0 100 200

A - 4 - 10 Ore Blocks of the No.8 Vein

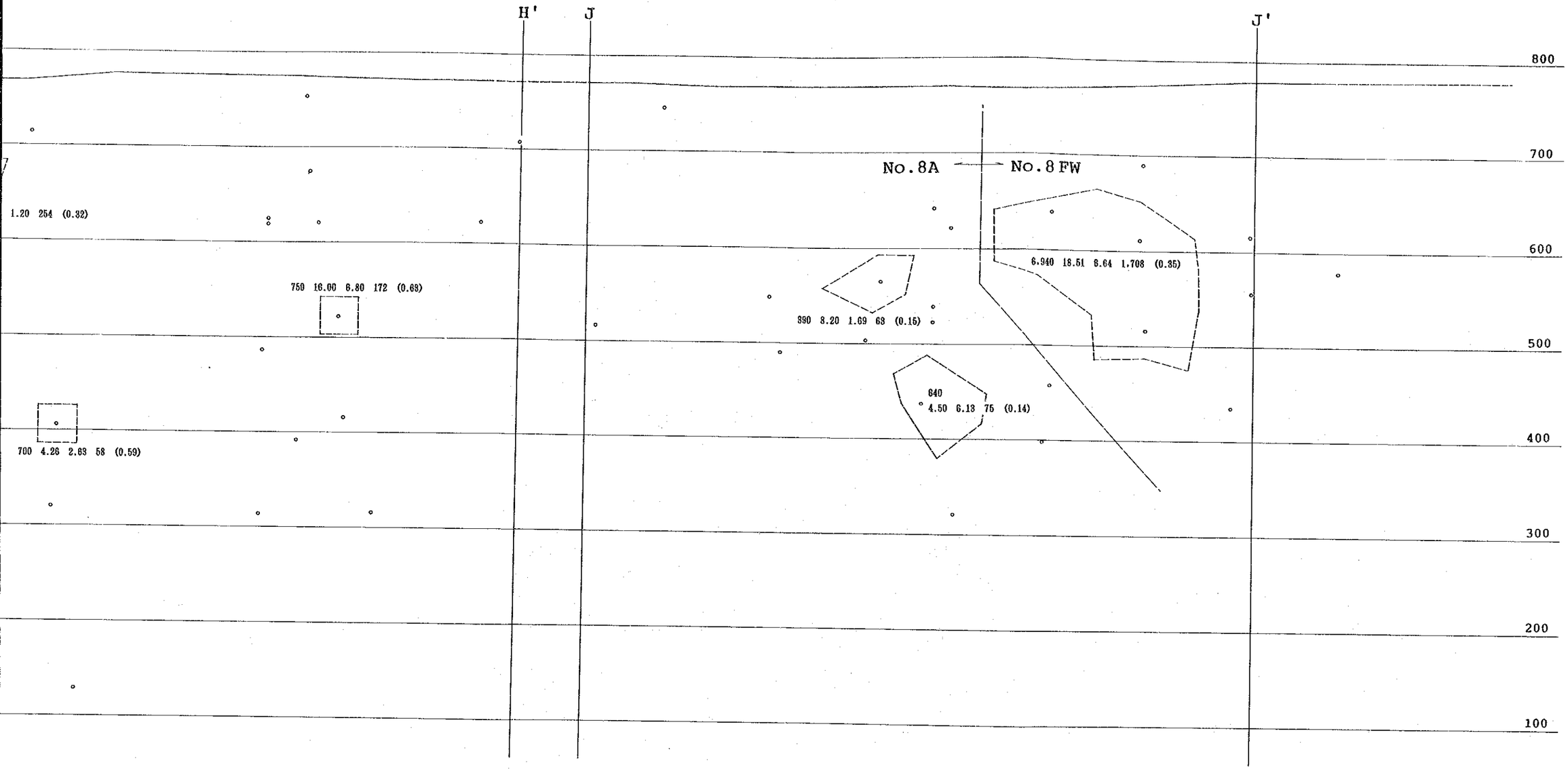


Probable Reserve

Possible Reserve

Quantity	Pb %	Zn %	Ag g/t	(width, m)
2,680	2.63	3.18	904	(0.60)

A - 4 - 11 Ore Blocks of the No.8A and 8FW Vein



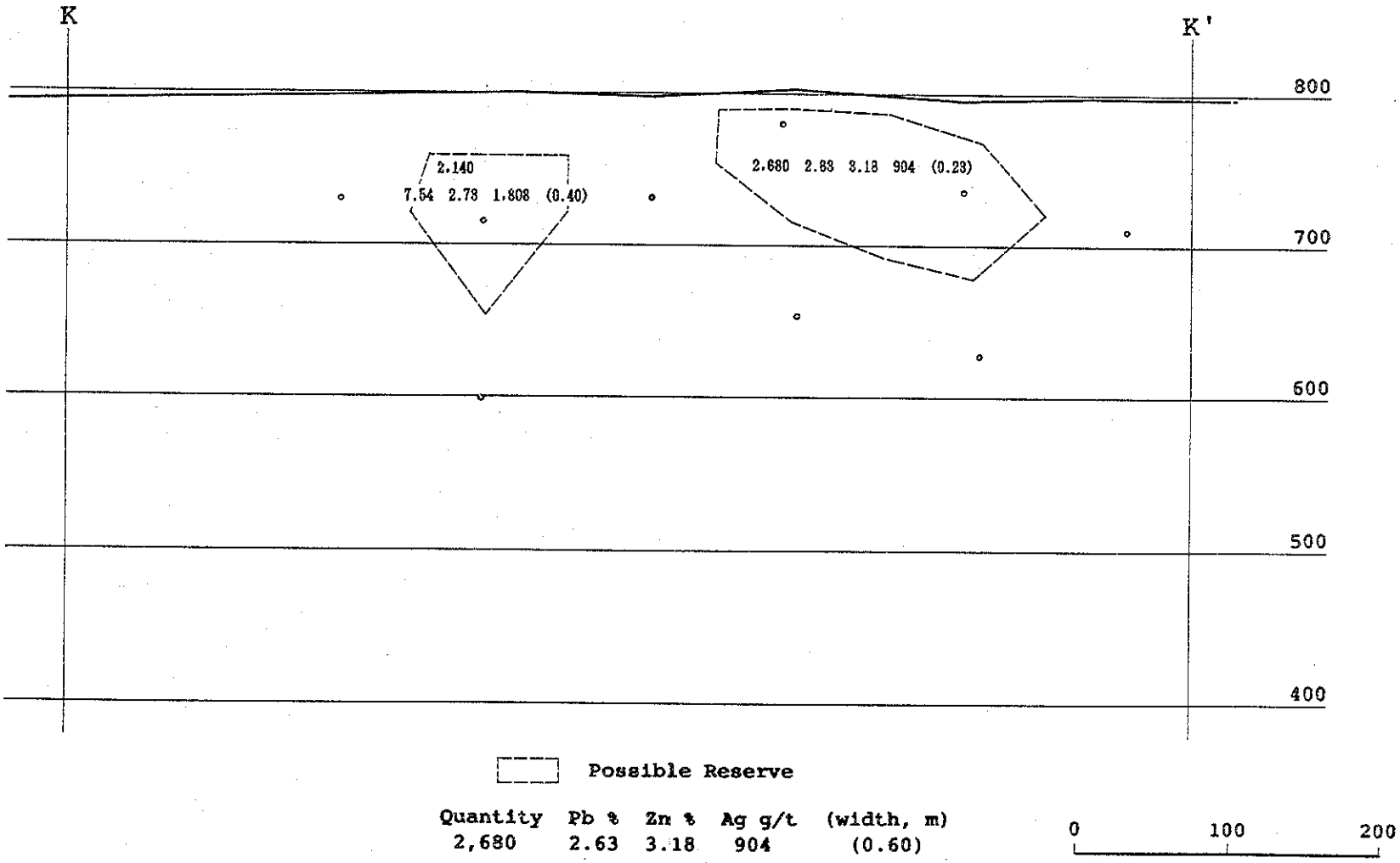
Probable Reserve

Possible Reserve

Quantity	Pb %	Zn %	Ag g/t	(width, m)
2,680	2.63	3.18	904	(0.60)

0 100 200

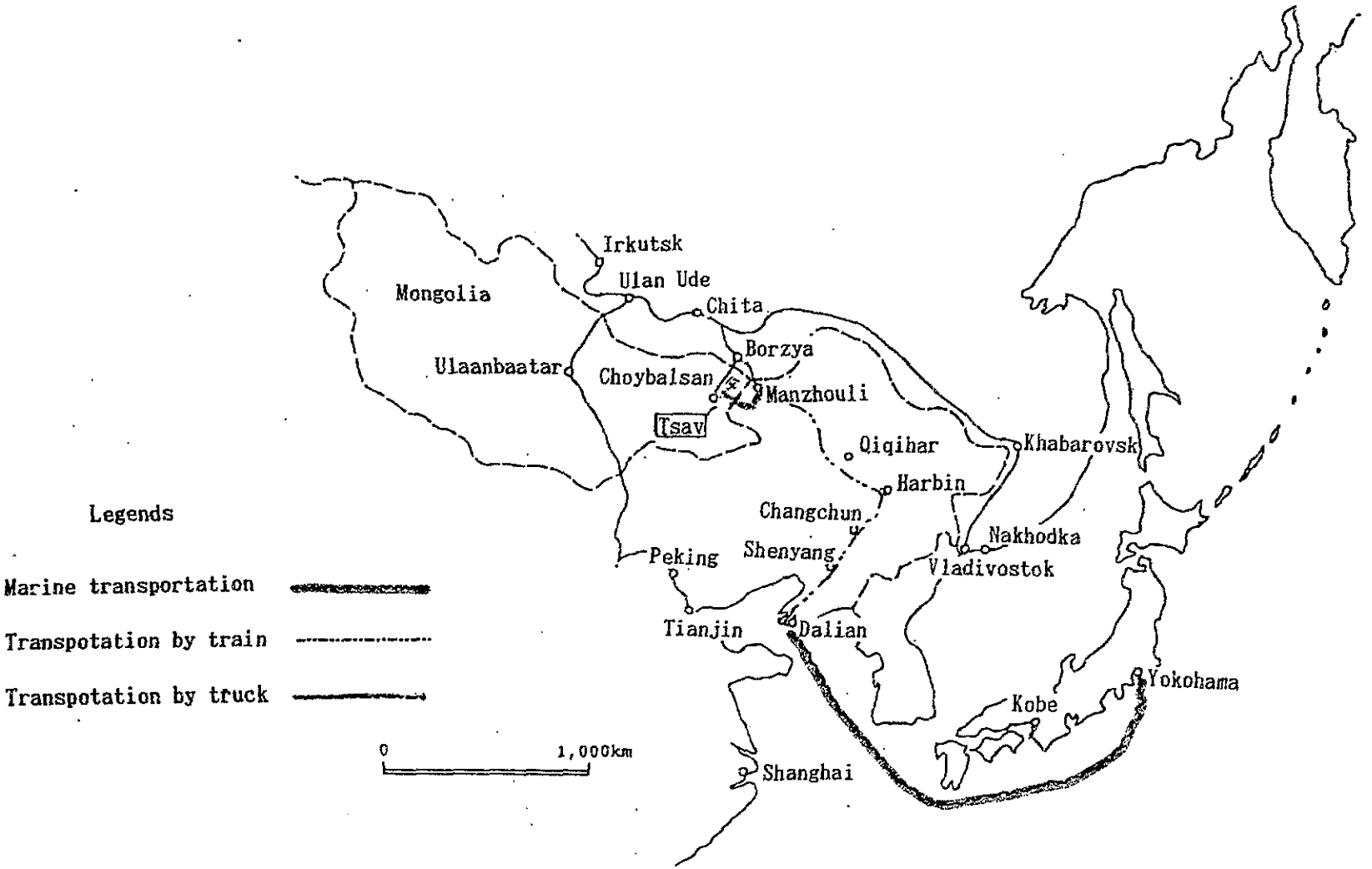
A - 4 - 11 Ore Blocks of the No.8A and 8FW Vein



A - 4 - 12 Ore Blocks of the No.10 Vein

B - 1 Table of Equipment and Materials

Items	Specifications	Units	Quantity
1. Distribution power plant			
Cables:	3kV CE 60mm^2 -3C	m	180
	3kV CE-MAXV 38mm^2-3C	m	600
High-tension cable terminal treatment	3kV outdoor 60mm^2-3C	No. of them	6
	3kV indoor 38mm^2-3C	"	8
2. Distribution panel equipment			
Transmission panel:	Indoor self-supporting type (Metal enclosed type)	No. of panels	1
High-tension switch panel A:	Indoor self-supporting type (Metal enclosed type)	"	1
High-tension switch panel B:	Indoor self-supporting type (Metal enclosed type)	"	1
Deep well pump control panel:	Indoor wall type (Metal enclosed type)	"	1
3. Generator equipment			
Generator panel:	Indoor self-supporting type (Metal enclosed type)	"	1
Spare generator panel:	Indoor self-supportint type (Metal enclosed type)	"	1
4. Temporary construction materials			
(1) Insulating materials:	t = 50mm	m^2	149
	t = 50mm, ø = 50mm	m	460
	t = 50mm, ø = 100mm	m	134
(2) For loadging			
Unit bathes:	Showers, valves used for both hot and cold water, lighting, Materials FRP	No. of bathes	3
Toilet units:	Flushing, Japanese style, no special type for men's use	No. of units	3
Boilers for hot water supply	100V, 50Hz	No. of boilers	3
Wash stands:	Valves used for both hot and cold water, mirror stands, lighting	No. of stands	6
Sewage purifier:	Purifier for 21 people	No. of purifiers	1
Valves:	2'bronze valve (5k screw type) used for various places	No. of valves	20
40m/m Zn-plated steel pipes	Zn-plated steel pipes	No. of pipes	25



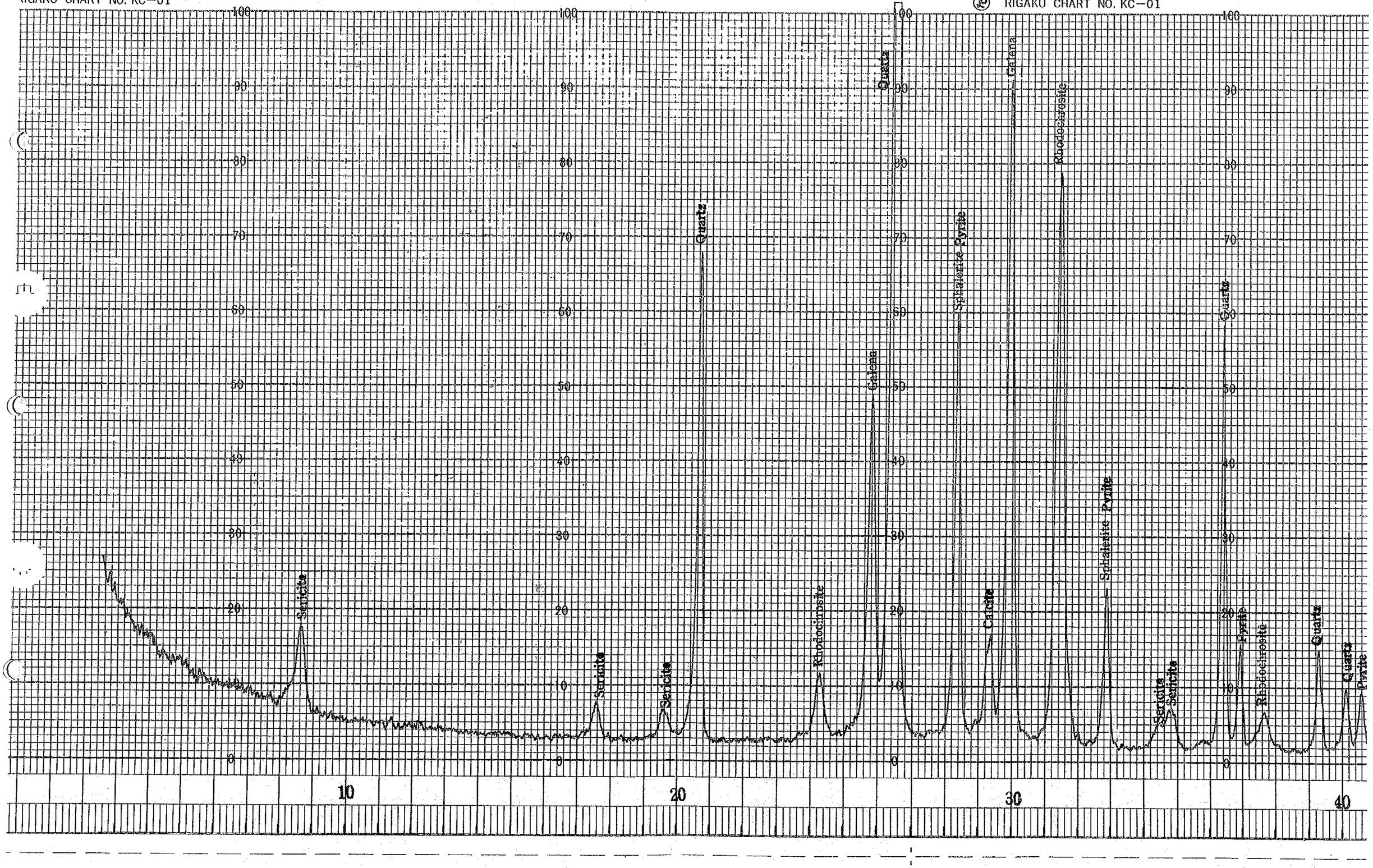
B - 2 Route for Transporting Equipment and Materials

X-ray Diffraction Charts

Sample: Ball mill feed(-28mesh)

RIGAKU CHART NO. KC—01

RIGAKU CHART NO. KC—01



RIGAKU CHART NO. KC−01

Rotaflex

X-Ray Diffractometer

受付番号	
依頼先	
試料名	Full mill 5sec. (−28mesh)
Target	Cu
Filter	
Voltage	40 KV
Current	150 mA
Full Scale Range	4000 CPS
Time Constant	0.5 Sec
Scanning Speed	4 °/min
Chart Speed	4 cm/min
Divergency	1 °
Receiving Slit	0.15 mm
Detector	SC
Date	

G. Monochro

Rhodochrosite Quartz Sphalerite Pyrite Galena Sericite Quartz Pyrite Rhodochrosite Quartz Galena Rhodochrosite Quartz Galena Quartz Sphalerite Pyrite Quartz Rhodochrosite Sericite Galena Quartz Quartz Galena

0 10 20 30 40 50 60 70 80 90 100

Microphotographs of Polished Sections

Samples : Crude ore

Pb Concentrate(No. 9)

Zn Concentrate(No. 9)

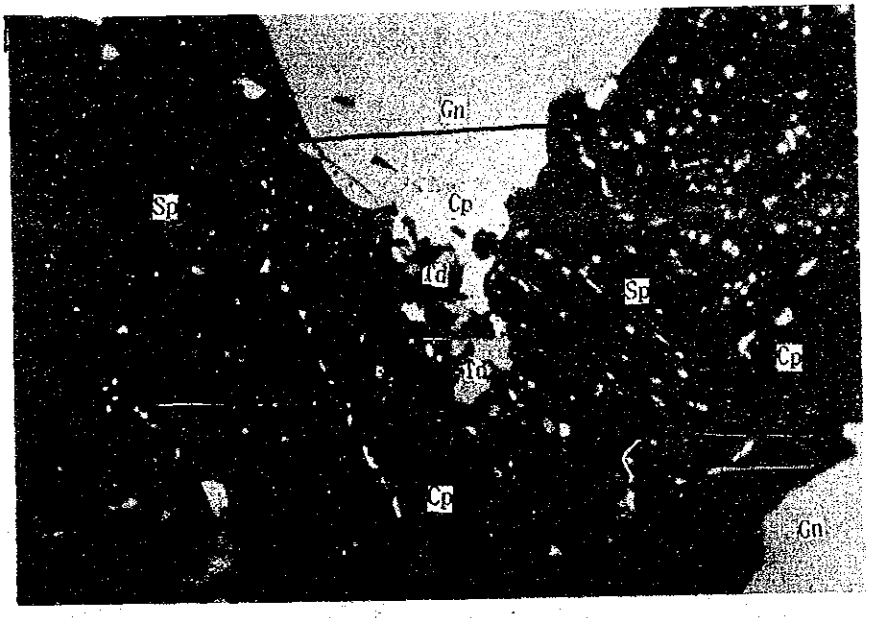
[Abbreviations]

Cp	: Chalcopyrite
El	: Electrum
G	: Gangue minerals
Gn	: Galena
Poly	: Polybasite
Py	: Pyrite
Qz	: Quartz
Sp	: Sphalerite
Td	: Tetrahedrite

Microphotographs of Polished Sections

(Reflected light)

0 0.2mm



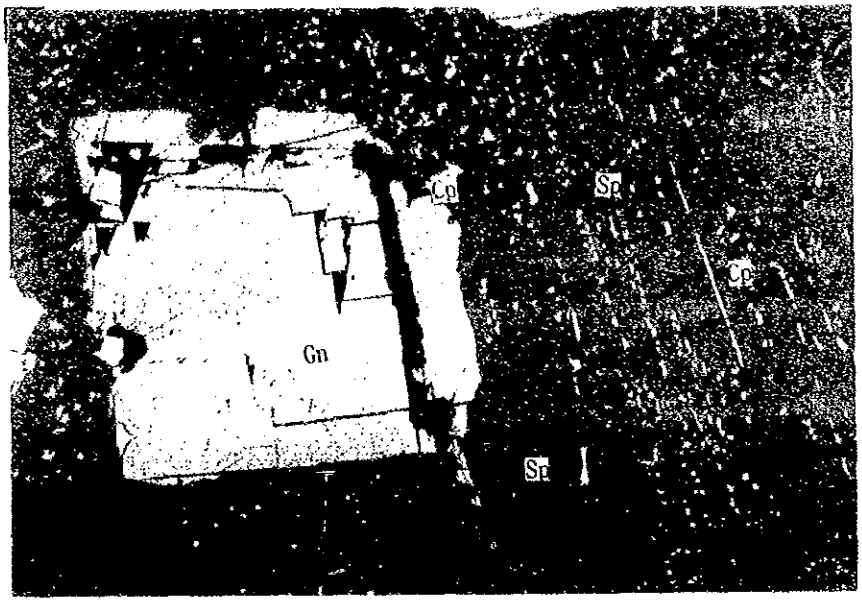
0 0.1mm

EPMA No. 1

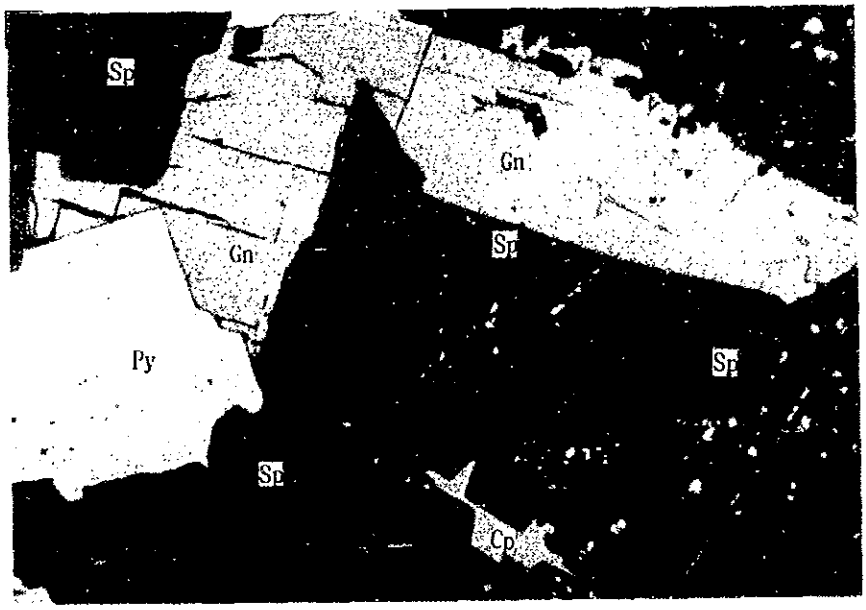
Film No. 1736-00.0

Microphotographs of Polished Sections

(Reflected light)



0 0.2mm

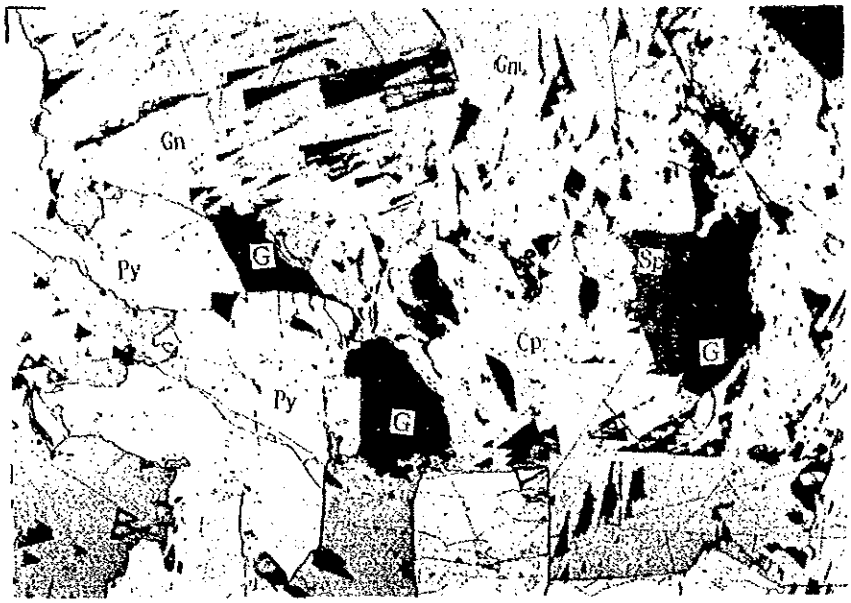


0 0.1mm

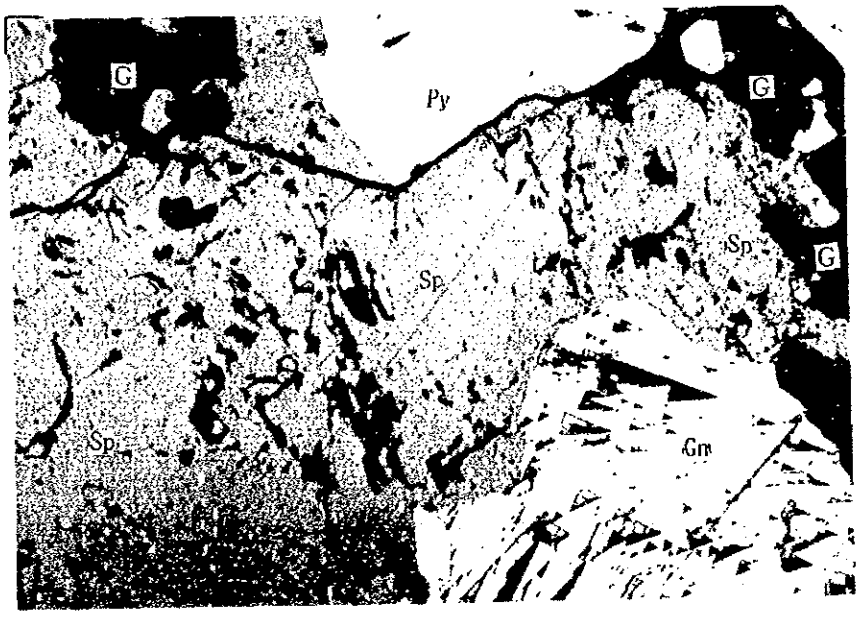
Film No. 1736 - 2 . 1

Microphotographs of Polished Sections

(Reflected light)



0 0.2mm



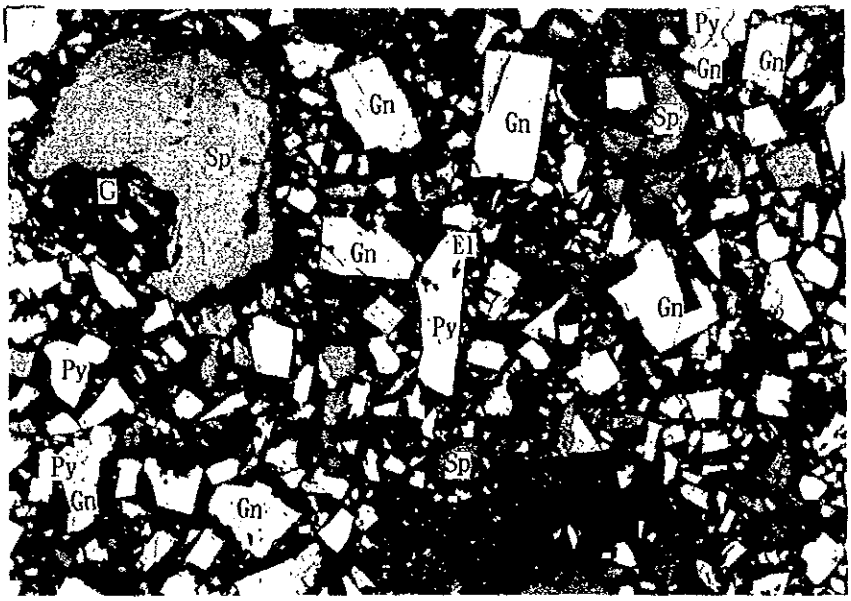
0 0.2mm

Film No. 1736- 3-4

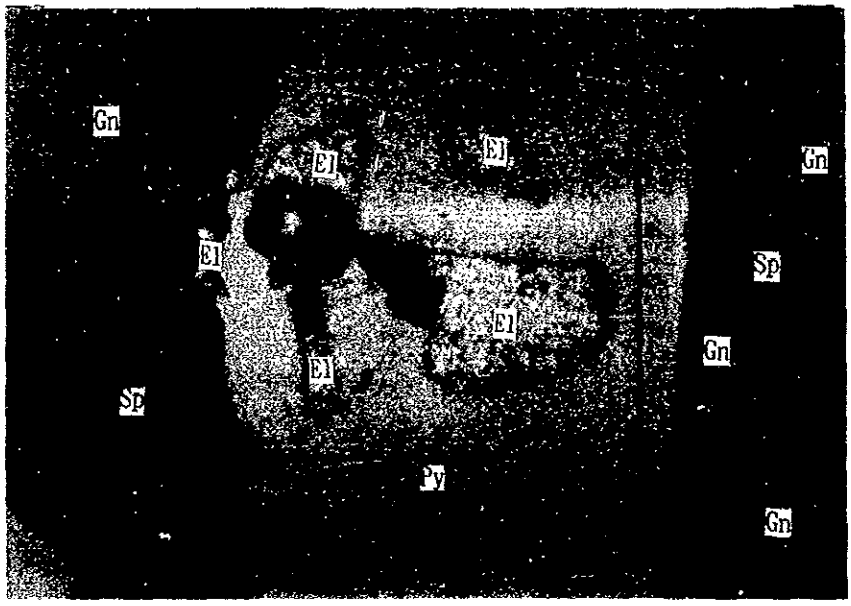
Pb Concentrate(No. 9)

Microphotographs of Polished Sections

(Reflected light)



0 0.2mm



EPMA No. 2

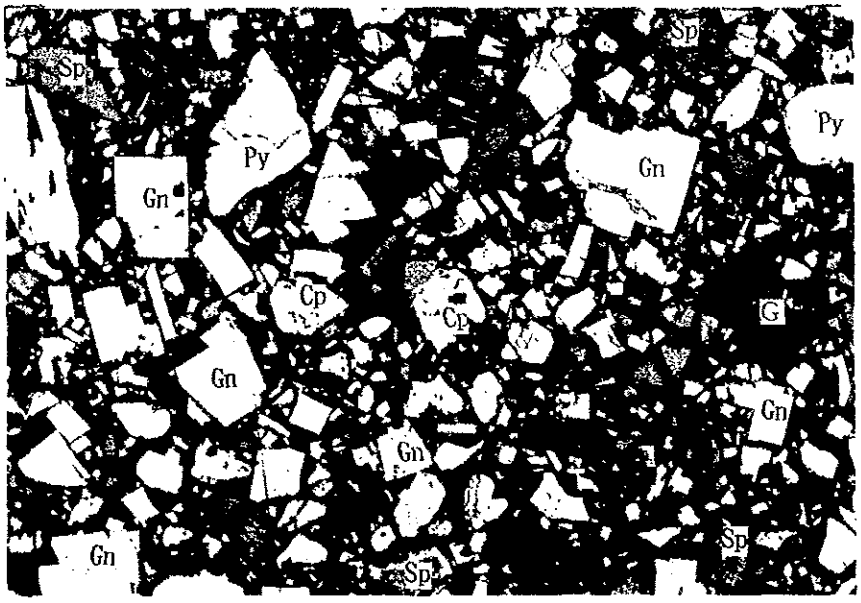
0 0.02mm

Film No. 0464 2・0

Pb Concentrate(No. 9)

Microphotographs of Polished Sections

(Reflected light)



0 0.2mm

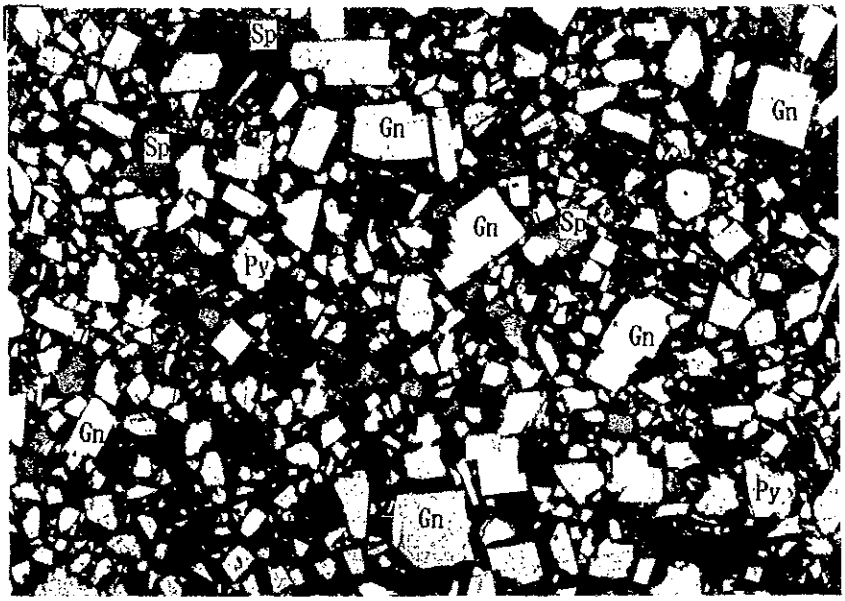
0 0.02mm

Film No.0464 5. 3

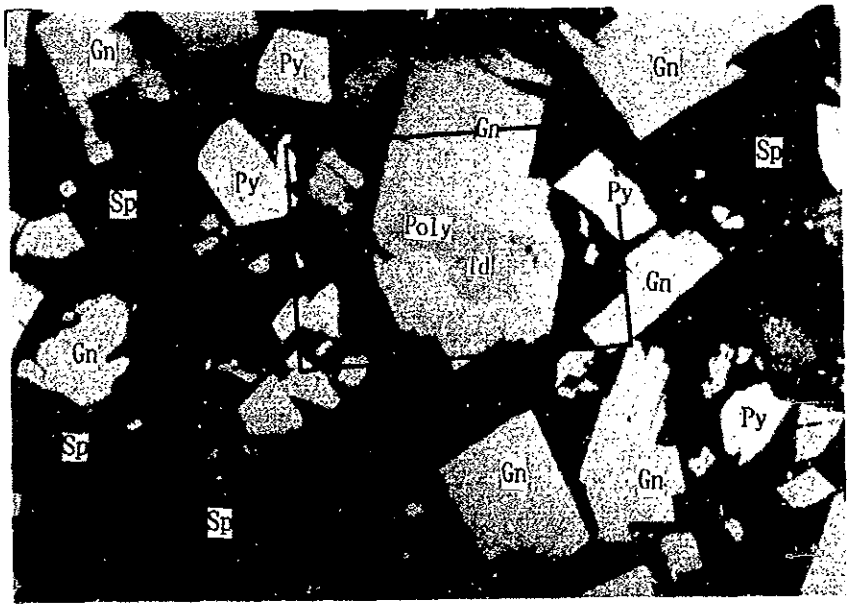
Pb Concentrate(No. 9)

Microphotographs of Polished Sections

(Reflected light)



0 0.2mm



EPMA No. 3

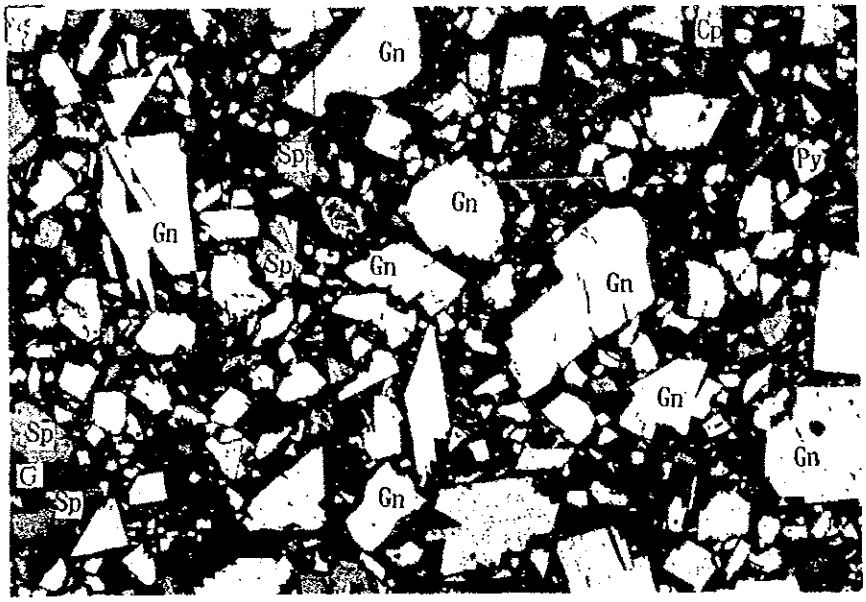
0 0.04mm

Film No 464 - 14 · 15

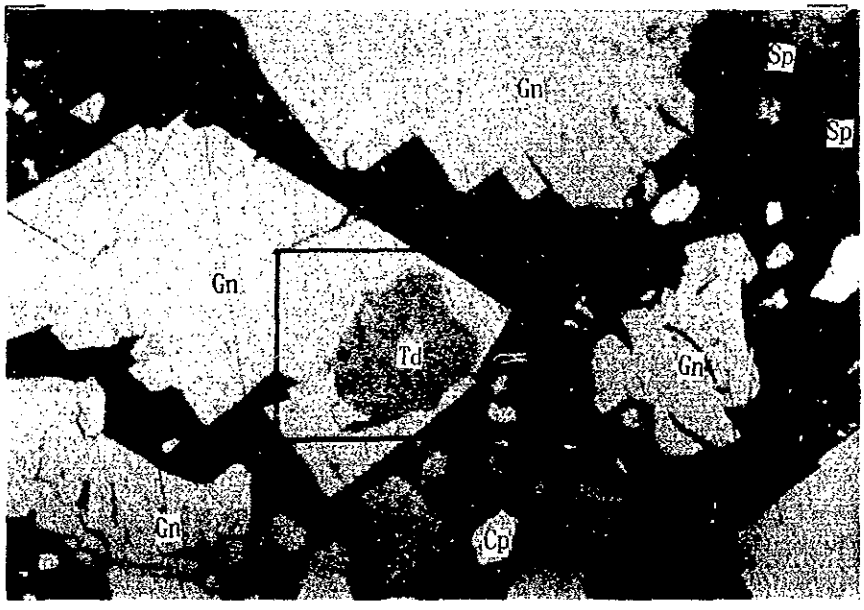
Pb Concentrate(No. 9)

Microphotographs of Polished Sections

(Reflected light)



0 0.2mm



0 0.04mm

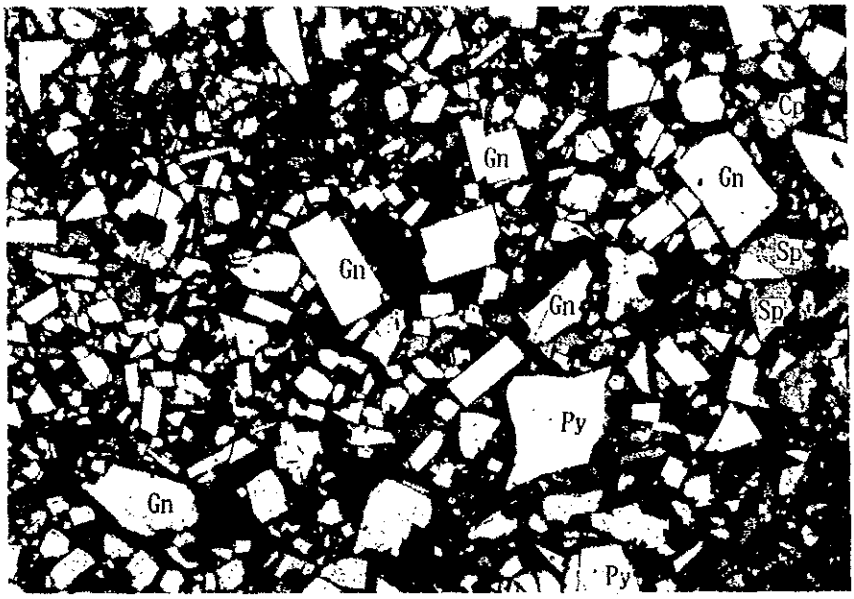
EPMA No. 4

Film No0464-9.8

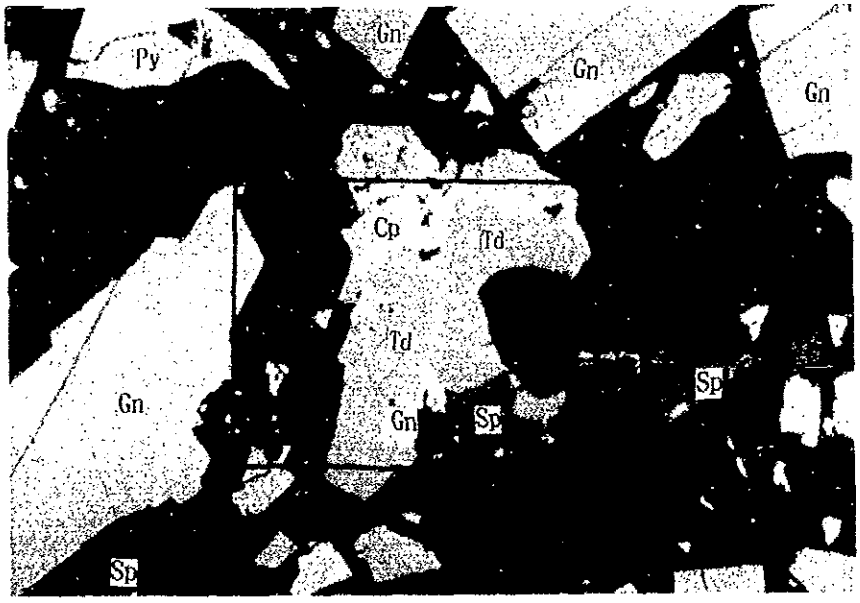
Pb Concentrate(No. 9)

Microphotographs of Polished Sections

(Reflected light)



0 0.2mm



EPMA No. 5

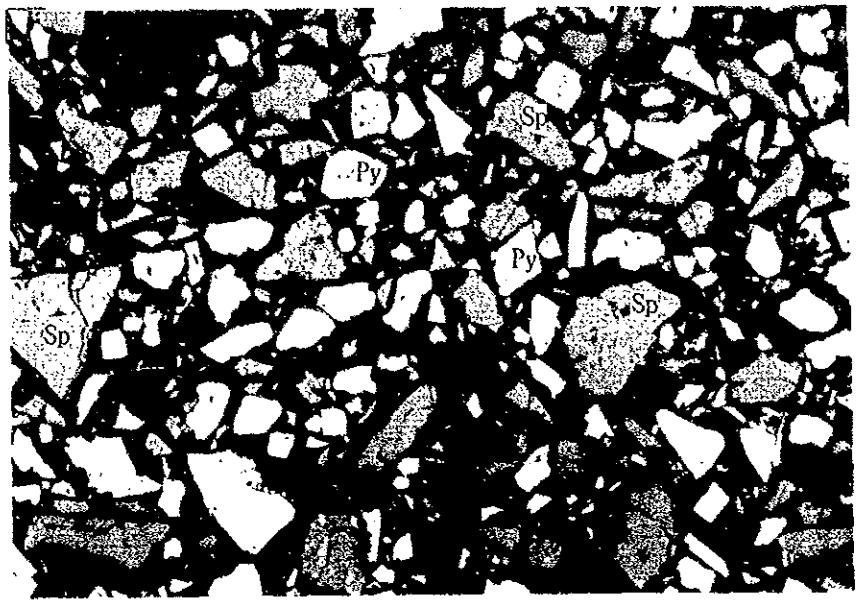
0 0.04mm

Film No. 0464-19-18

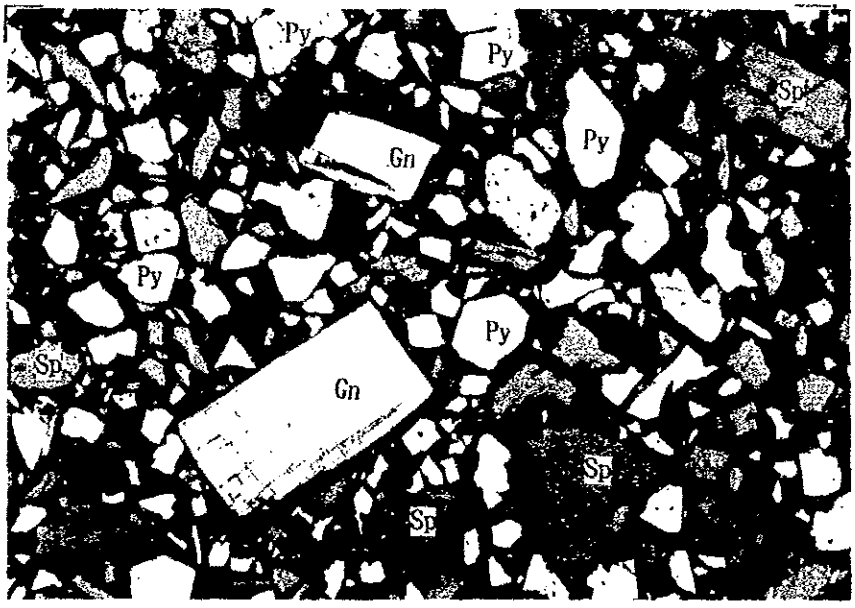
Zn Concentrate(No. 9)

Microphotographs of Polished Sections

(Reflected light)



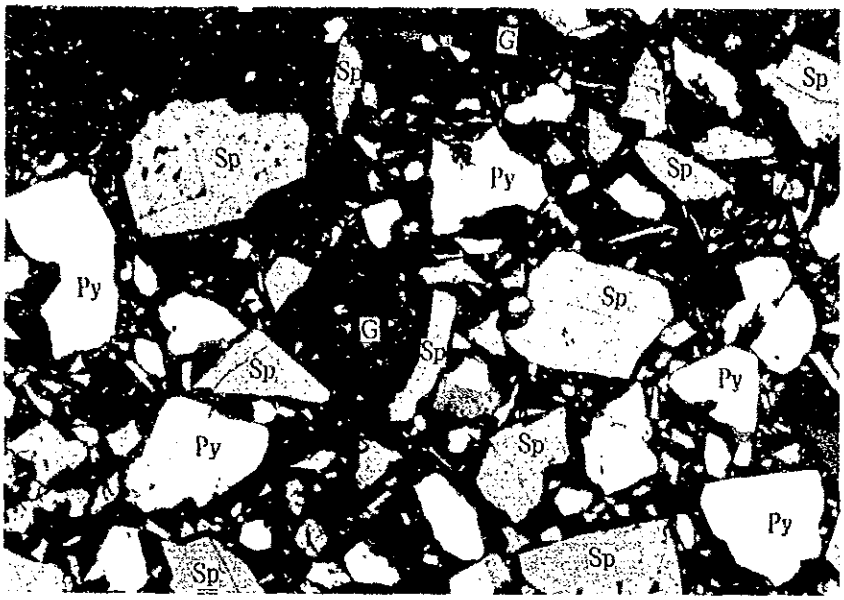
0 0.2mm



0 0.2mm

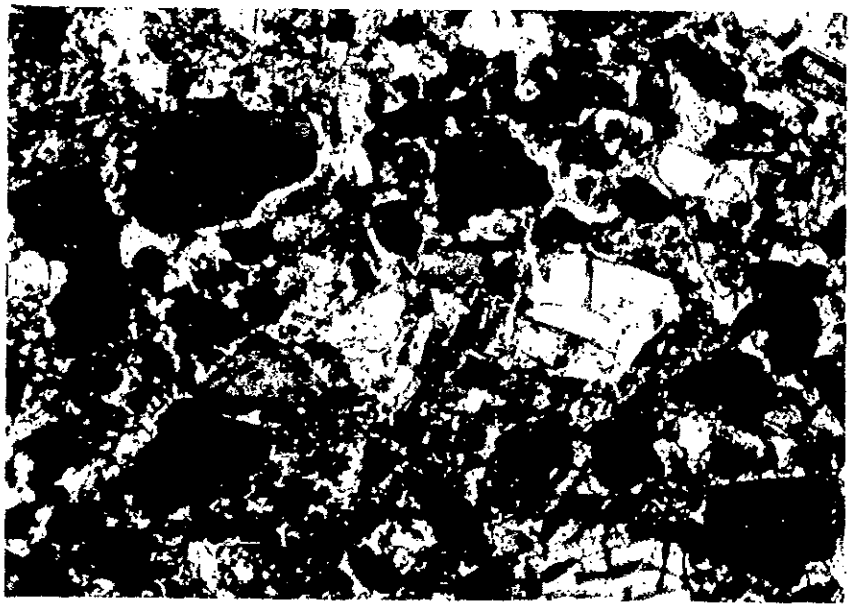
Film No.0466-1・2

Zn Concentrate(No. 9)



Reflected light
Plain polarized light

0 0.2mm



Transmitted light
Plain polarized light

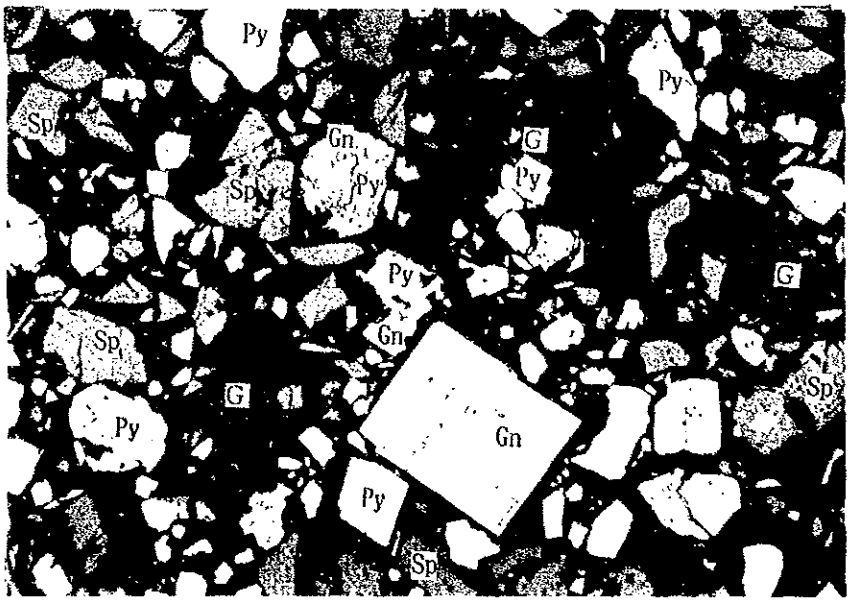
0 0.2mm

Film No.0464-11-12

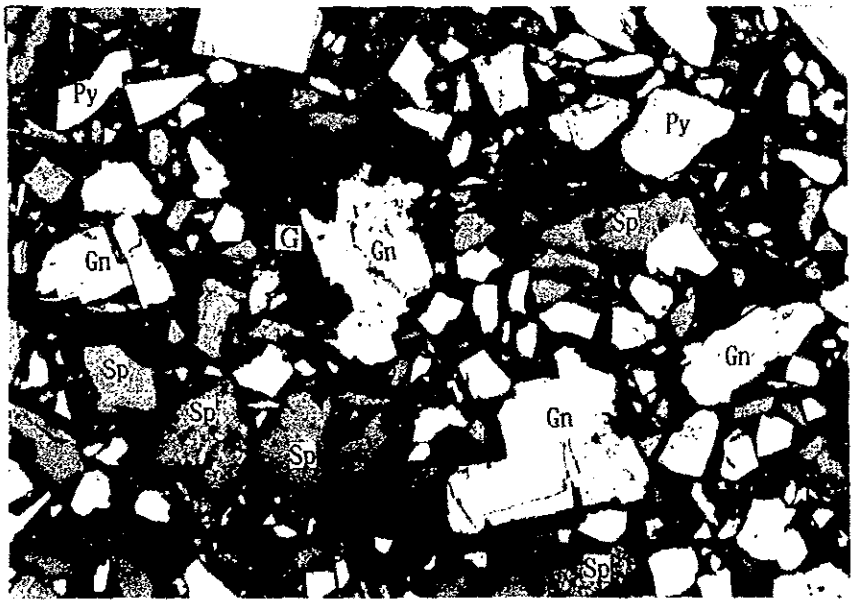
Zn Concentrate(No. 9)

Microphotographs of Polished Sections

(Reflected light)



0 0.2mm



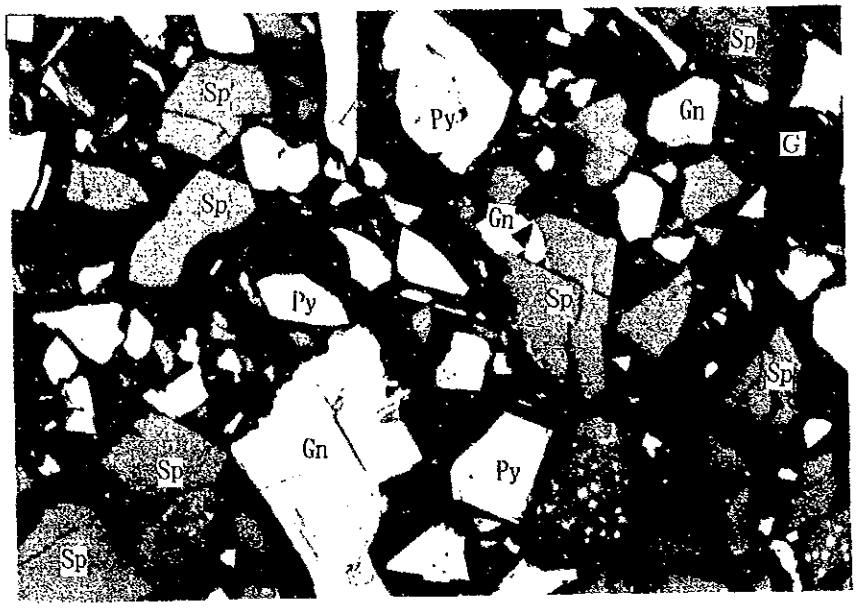
0 0.2mm

Film No 046 - 6 - 7

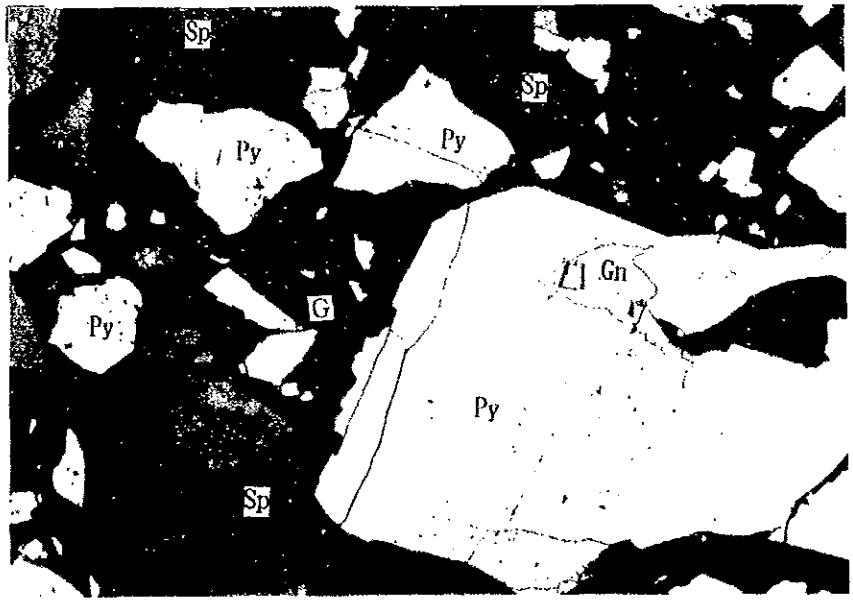
Zn Concentrate(No. 9)

Microphotographs of Polished Sections

(Reflected light)



0 0.1mm



0 0.1mm

Film No.0466 - 3 - 4

Results of EPMA analysis

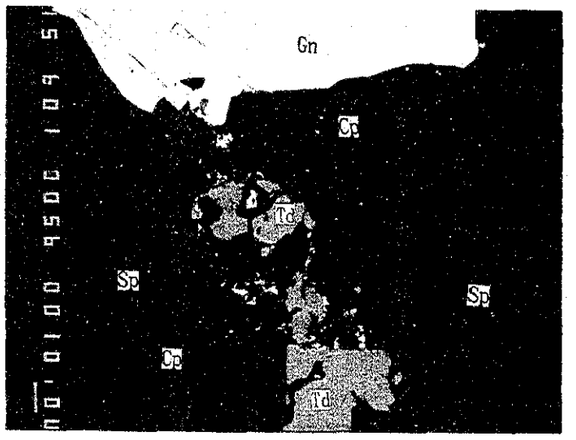
[Abbreviations]

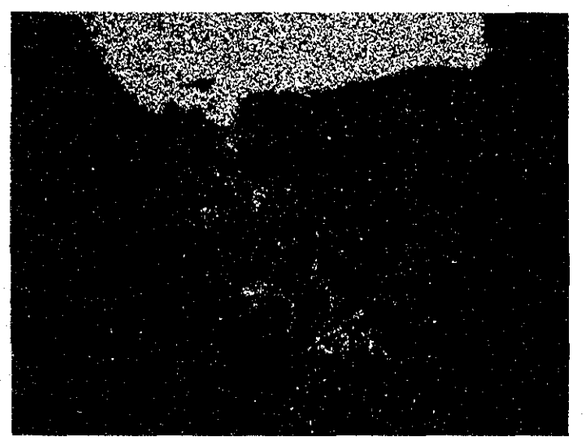
Cp : Chalcopyrite
El : Electrum
Gn : Galena
Poly : Polybasite
Py : Pyrite
Qz : Quartz
Sp : Sphalerite
Td : Tetrahedrite

EPMA Test Findings

№ 1 - 1

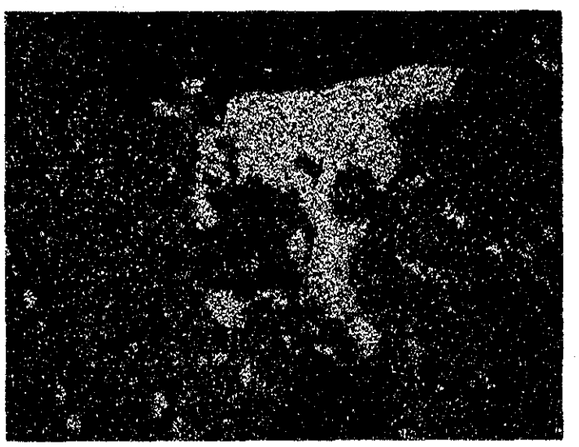
Name of Specimen	Crude Ore #4 Vein
Acceleration Voltage	15 kV
Current of Electron-beam	0.05 μA
Magnification	× 600

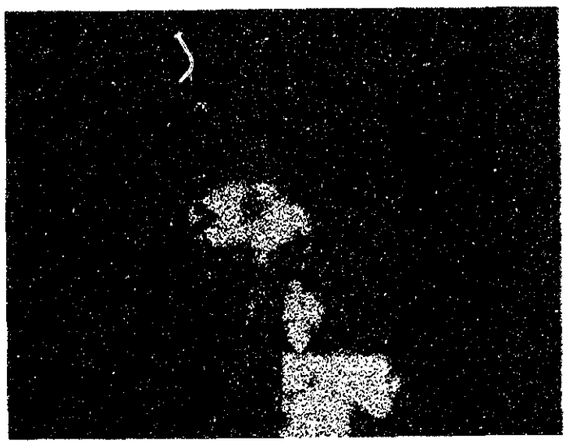


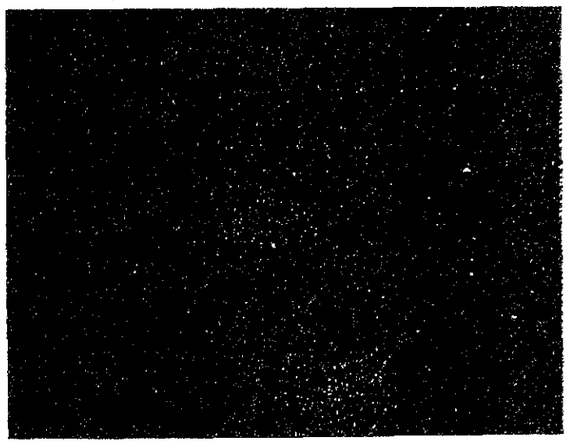


Explanation of Photograph

Composition Image	Zn
Pb	Cu







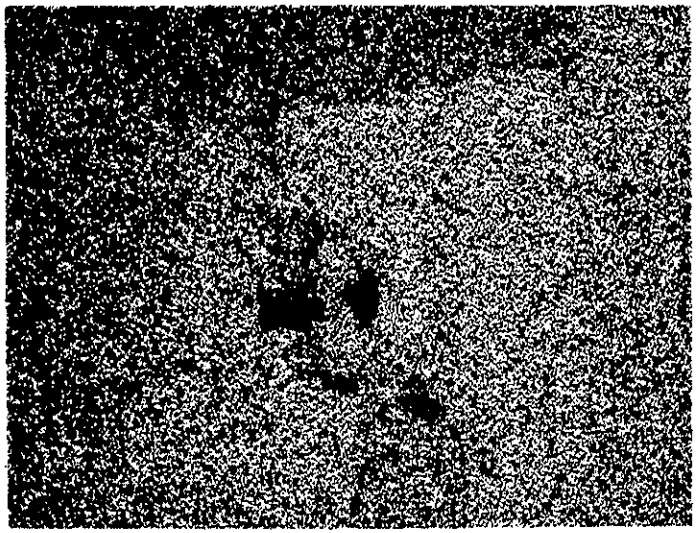
Explanation of Photograph

Fe	Sb
As	Ag

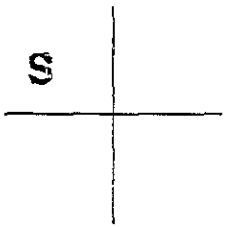
EPMA Test Findings

№ 1-2

Name of Specimen	Crude Ore #4 Vein
Acceleration Voltage	15 kV
Current of Electron-beam	0.05 μA
Magnification	× 600



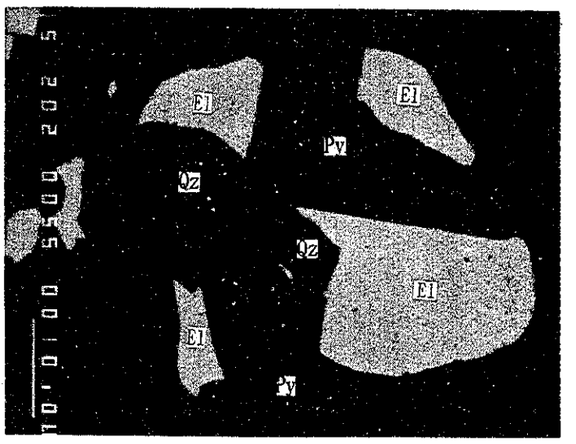
Explanation of Photograph

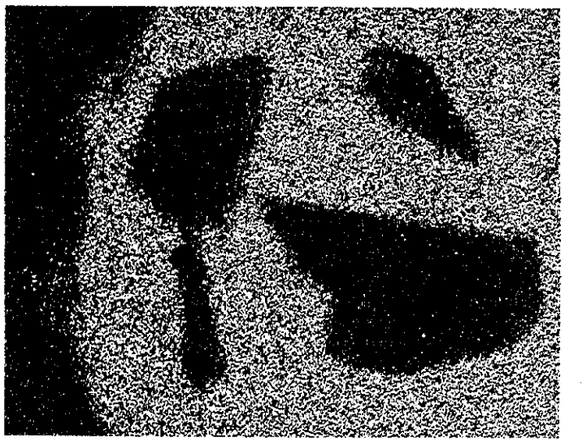


EPMA Test Findings

№ 2

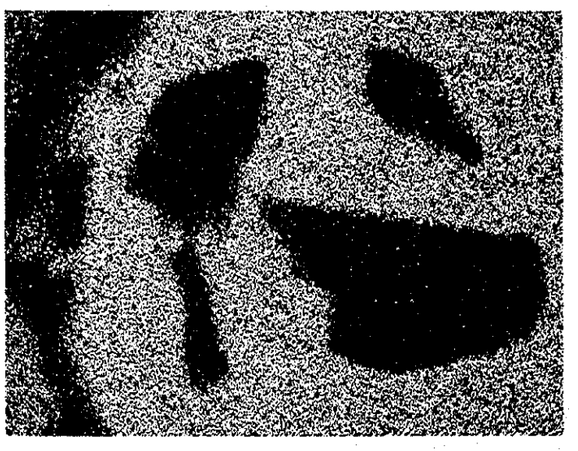
Name of Specimen	Pb-C No9
Acceleration Voltage	15 kV
Current of Electron-beam	0.05 μA
Magnification	× 2000

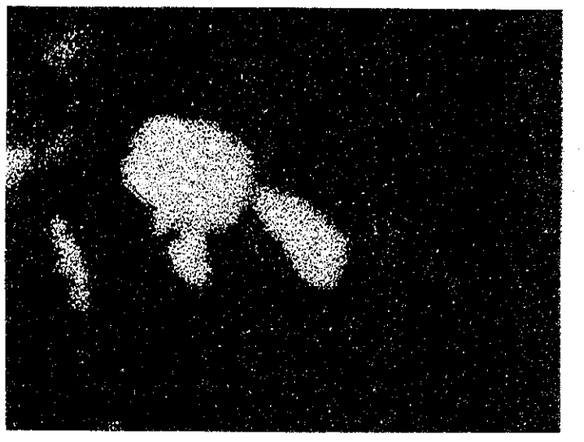




Explanation of Photograph

Composition Image	Ag
Au	Fe





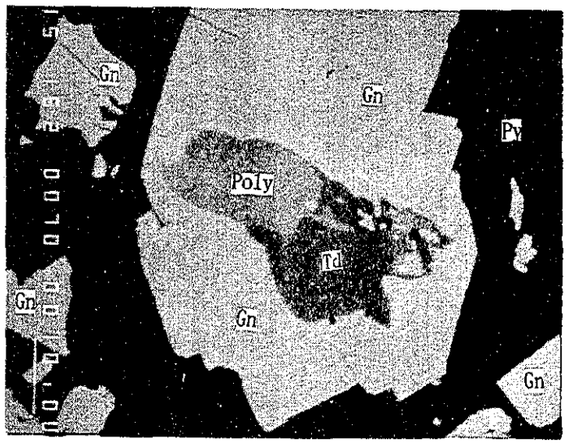
Explanation of Photograph

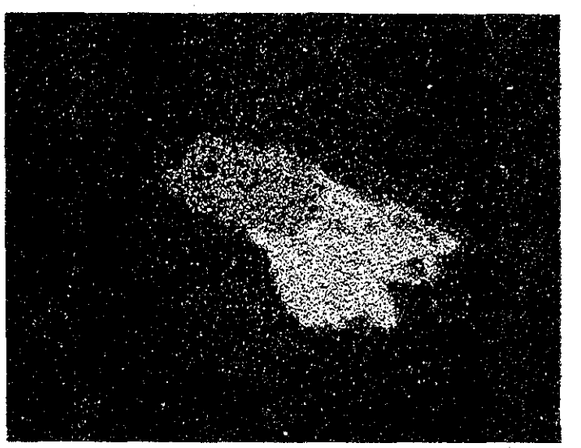
S	Si

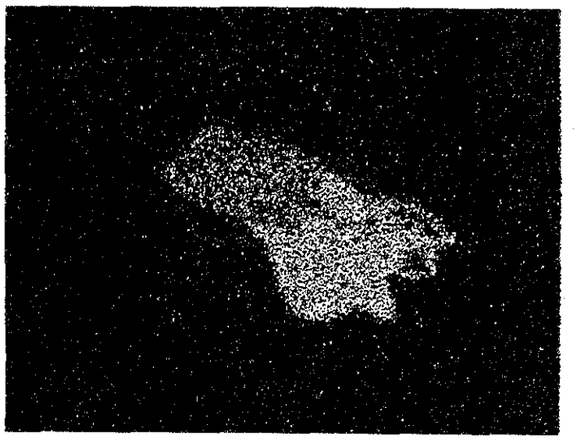
EPMA Test Findings

№ 3

Name of Specimen	Pb-C No9
Acceleration Voltage	15 kV
Current of Electron-beam	0.05 μA
Magnification	× 1500

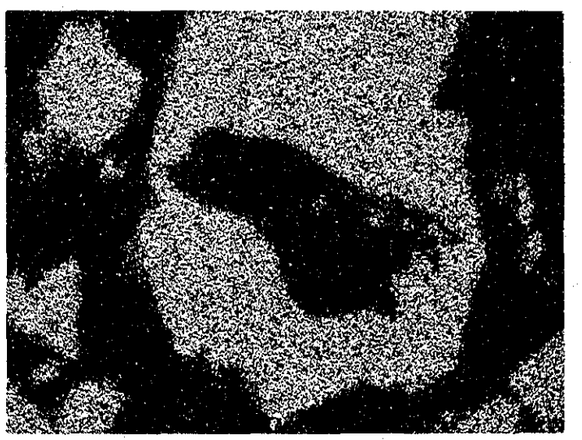


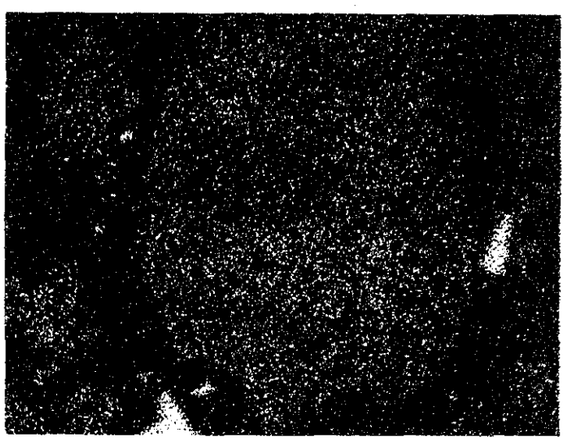




Explanation of Photograph

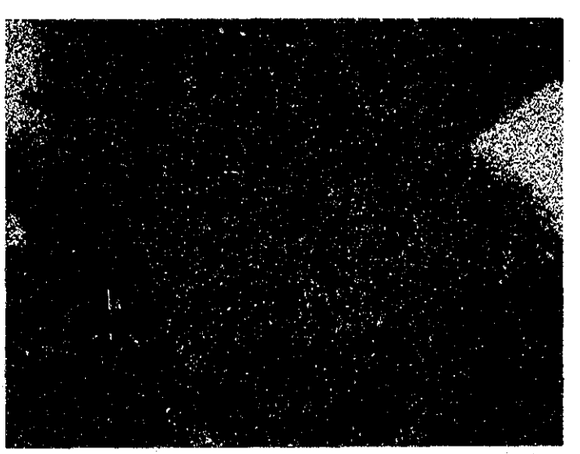
Composition Image	Cu
Ag	Sb

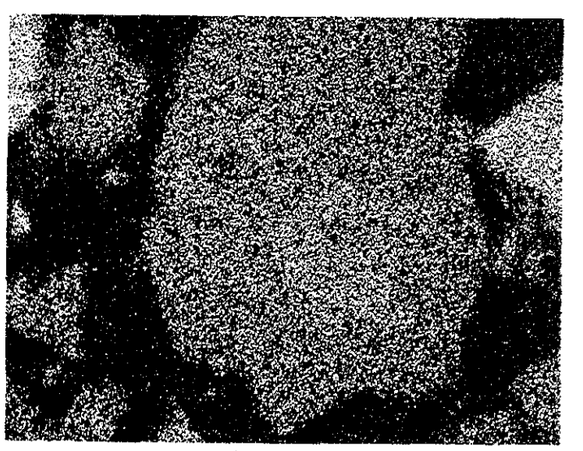




Explanation of Photograph

Pb	Zn
Fe	S

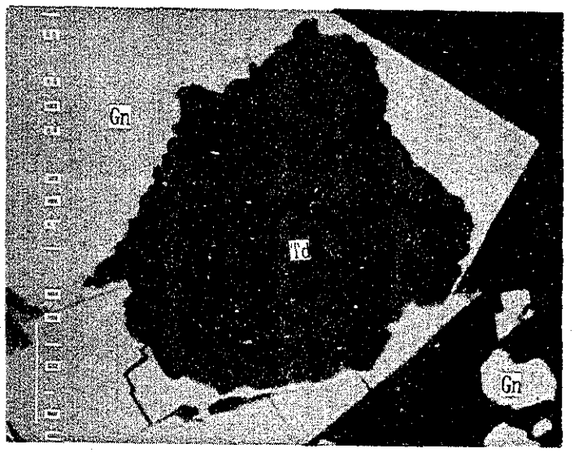


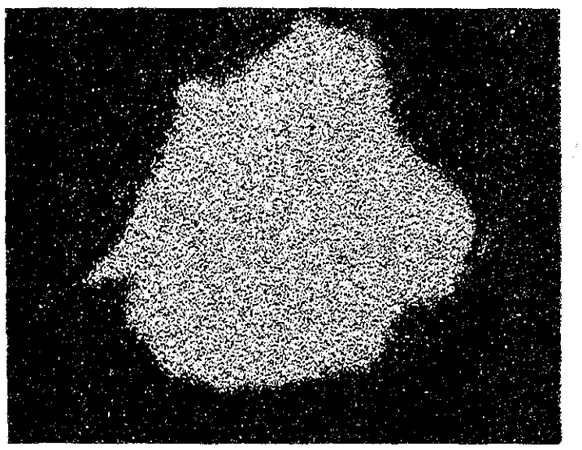


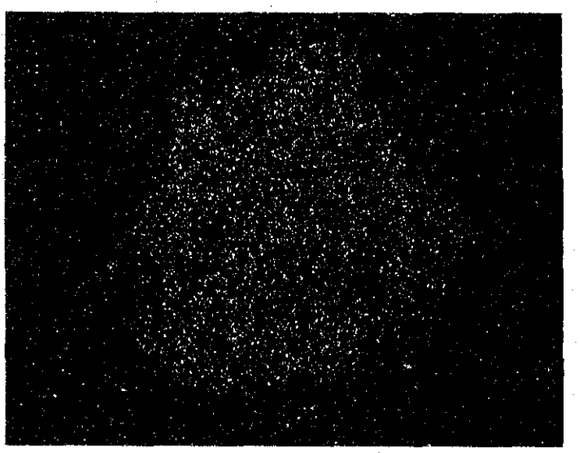
EPMA Test Findings

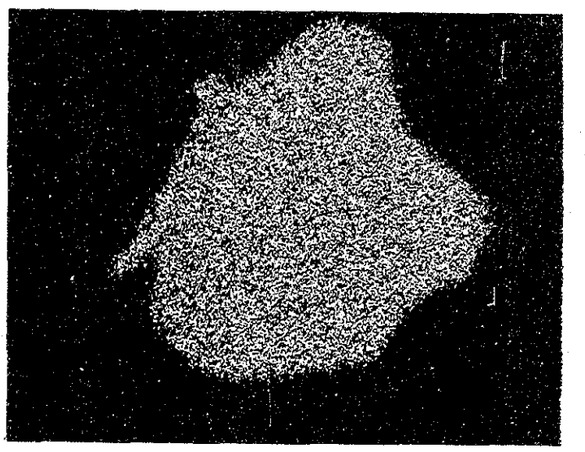
№ 4

Name of Specimen	Pb-C No9
Acceleration Voltage	15 kV
Current of Electron-beam	0.05 μA
Magnification	× 2000









Explanation of Photograph

Composition Image	Cu
Ag	Sb

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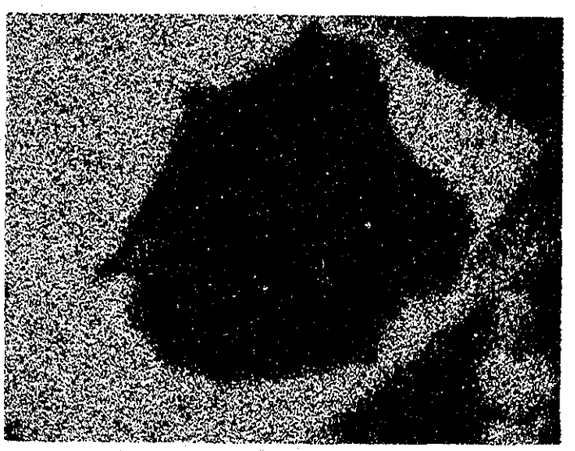
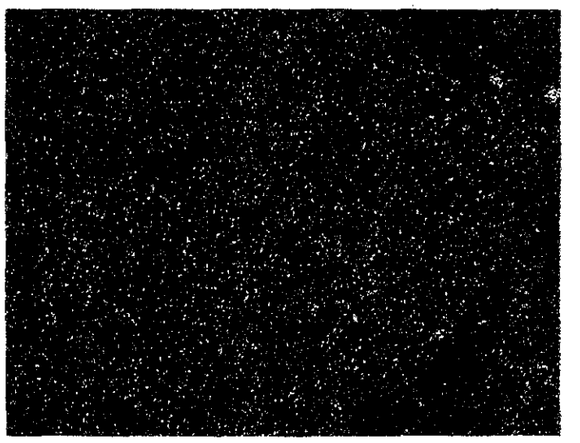
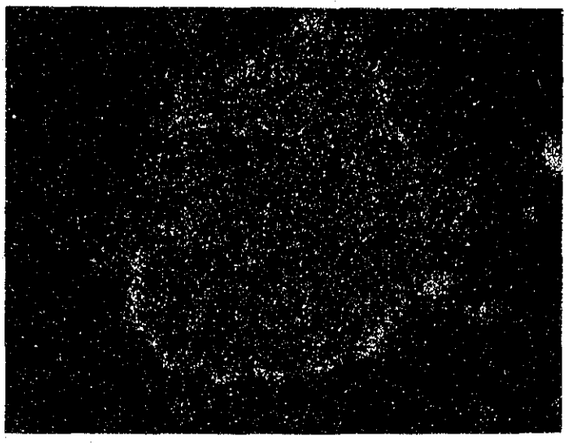
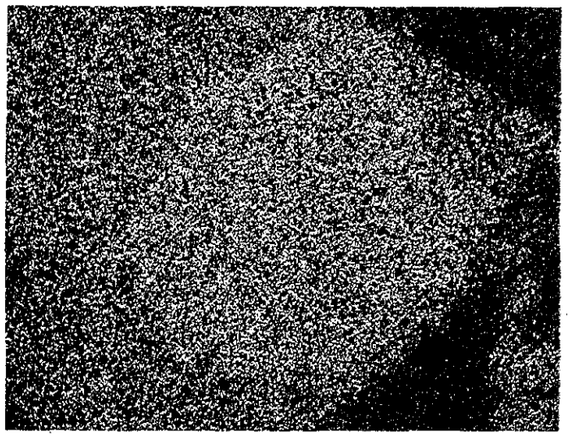




Explanation of Photograph

Pb	Zn
Fe	S

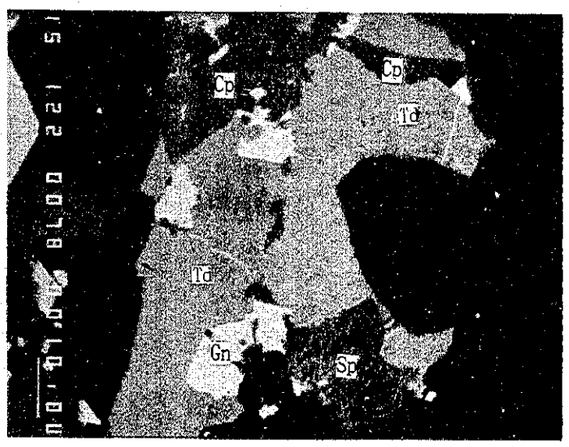


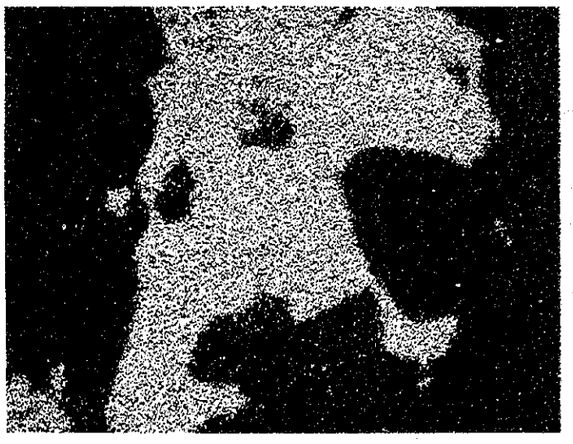


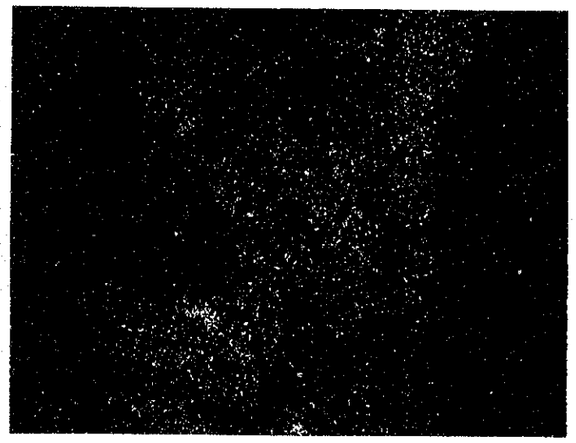
EPMA Test Findings

№5-1

Name of Specimen	Pb-C No9
Acceleration Voltage	15 kV
Current of Electron-beam	0.05 μA
Magnification	× 1200

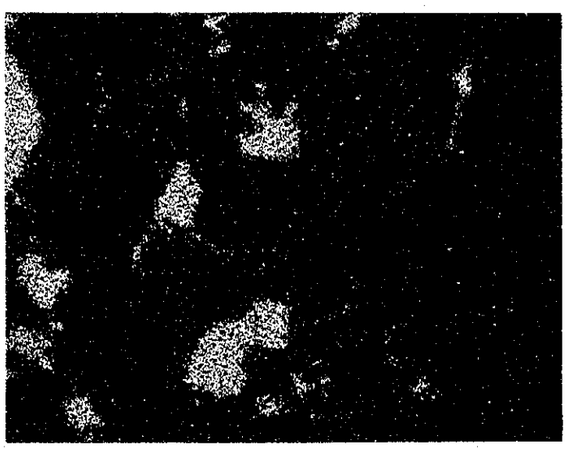


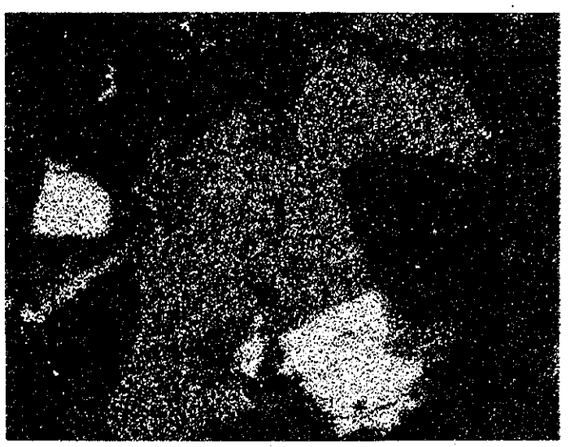


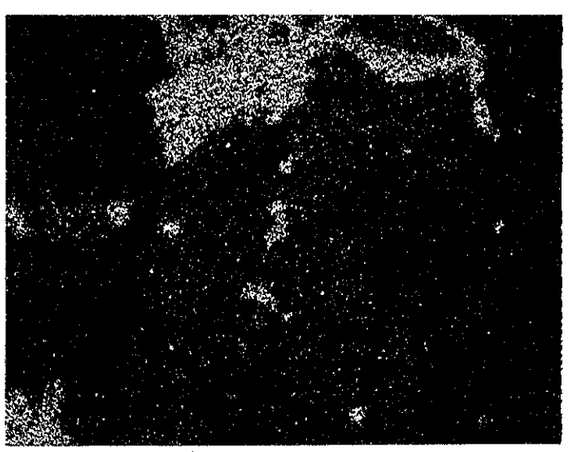


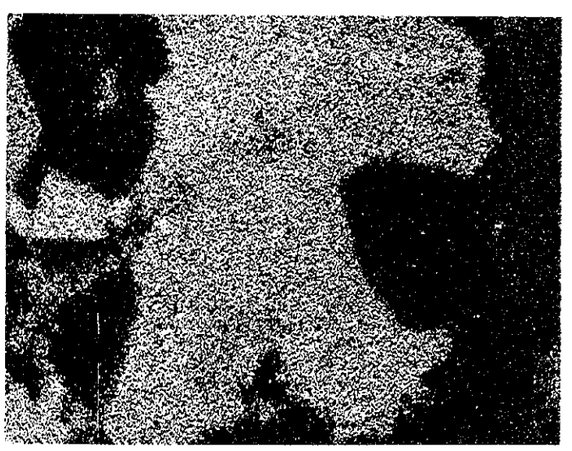
Explanation of Photograph

Composition Image	Cu
Ag	Sb









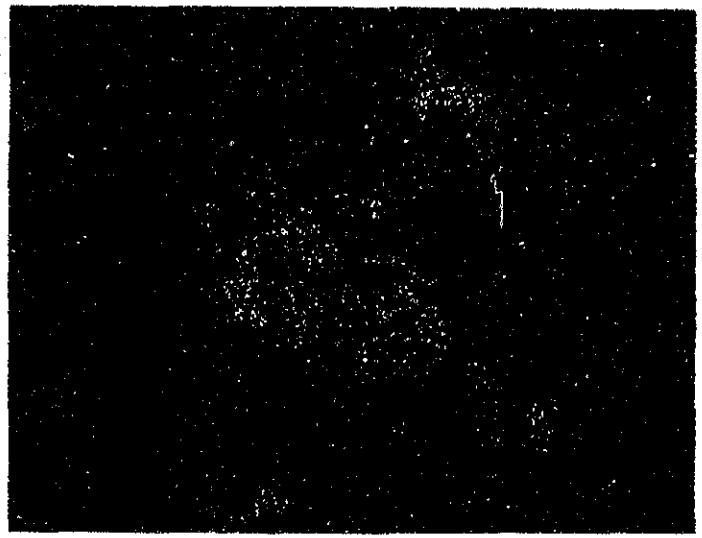
Explanation of Photograph

Pb	Zn
Fe	S

EPMA Test Findings

№5-2

Name of Specimen	Pb-C No9
Acceleration Voltage	15 kV
Current of Electron-beam	0.05 μA
Magnification	× 1200



Explanation of Photograph

As

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C-4 Table of Results of Mineral Examination

1 Emission Spectro-analysis

Table 1 Results of Emission Spectro-analysis of Tsav Ore

Element	As	B	Mn	Pb	Mg	Si	Bi	Fe	Al	Mo	Sn	V	Cu	Ag	Zn	Ti	Ca	Cr
	·	·	◎	◎	◎	◎	△	◎	△	□	□	□	△	△	◎	△	△	* ·

* ◎;Abundant
△;Little
·;Rare
□;Extremely rare

2 Chemical Analysis

Table 2 Results of Analisis of Tsav Ore

Element	G			R		A	D	E			
	Au	Ag	Cu	Fe	Pb	Zn	Cd	Mn	As	Bi	Cr
	g/t 1.8	g/t 556.3	% 0.16	% 7.95	% 9.01	% 5.67	% 0.56	% 5.40	% 0.05	% 0.11	% <0.01
Element	B	V	Mo	Sn	S	SiO2	Al2O3	CaO	MgO	TiO2	
	% <0.01	% <0.01	% <0.01	% <0.01	% 9.51	% 41.20	% 5.54	% 0.64	% 0.50	% 0.17	

3 Microscopic Observation of Polishing Section

Table 3 Results of Microscopic Observation of Tsav Ore

	Qz	Cal	Rh	Ser	Gn	Sp	Cp	Py
Feed	◎	△	○	△	◎	○	·	△*

[Abbreviations]
Qz:Quartz, Cal:Calcite, Rh:Rhodochrosite, Ser:Sericite
Gn:Galena, Sp:Sphalerite, Cp:Chalcopyrite, Py:Pyrite

*: ◎;Abundant
○;Common
△;Little
·;Rare

4 Measurement of Specific Gravity

Table 4 Specific Gravity of Tsav Ore

Measuring times	Specific gravity
No1	4.236
No2	4.164
No3	4.160
Average	4.187

6 Grinding Test

Table 6 Results of Size Analysis of Tsav Ore

SIZE (Mesh)	WEIGHT (g)	WEIGHT (%)
+65	72.90	14.90
-65～+100	63.75	13.03
-100～+150	55.20	11.28
-150～+200	48.10	9.83
-200～+270	36.20	7.40
-270～+325	31.00	6.34
-325	182.17	37.23
合計	489.32	100.00

5 Measurement of Work index of Tsav Ore

Table 5 Results of Work index(Wi)Test of Tsav Ore

	Wi (kWh/st)
No1	10.87
No2	10.81
Average	10.84

7 Grade analysis by size fraction

Table 7 Metal Distribution of Tsav Ore

	WEIGHT	WEIGHT	Grade Distribution								Metal Distribution							
SIZE(Mesh)	(g)	(%)	Cu(%)	Pb(%)	Zn(%)	Fe(%)	As(%)	S(%)	Au(g/t)	Ag(g/t)	Cu(%)	Pb(%)	Zn(%)	Fe(%)	As(%)	S(%)	Au(%)	Ag(%)
+65	72.90	14.90	0.15	6.66	5.70	7.47	0.04	8.70	1.60	358.0	12.8	10.1	14.5	13.8	10.0	13.1	12.4	8.2
-65～+100	63.75	13.03	0.18	10.17	6.44	7.67	0.05	10.02	2.00	606.0	13.4	13.4	14.4	12.4	10.9	13.2	13.5	12.1
-100～+150	55.20	11.28	0.19	11.47	6.55	7.75	0.05	10.66	2.10	677.7	12.3	13.1	12.6	10.8	9.4	12.1	12.3	11.7
-150～+200	48.10	9.83	0.20	11.86	6.56	8.12	0.06	11.21	2.10	837.3	11.3	11.8	11.0	9.9	9.9	11.1	10.7	12.6
-200～+270	36.20	7.40	0.20	12.68	6.58	8.62	0.07	11.90	2.20	854.0	8.5	9.5	8.3	7.9	8.7	8.9	8.4	9.7
-270～+325	31.00	6.34	0.21	12.89	6.66	8.92	0.07	12.23	2.40	903.7	7.6	8.3	7.2	7.0	7.4	7.8	7.9	8.8
-325	182.17	37.23	0.16	8.96	5.01	8.33	0.07	9.03	1.80	650.0	34.1	33.8	32.0	38.2	43.7	33.8	34.8	36.9
合計	489.32	100.00									100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

8 Flotation Characteristic Test

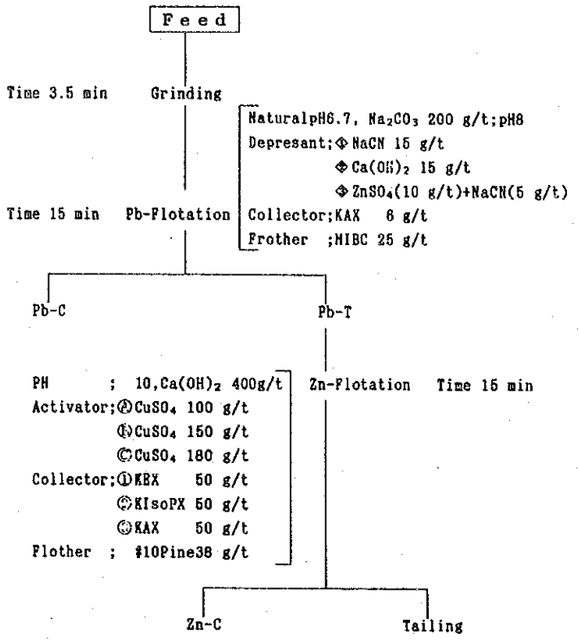

Fig. 1 Flowsheet of Preliminary Flotation Test of Tsav Ore

Table 8 Experimental Design Table

NO	A	B	C
1	◈NaCN 15g/t	①KEX 50g/t	ⒶCuSO4 100g/t
2	◈NaCN 15g/t	②KIPX 50g/t	ⒷCuSO4 150g/t
3	◈NaCN 15g/t	③KAX 50g/t	ⒸCuSO4 180g/t
4	◈Ca(OH)2 15g/t	①KEX 50g/t	ⒷCuSO4 150g/t
5	◈Ca(OH)2 15g/t	②KIPX 50g/t	ⒸCuSO4 180g/t
6	◈Ca(OH)2 15g/t	③KAX 50g/t	ⒶCuSO4 100g/t
7	◈ZnSO4(10g/t)+NaCN(5g/t)	①KEX 50g/t	ⒸCuSO4 180g/t
8	◈ZnSO4(10g/t)+NaCN(5g/t)	②KIPX 50g/t	ⒶCuSO4 100g/t
9	◈ZnSO4(10g/t)+NaCN(5g/t)	③KAX 50g/t	ⒷCuSO4 150g/t

Table 9 Results of Preliminary Flotation Test of Tsav Ore

Sample No Name	Weight [g]	Weight [%]	Grade [%]							Recovery [%]						
			Cu	Pb	Zn	Fe	Au *	Ag *	S	Cu	Pb	Zn	Fe	Au	Ag	S
Feed	499.39	100.00	0.18	8.79	5.11	10.85	2.4	600	9.47	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NO.1Pb-C	82.7	16.56	0.59	47.00	12.79	4.93	9.0	3206	18.51	55.5	88.6	41.5	7.5	62.5	88.4	32.4
(NO.1Pb-T)	416.69	83.44	0.09	1.21	3.59	12.03	1.1	83	7.68	44.5	11.4	58.5	92.5	37.5	11.6	67.6
NO.1Zn-C	51.46	10.30	0.62	7.36	27.70	14.14	1.6	510	24.94	36.2	8.6	55.8	13.4	6.9	8.8	27.1
NO.1T	365.23	73.14	0.02	0.34	0.19	11.73	1.0	23	5.25	8.3	2.8	2.7	79.1	30.6	2.8	40.5
Feed	500.12	100.00	0.16	8.79	4.46	10.21	2.7	591	9.40	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NO.2Pb-C	75.98	15.19	0.54	53.53	9.84	4.72	14.2	3503	18.86	50.8	92.5	33.6	7.0	79.4	90.0	30.5
(NO.2Pb-T)	424.14	84.81	0.09	0.78	3.49	11.19	0.7	70	7.71	49.2	7.5	66.4	93.0	20.6	10.0	69.5
NO.2Zn-C	75.45	15.09	0.48	2.64	18.95	19.84	1.4	291	31.41	44.9	4.5	64.1	29.3	7.8	7.4	50.4
NO.2T	348.69	69.72	0.01	0.38	0.15	9.32	0.5	22	2.58	4.3	3.0	2.3	63.7	12.8	2.6	19.1
Feed	496.85	100.00	0.18	8.33	5.02	10.12	2.5	594	9.32	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NO.3Pb-C	71.56	14.40	0.55	48.85	7.12	4.59	14.8	3524	18.79	44.9	84.5	20.4	6.5	85.4	85.4	29.0
(NO.3Pb-T)	425.29	85.60	0.11	1.52	4.67	11.06	0.4	101	7.73	55.1	15.5	79.6	93.5	14.6	14.6	71.0
NO.3Zn-C	77.32	15.56	0.49	6.49	24.97	16.21	1.0	445	29.68	43.2	12.1	77.4	24.9	6.2	11.7	49.6
NO.3T	347.97	70.04	0.03	0.41	0.16	9.91	0.3	25	2.85	11.9	3.4	2.2	68.6	8.4	2.9	21.4
Feed	499.11	100.00	0.17	8.29	5.30	9.68	2.1	536	9.24	100.0	100.0	100.0	99.9	100.0	100.0	100.0
NO.4Pb-C	75.81	15.19	0.56	44.60	10.14	9.72	11.4	2569	22.83	51.2	81.7	29.1	15.2	82.1	72.7	37.6
(NO.4Pb-T)	423.3	84.81	0.10	1.79	4.43	9.67	0.5	172	6.80	48.8	18.3	70.9	84.7	17.9	27.3	62.4
NO.4Zn-C	69.27	13.88	0.48	8.46	25.83	12.16	1.7	521	28.38	40.2	14.2	67.7	17.4	11.2	13.5	42.6
NO.4T	354.03	70.93	0.02	0.48	0.24	9.18	0.2	104	2.58	8.6	4.1	3.2	67.3	6.7	13.8	19.8
Feed	500.89	100.00	0.18	8.57	4.85	9.22	3.5	590	9.30	100.0	100.0	100.0	100.1	100.0	100.0	100.0
NO.5Pb-C	92.29	18.43	0.51	39.28	8.15	8.86	16.9	2760	23.35	53.5	84.4	31.0	17.8	90.0	86.2	46.3
(NO.5Pb-T)	408.6	81.57	0.10	1.64	4.11	9.30	0.4	100	6.13	46.5	15.6	69.0	82.3	10.0	13.8	53.7
NO.5Zn-C	65.09	12.99	0.47	8.32	24.83	14.32	1.1	510	27.09	34.8	12.6	66.5	20.2	4.1	11.2	37.8
NO.5T	343.51	68.58	0.03	0.37	0.18	8.35	0.3	22	2.16	11.7	3.0	2.5	62.1	5.9	2.6	15.9
Feed	502.21	100.00	0.16	8.63	5.12	9.48	3.1	585	9.24	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NO.6Pb-C	79.71	15.87	0.51	42.98	7.68	11.09	17.4	3057	23.31	50.3	79.0	23.8	18.6	88.7	82.9	40.0
(NO.6Pb-T)	422.5	84.13	0.09	2.15	4.64	9.18	0.4	119	6.58	49.7	21.0	76.2	81.4	11.3	17.1	60.0
NO.6Zn-C	77.09	15.35	0.43	10.15	24.65	15.58	1.4	572	27.65	41.1	18.1	73.9	25.2	6.9	15.0	46.0
NO.6T	345.41	68.78	0.02	0.36	0.17	7.75	0.2	18	1.88	8.6	2.9	2.3	56.2	4.4	2.1	14.0
Feed	499.92	100.00	0.16	7.32	4.20	7.99	2.5	560	9.34	100.0	100.0	100.0	100.1	100.0	100.0	100.0
NO.7Pb-C	89.67	17.94	0.54	38.48	8.59	4.88	11.7	2866	20.07	59.8	94.3	36.7	11.0	83.4	91.9	38.5
(NO.7Pb-T)	410.25	82.06	0.08	0.51	3.24	8.66	0.5	56	7.00	40.2	5.7	63.3	89.1	16.6	8.1	61.5
NO.7Zn-C	50.73	10.15	0.50	1.49	24.69	16.27	1.3	223	31.07	31.3	2.1	59.7	20.7	5.2	4.0	33.8
NO.7T	359.52	71.92	0.02	0.37	0.21	7.59	0.4	32	3.60	8.9	3.6	3.6	68.4	11.4	4.1	27.7
Feed	502.46	100.00	0.15	8.35	5.35	9.72	3.0	587	9.30	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NO.8Pb-C	69.59	13.85	0.57	50.58	10.43	5.26	18.6	3546	19.37	52.6	83.9	27.0	7.5	87.3	83.7	28.9
(NO.8Pb-T)	432.87	86.15	0.08	1.56	4.54	10.43	0.4	111	7.68	47.4	16.1	73.0	92.5	12.7	16.3	71.1
NO.8Zn-C	78.39	15.60	0.41	7.11	24.24	17.87	1.5	518	30.65	42.7	13.3	70.6	28.7	7.9	13.8	51.4
NO.8T	354.48	70.55	0.01	0.33	0.18	8.79	0.2	21	2.60	4.7	2.8	2.4	63.8	4.8	2.5	19.7
Feed	499.93	100.00	0.16	9.17	5.25	9.47	3.3	606	9.44	100.0	100.0	100.0	99.9	100.0	100.0	100.0
NO.9Pb-C	76.95	15.39	0.54	55.88	10.77	5.78	18.8	3588	19.78	52.3	93.8	31.6	9.3	88.3	91.2	32.3
(NO.9Pb-T)	422.98	84.61	0.09	0.67	4.25	10.14	0.5	63	7.56	47.7	6.2	68.4	90.6	11.7	8.8	67.7
NO.9Zn-C	64.13	12.83	0.48	2.08	26.95	13.02	1.3	276	31.44	38.7	2.9	65.8	17.6	5.1	5.8	42.7
NO.9T	358.85	71.78	0.02	0.42	0.19	9.63	0.3	25	3.29	9.0	3.3	2.6	73.0	6.6	3.0	25.0

*; g/t