


Photo 45.
No. 2 Ore: Py Concentrate
(Open Nicols)

Transparent particles consist mainly of quartz (and feldspar ?), amphibole and calcite. Amphibole is prismatic, sometimes showing a cluster form (center of the photo).

0 100 μ x 255


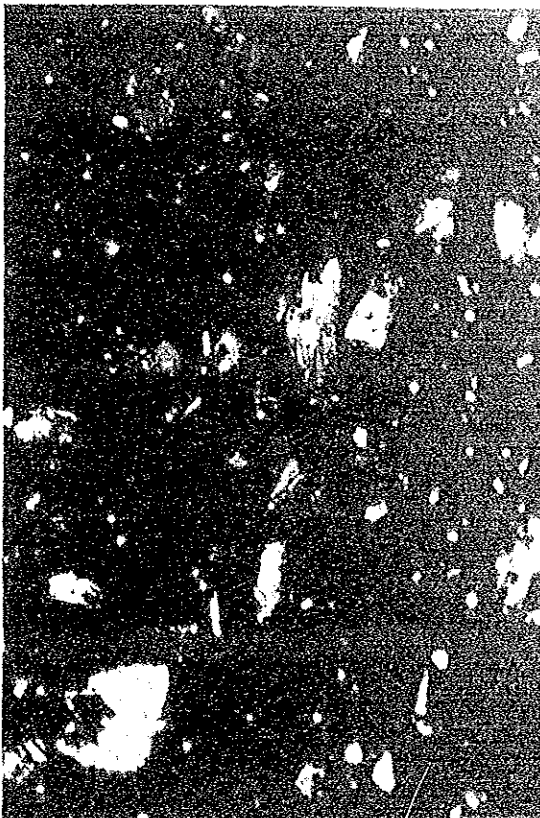



Photo 46.
No. 2 Ore: Py Concentrate
(Cross Nicols)

Same as Photo 45.

0 100 μ x 255


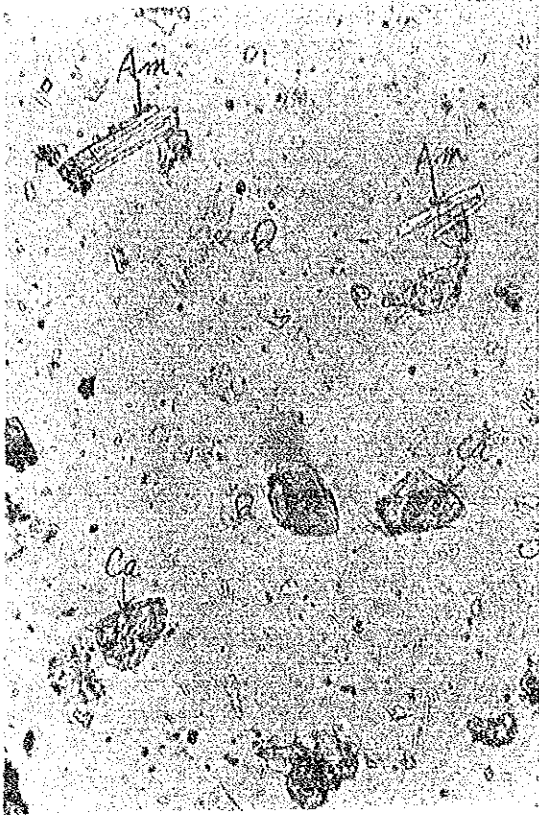


Photo 47.
No. 2 Ore: Ba Concentrate

Composed of calcite, quartz (feldspar) amphibole and barite.

0 100 μ x 255

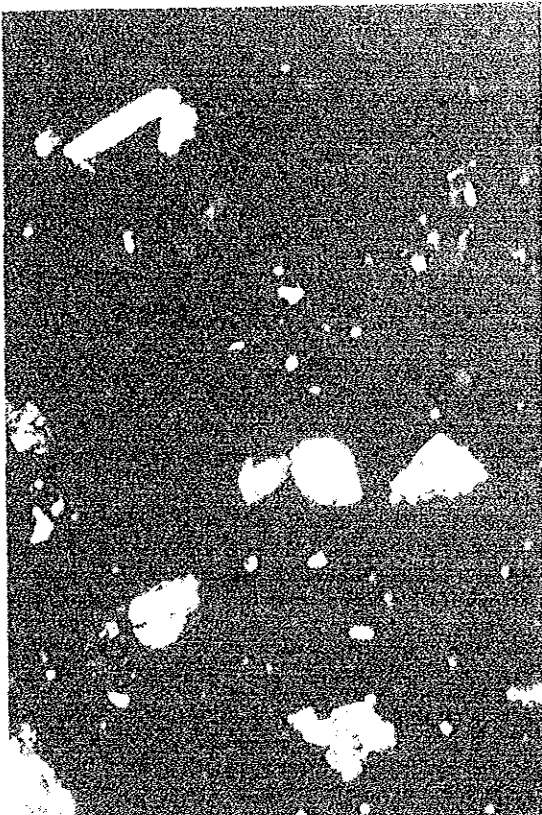


Photo 48.
No. 2 Ore: Ba Concentrate
(Cross Nicols)

Same as Photo 48.

0 100 μ x 255

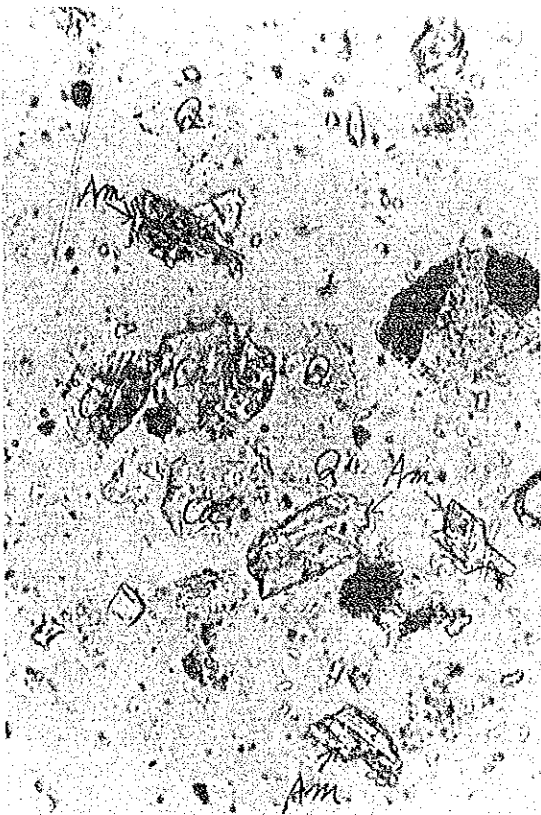


Photo 49.
No. 2 Ore: Tailing

Mainly consists of quartz (feldspar), calcite and amphibole.

0 100 μ x 255
└──────────┘

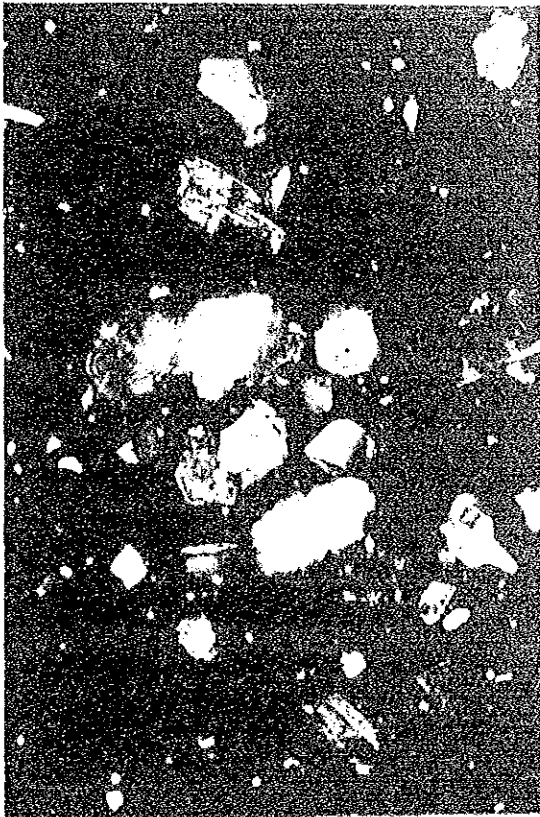


Photo 50.
No. 2 Ore: Tailing
(Cross Nicols)

Same as Photo 49.

0 100 μ x 255
└──────────┘

4. E P M A 試験結果

Photo 51 to 57 BORING CORE

Photo 58 to 64 NO. 1 ORE (Part A)

Photo 65 to 71 NO. 1 ORE (Part B)

Photo 72 to 78 NO. 2 ORE

SAMPLE	BORING CORE
VOLTAGE	20 KV
CURRENT	0.05 μ A
MAGNIFICATION	*3000

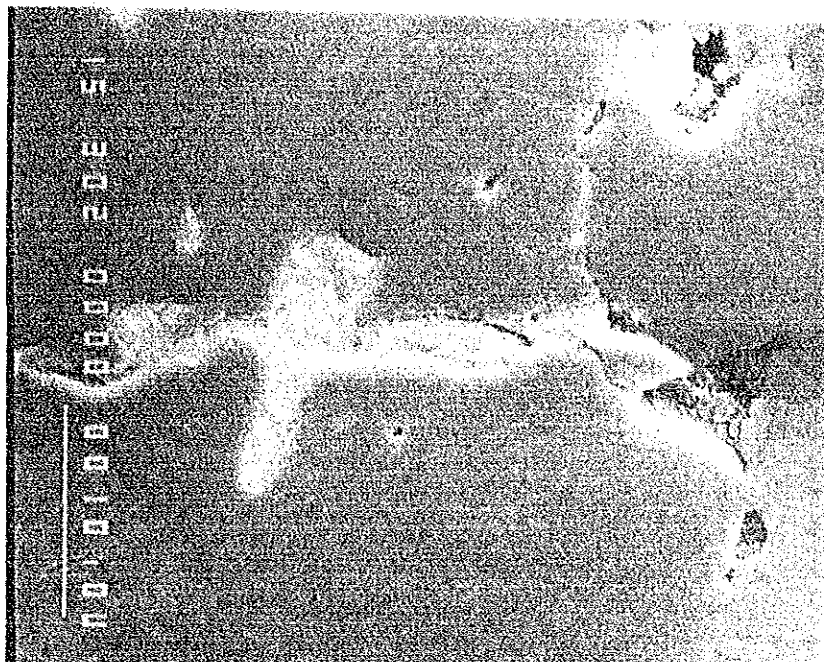


Photo 51.
Secondary Electron Image

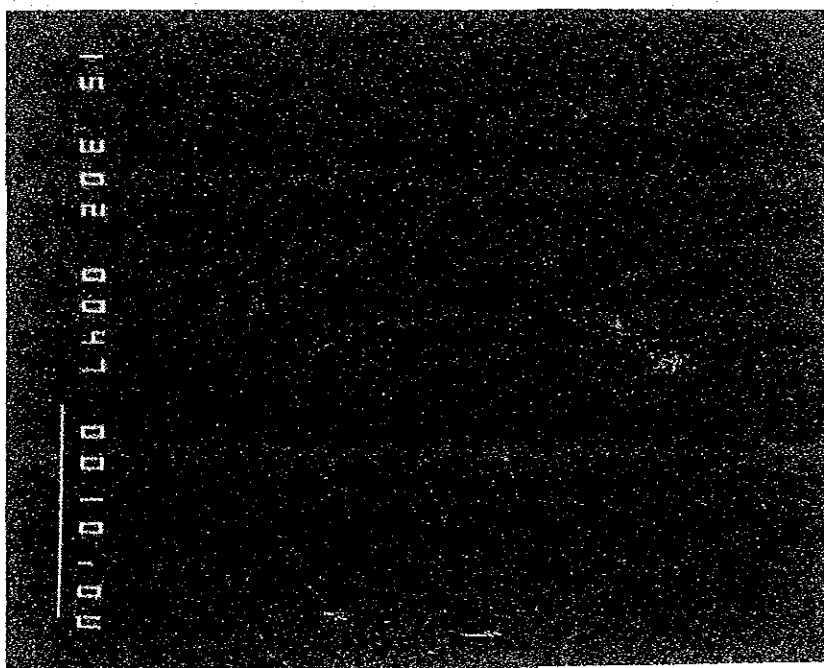


Photo 52.
Ag L α Image

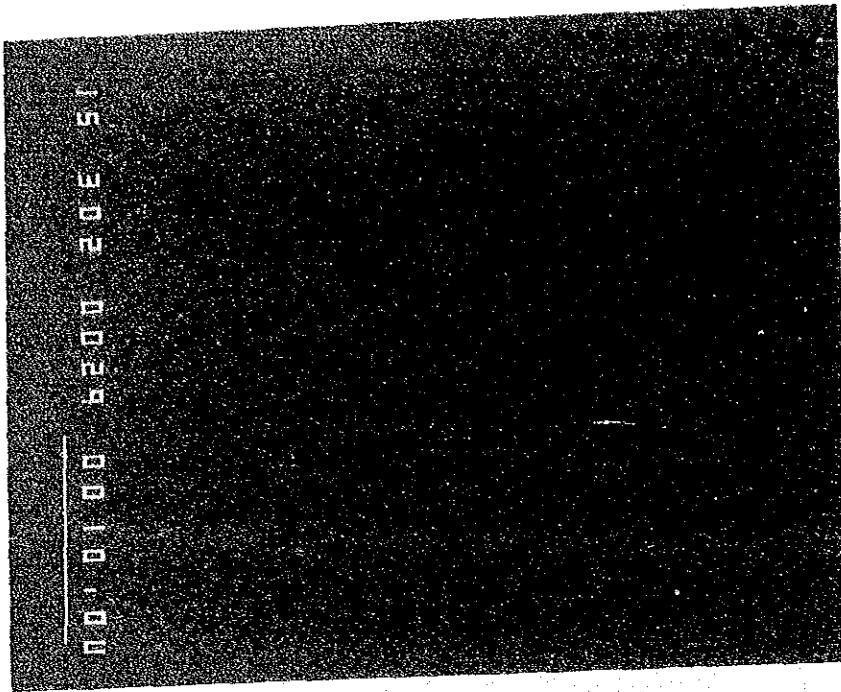


Photo 53.
Cu $K\alpha$ Image

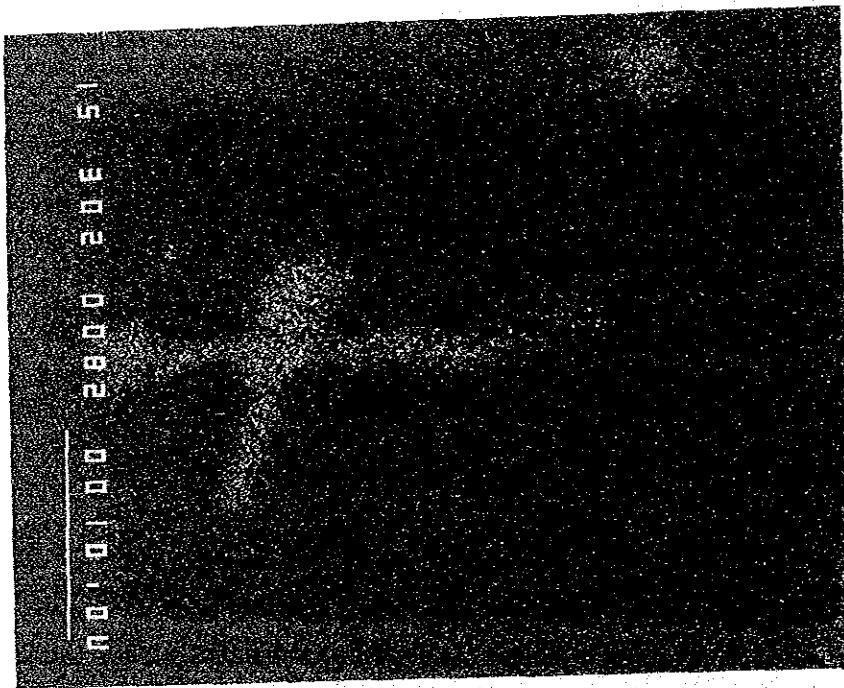


Photo 54.
Pb $M\alpha$ Image

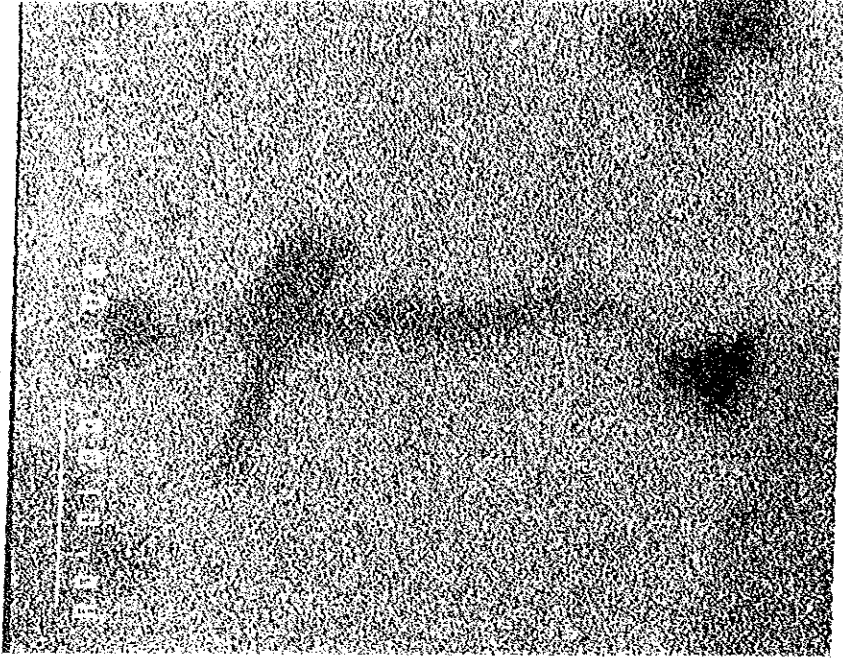


Photo 57.
A $K\alpha$ Image

SAMPLE	No. 1 ORE (A)
VOLTAGE	20 KV
CURRENT	0.05 μ A
MAGNIFICATION	*3000

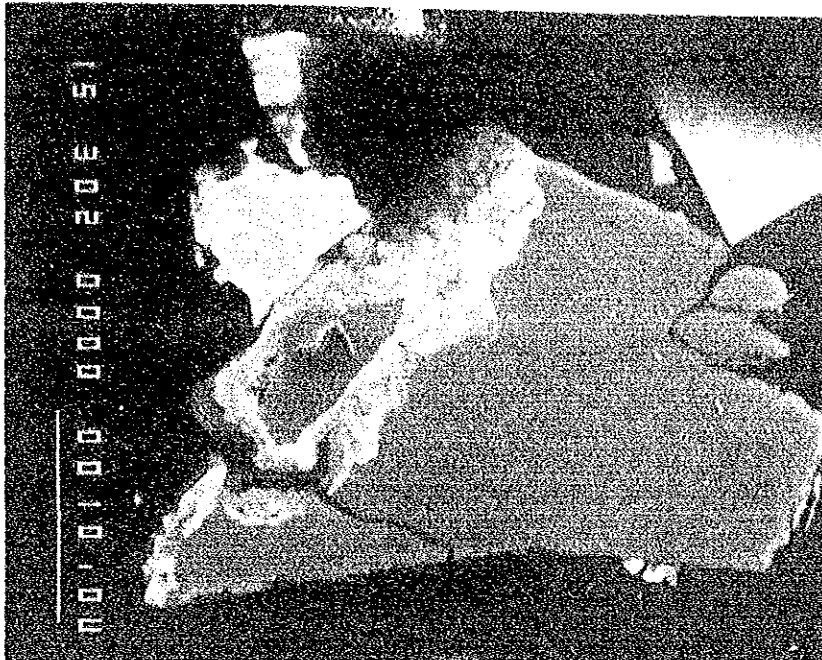


Photo 58.
Secondary Electron Image

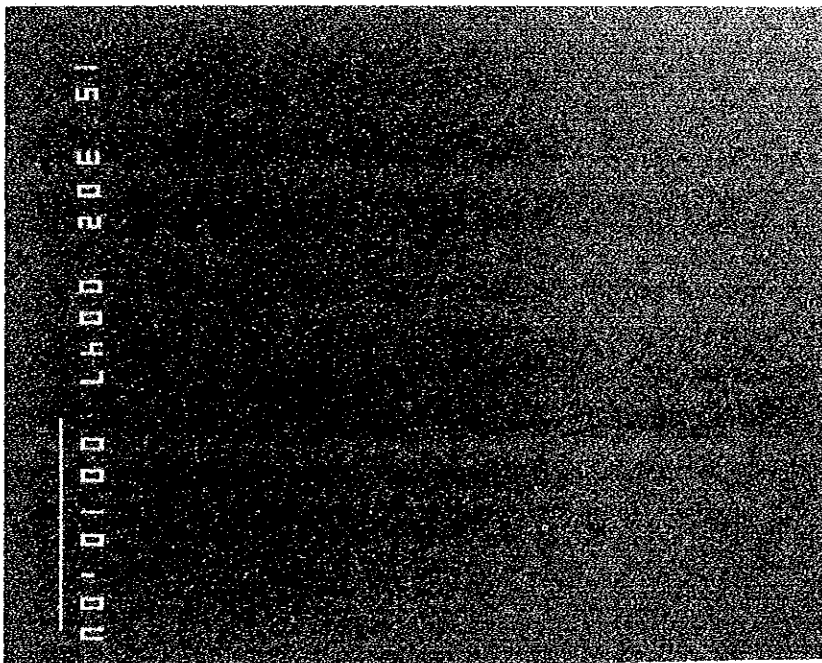


Photo 59.
Ag L α Image

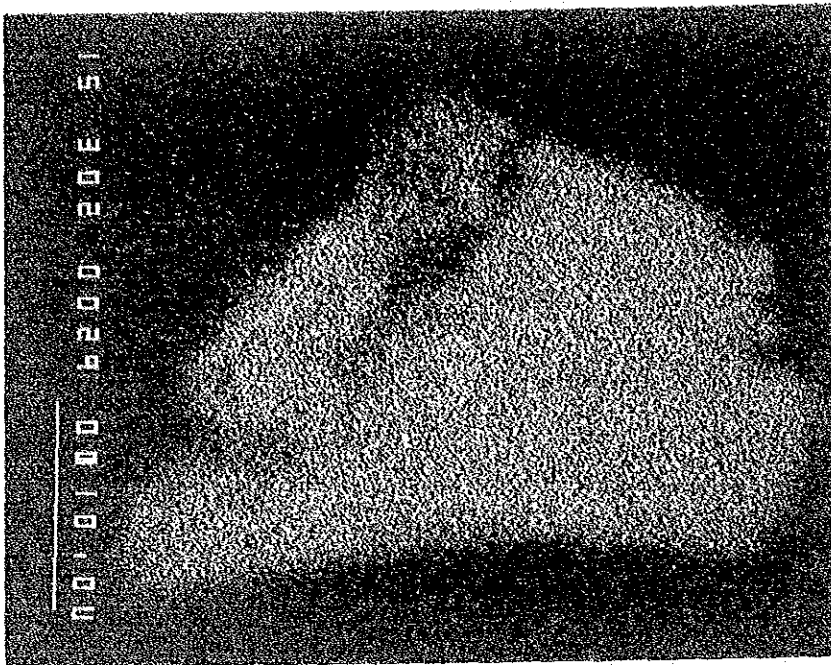


Photo 60.
Cu K α Image

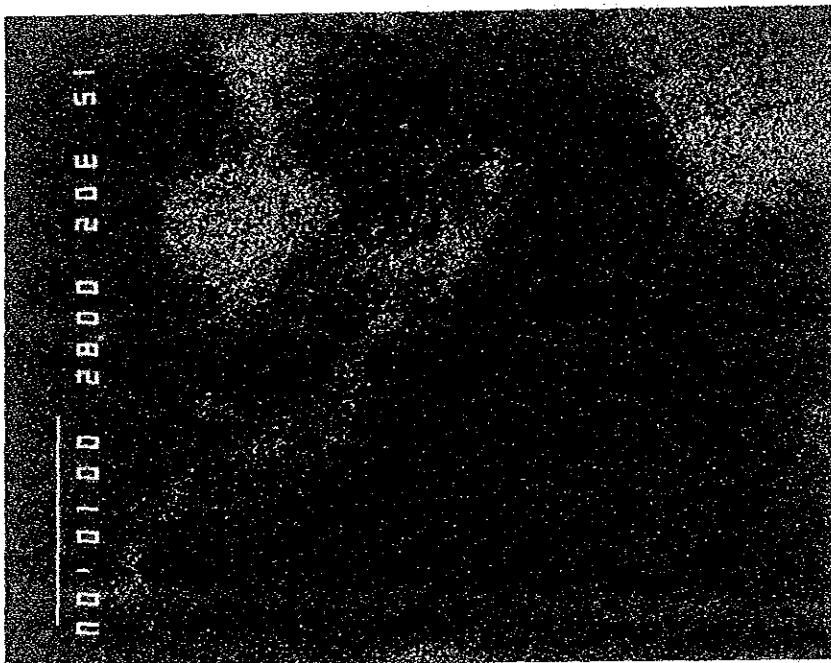


Photo 61.
Pb M α Image

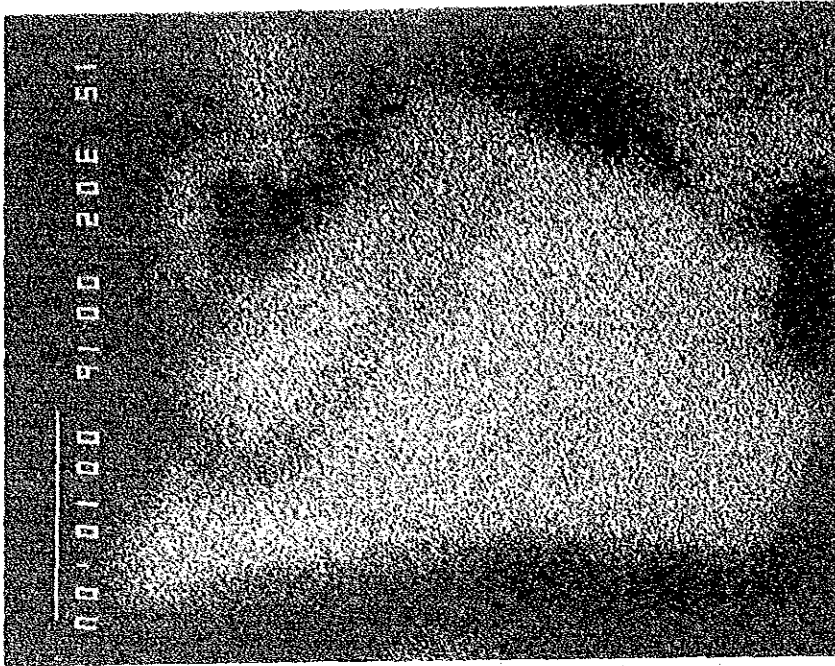


Photo 64.
S K α Image

SAMPLE	No. 1 ORE (B)
VOLTAGE	20 KV
CURRENT	0.05 μ A
MAGNIFICATION	*3600



Photo 65.
Secondary Electron Image

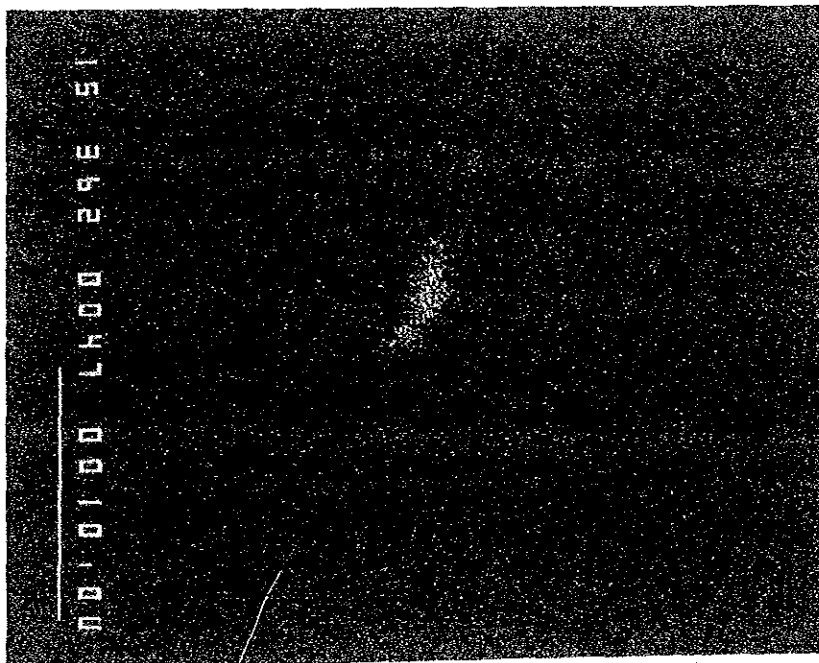


Photo 66.
Ag L α Image

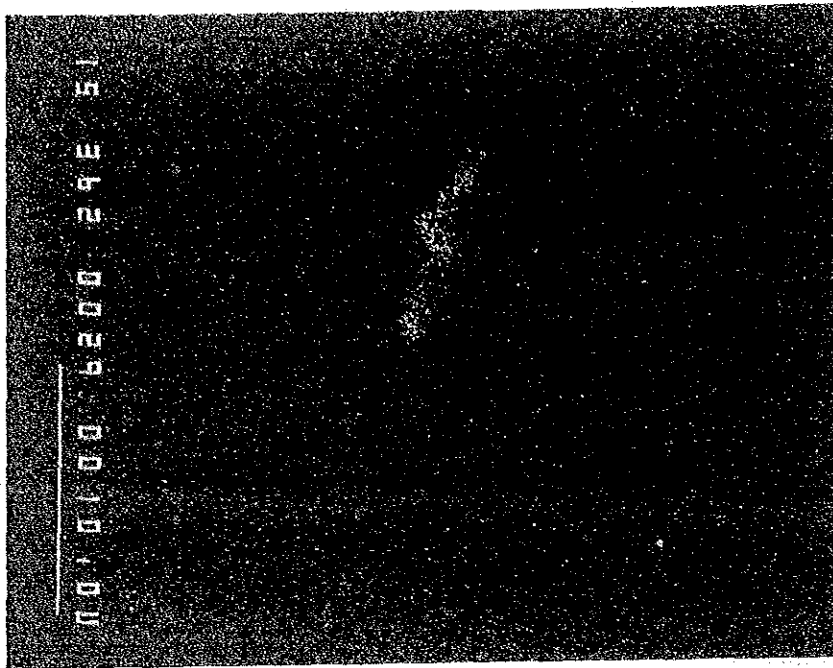


Photo 67.
Cu $K\alpha$ Image

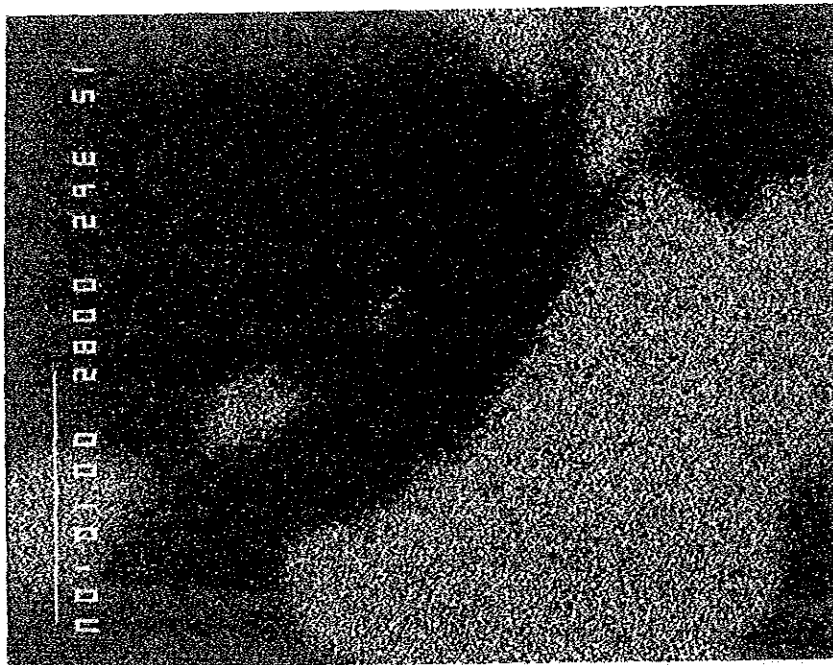


Photo 68.
Pb $M\alpha$ Image

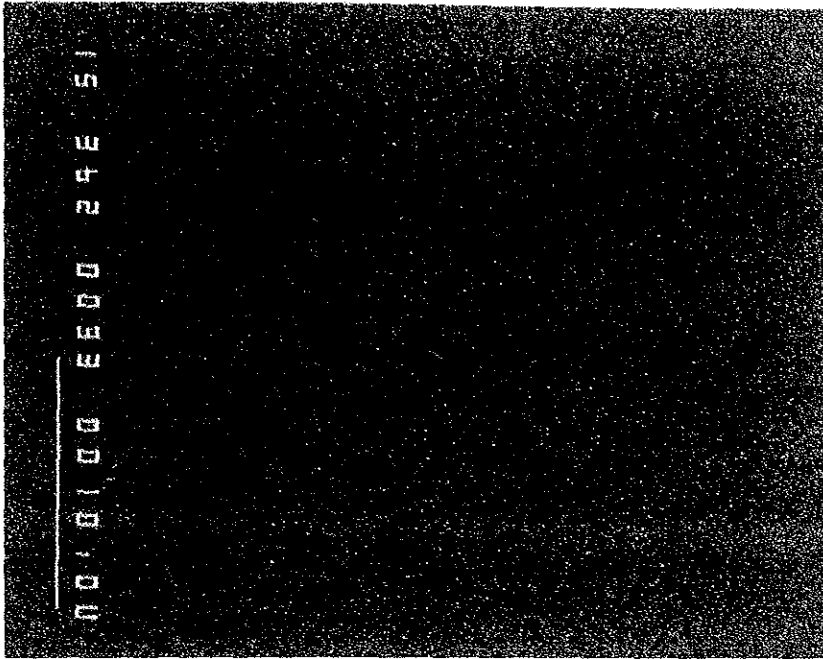


Photo 69.
As L α Image

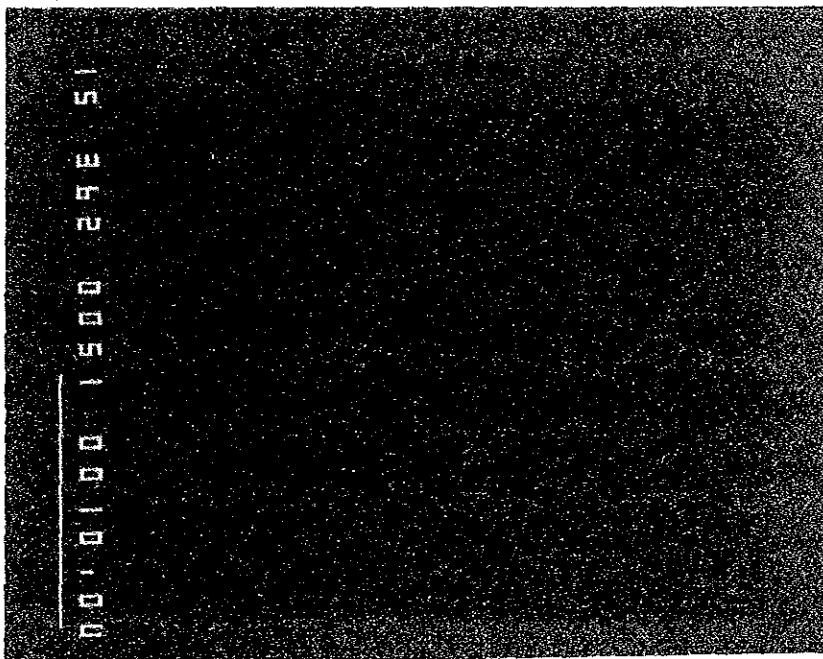


Photo 70.
Sb L α Image

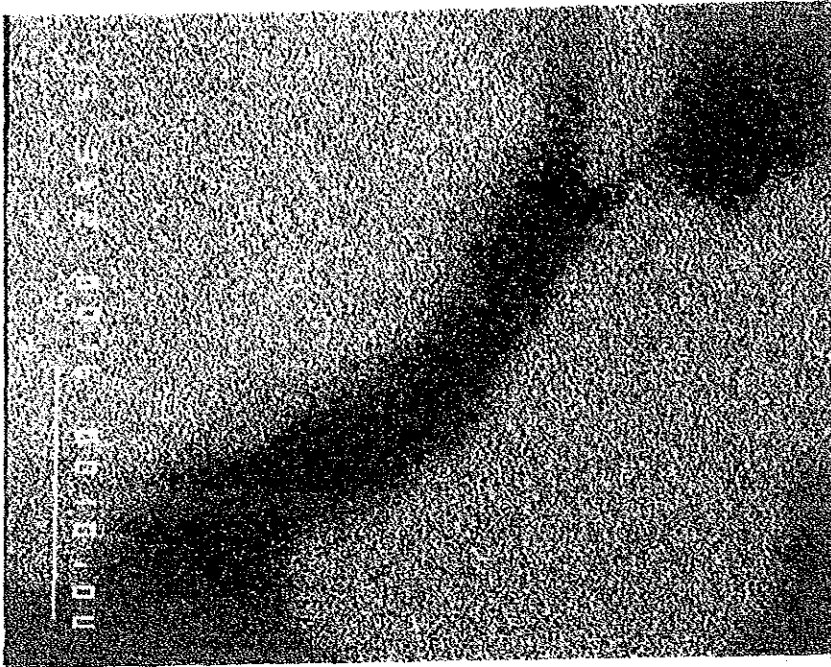


Photo 71.
S K α Image

SAMPLE	No. 2 ORE
VOLTAGE	20 KV
CURRENT	0.05 μ A
MAGNIFICATION	*3000

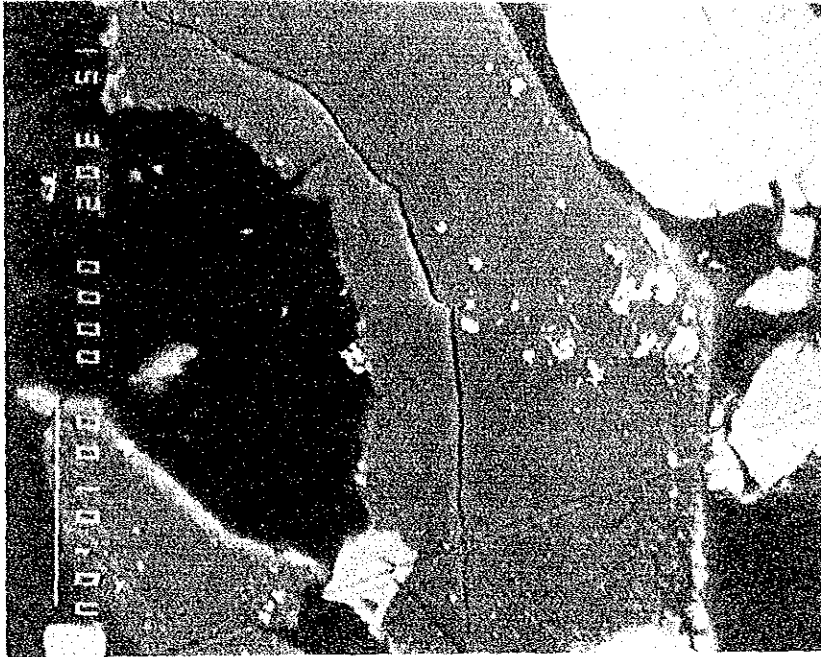


Photo 72.
Secondary Electron Image

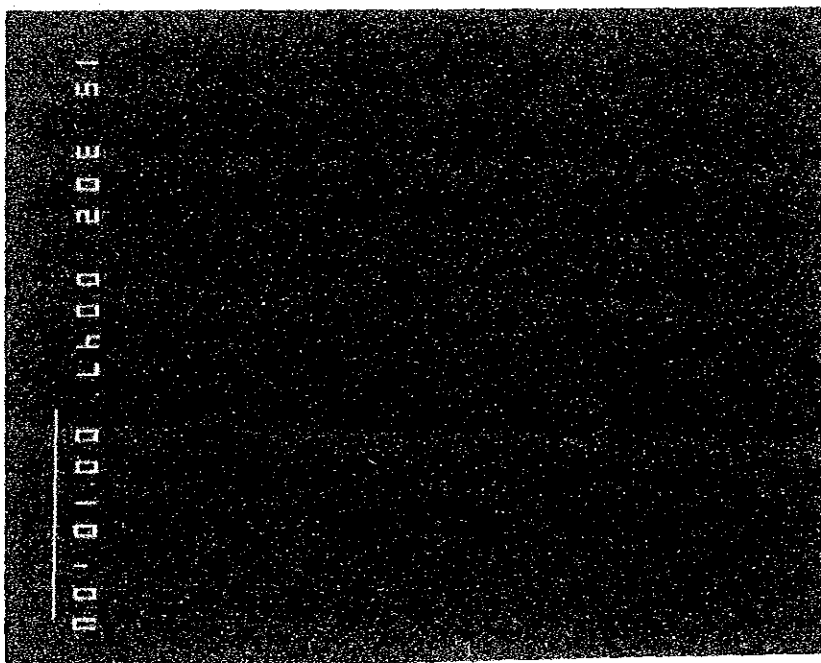


Photo 73.
Ag L α Image

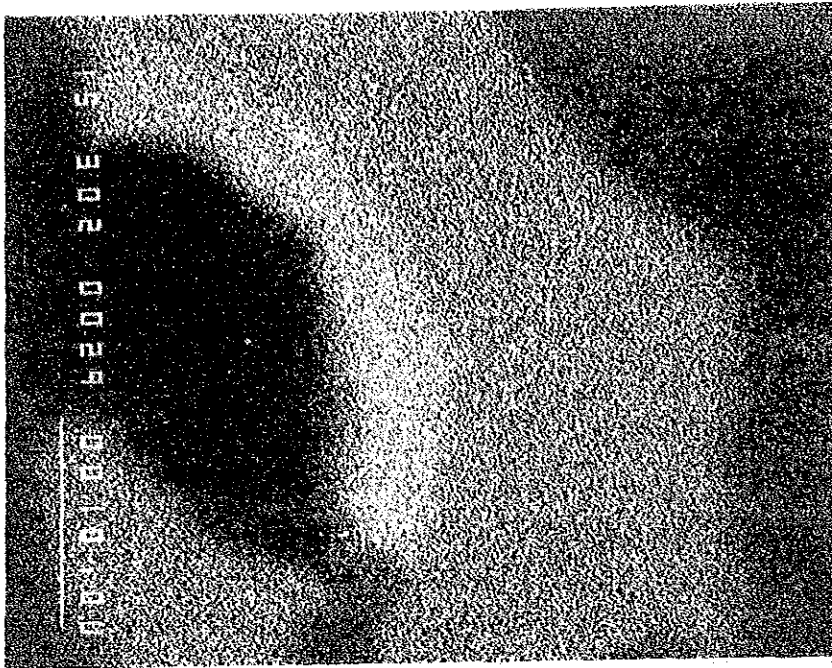


Photo 74.
Cu K α Image

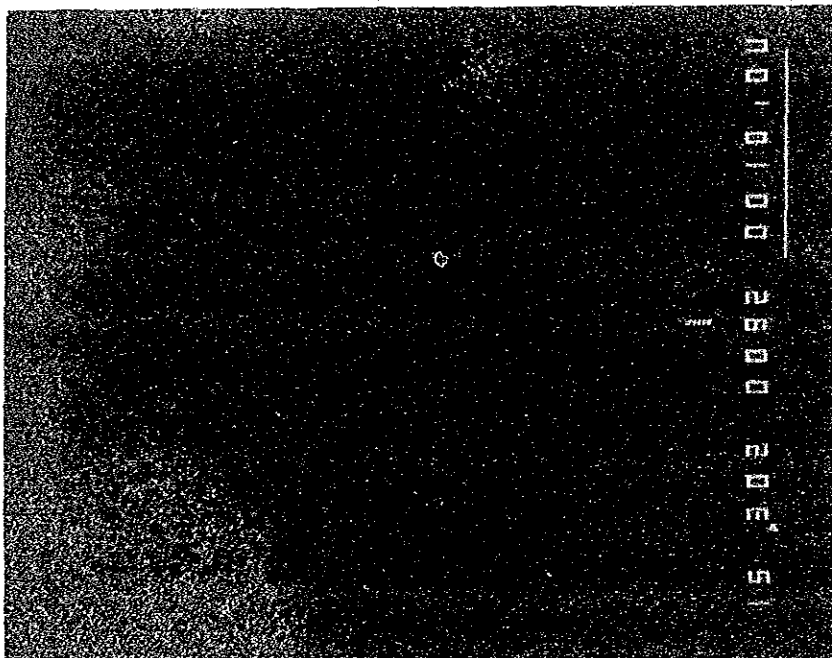


Photo 75.
Pb M α Image

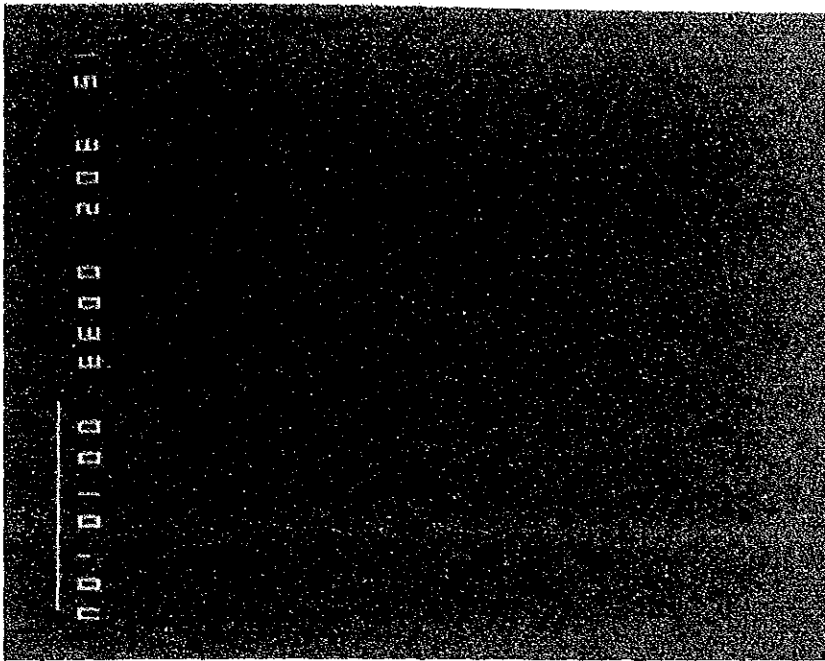


Photo 76.
As L α Image

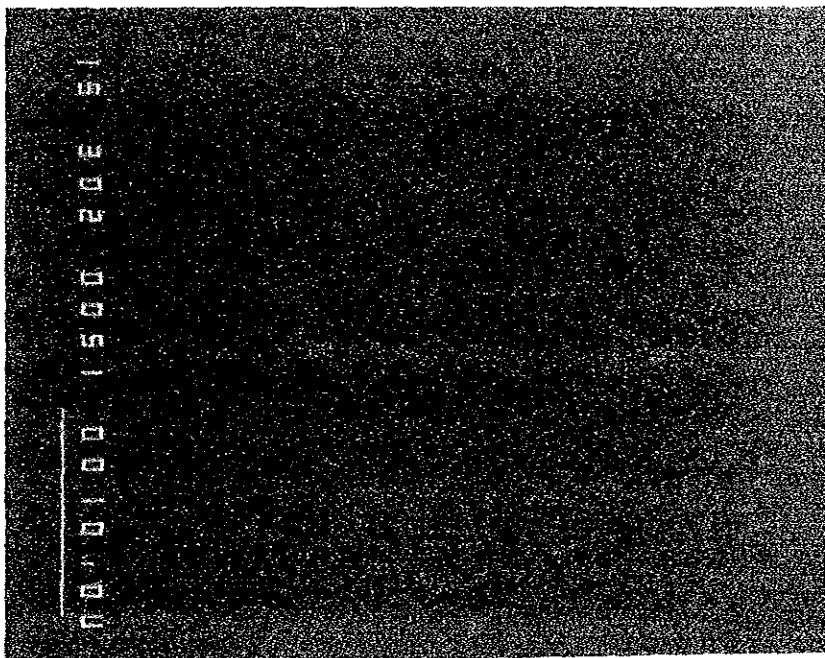


Photo 77.
Sb L α Image

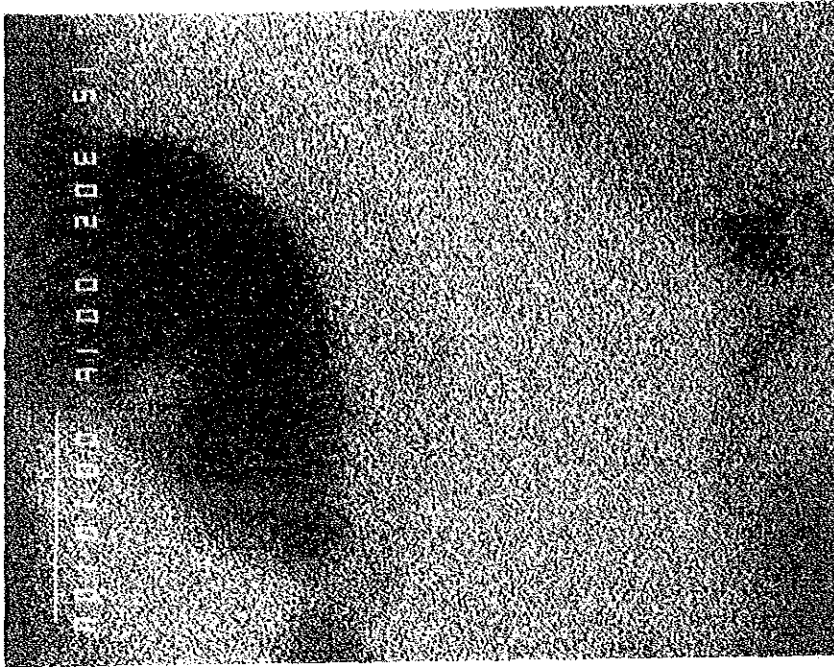


Photo 78.
S $K\alpha$ Image

5. 浮選試験条件および試験結果

Table A-3 Comparative Pb Flotation Tests of Various Collectors of No. 1 Ore

TEST No	CONDITIONS										RESULTS									
	OPERATION	TIME (min)		pH	REAGENTS (g/l)					PRODUCTS	WEIGHT (%)	ASSAY (%)			DISTRIBUTION (%)					
		CON	FLT.		Na EX	AP	AP + 404	Z-200	NaCN			ZnSO ₄	MIBC	Pb	Zn	Fe	Pb	Zn	Fe	
5	Pb Rough	5	10	9.2	20			25	100	70	Feed	100.00	5.42	0.48	1.77	100.00	100.00	100.00		
	Pb Clean	5	5	8.7	70					30	Pb-C	725	61.17	3.13	3.90	81.82	47.41	1.554		
											Pb-T	261	4.16	1.01	3.51	2.48	5.50	5.16		
6	Pb Rough	5	10	9.1	20			25	100	70	Feed	100.00	4.18	0.55	1.87	100.00	100.00	100.00		
	Pb Clean	5	5	8.7						30	Pb-C	526	63.01	4.21	0.59	79.18	11.57	1.66		
											Pb-T	4.07	10.25	0.81	1.76	9.98	6.00	3.83		
7	Pb Rough	5	10	9.1	20			25	100	70	Feed	100.00	4.80	0.66	1.93	100.00	100.00	100.00		
	Pb Clean	5	5	8.6						30	Pb-C	434	60.76	1.61	0.59	54.91	10.53	1.33		
											Pb-T	4.92	12.06	0.81	1.80	12.36	6.01	4.59		
7-2	Pb Rough	5	10	9.2	20			25	100	70	Feed	100.00	5.71	0.62	2.11	100.00	100.00	100.00		
	Pb Clean	5	5	8.7						30	Pb-C	820	59.09	4.24	5.41	84.94	56.43	21.03		
											Pb-T	3.23	6.03	2.83	4.68	3.41	1.483	7.16		
7-3	Pb Rough	5	10	9.2	60			70	25	100	Feed	100.00	6.06	0.61	1.96	100.00	100.00	100.00		
	Pb Clean	5	5	8.7						20	Pb-C	7.68	63.41	2.93	1.17	80.36	36.82	4.60		
											Pb-T	4.30	2.93	1.82	2.24	2.08	1.290	5.37		
											T	88.02	1.21	0.35	2.00	17.56	50.38	90.03		

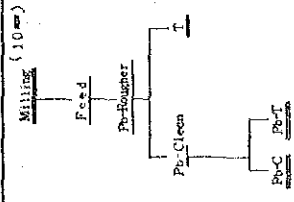


Table A-6 Pb Flotation Tests of Depressants of No. 1 Ore

TEST No	CONDITIONS										RESULTS									
	TIME (min)		PH	REAGENTS (g/l)			WEIGHT (%)	PRODUCTS	ASSAY (%)				DISTRIBUTION (%)							
	CON.	FLT.		IPX	NaCN	ZnSO ₄			MIBC	Pb	Zn	Fe	Pb	Zn	Fe					
14	Pb Rough	5	5	8.2	20	10	40	50	20	100.00	Feed	5.37	0.63	1.72	100.00	100.00	100.00			
	Pb Clean	5	5					20	7.79	Pb - C	58.36	4.24	1.22	84.67	52.76	5.48				
									2.85	Pb - T	4.38	2.72	2.39	2.16	11.49	3.64				
									89.56	T	0.79	0.25	1.76	13.17	35.75	90.88				
16	Pb Rough	5	5	8.2	20	50	200	50	20	100.00	Feed	5.09	0.55	1.88	100.00	100.00	100.00			
	Pb Clean	5	5					20	7.34	Pb - C	65.70	2.02	0.83	94.77	27.13	3.24				
									2.76	Pb - T	2.15	1.41	2.54	1.17	7.12	3.72				
									89.90	T	0.23	0.40	1.95	4.06	65.75	93.04				

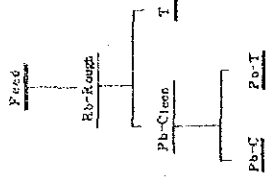


Table A-7 Barite Flotation Tests on pH of No. 1 Ore

TEST No	CONDITIONS										RESULTS					
	OPERATION	TIME (min)		pH	IPK	REAGENTS (g/l)					PRODUCTS	WEIGHT (%)	ASSAY (%)		DISTRIBUTION (%)	
		CON.	FLT.			NaCN ZnSO ₄	CuSO ₄	Water Glasses	A.P. #625	A.P. #845			H ₂ SO ₄	MIBC	BaSO ₄	PbSO ₄
17	Pb Rough	5	10	8.8	20	25	100				50	100.00	45.66	100.00		
	De Sulfide	5	10	6.2			100			50	Pb - C	9.82	13.44	2.89		
	Ba Rough	5	10	5 (7.0)		200		25	4.350	30	De-SF	2.10	2.196	1.01		
	Ba Clean		5	5 (6.0)					3.10		Ba - C	10.26	5.660	1.250		
18	Pb Rough	5	10	8.5	20	25	100			50	Feed	100.00	45.43	100.00		
	De Sulfide	5	10	6.0	20		100			50	Pb - C	9.79	1.442	3.11		
	Ba Rough	5	10	5.0 (7.0)		200		25	3.10	30	De - SF	3.40	2.336	1.75		
	Ba Clean		5	5.9 (7.8)					3.0		Ba - C	21.69	5.854	2.795		
											Ba - T	11.68	5.742	5.243		
											T	53.44	4.458			
19	Pb Rough	5	10	8.7	20	25	100			50	Feed	100.00	43.65	100.00		
	De Sulfide	5	10	6.0	20		100			50	Pb - C	10.00	15.90	3.64		
	Ba Rough	5	10	6.8		200		25	2.70	30	De - SF	4.40	2.740	2.76		
	Ba Clean		5	7.0 (7.8)					4.0		Ba - C	32.30	5.616	4.304		
										Ba - T	13.42	4.208	1.294			
										T	39.88	4.118	3.762			

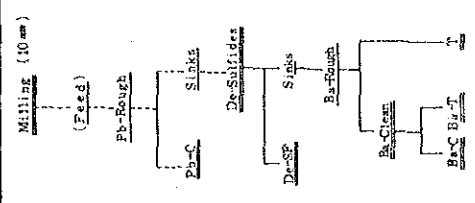


Table A-8 Barite Flotation Tests of Collectors of No. 1 Ore

TEST No.	CONDITIONS										RESULTS						
	OPERATION	TIME (min)		pH	REAGENTS (g/l)					PRODUCTS	WEIGHT (%)	ASSAY (%)			DISTRIBUTION (%)		
		CON.	FLT.		NaCN ZnSO ₄	1PX	Cu SO ₄	Water Glass	A.P. #825			A.P. #845	H ₂ SO ₄	MIBC	BaSO ₄	PbSO ₄	ZnO
20	Pb Rough	5	10	8.8	25 100					50 20	100.00			100.00			
	De Sulfide	5	10	6		100				Tb - C	9.54			2.90			
	Ba Rough	5	10	7			50	50	25	De - SF	4.33			2.68			
	Ba Clean		5	7						Ba - C	11.76			1.612			
										Ba - T	5.998			9.63			
21	Pb Rough	5	10	8.8	25 100					50 20	100.00			100.00			
	De Sulfide	5	10	6.0 (8.0)		100				Pb - C	8.79			2.66			
	Ba Rough	5	10	7 (7.8)			50	100	50	De - SF	3.35			1.58			
	Ba Clean		5	7 (7.8)						Ba - C	2.03			3.033			
										Ba - T	1.799			2.211			
22	Pb Rough	5	10	8.8	25 100					50 20	100.00			100.00			
	De Sulfide	5	10	6.0 (8.0)		100				Pb - C	10.32			4.78			
	Ba Rough	5	10	7 (7.8)			100	500	250	De - SF	4.14			3.24			
	Ba Clean		5	7 (7.8)						Ba - C	53.04			77.21			
										Ba - T	2.584			13.03			
23	Pb Rough	5	10	8.8	25 100					50 20	100.00			100.00			
	De Sulfide	5	10	6.0		100				Pb - C	9.97			5.12			
	Ba Rough	5	10	7 (7.8)			750	1500	750	De - SF	4.23			2.77			
	Ba Clean 1		5	7 (7.8)						Ba C	62.29			7.654			
	Clean 2		5	7 (7.6)						Ba Cl ₁ T	5.92			5.38			
Clean 3		5	7 (7.5)						Ba Cl ₂ T	6.10			3.13				
									Ba Cl ₃ T	3.69			3.90				
									T	7.80			1.16				

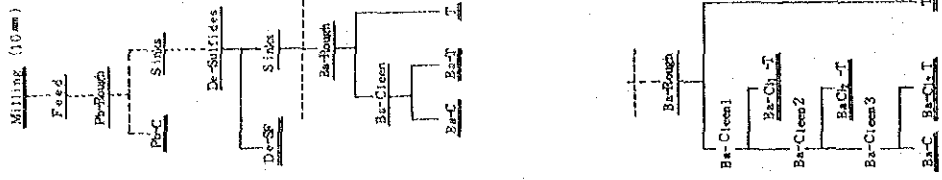


Table A-10 Zn · Py Flotation Tests of pH of No. 1 Ore

TEST No.	CONDITIONS										RESULTS									
	OPERATION	TIME (min)		pH	REAGENTS (g/l)					PRODUCTS	WEIGHT (%)	ASSAY (%)				DISTRIBUTION (%)				
		CON.	FLT.		IPX	AP = 10 ⁻⁴	NaCN	ZnSO ₄	CuSO ₄			H ₂ SO ₄	Lime	MIBC	Pb	Zn	Fe	Pb	Zn	Fe
26	Pb Rough	5	10	Natural	10	20	100	100		50 20	100.00	5.44	0.22	1.41	100.00	100.00	100.00			
	Zn Py Bulk	5	10	Natural	50		100		40		6.94	52.83	1.21	0.49	90.05	35.75	2.41			
	Zn Rough	5	10	(8.5)	50		200	240			3.23	9.81	0.91	1.76	5.62	13.56	4.02			
	Zn Clean	5	5	9				60			0.32	16.11	1.22	1.83	0.95	19.58	4.23			
											2.02	1.57	0.20	2.54	0.58	1.97	3.64			
27	Pb Rough	5	10	Natural	10	10	100	100	50 20	100.00	5.64	0.52	1.57	100.00	100.00	100.00				
	Zn Py Bulk	5	10	6	50		100	1010	40	7.24	66.17	1.51	1.22	84.93	22.49	5.28				
	Zn Rough	5	10	10	50		200	280		3.06	6.00	1.51	2.29	3.25	8.90	4.18				
	Zn Clean	5	5	10				400		1.87	5.72	16.45	2.56	1.90	59.95	28.34				
										3.08	1.98	0.15	2.83	1.08	0.89	5.20				
									0.28	2.96	0.40	2.54	0.15	0.22	0.43					
									8.47	0.58	0.05	1.12	8.69	31.5	56.57					

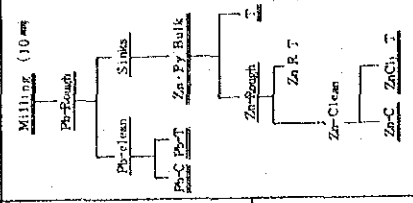


Table A-11 Zn - Py Flotation Test of Reagents and pH of No. 1 Ore

TEST No	CONDITIONS										RESULTS							
	OPERATION	TIME (min)		pH	REAGENTS (g/l)					PRODUCTS	WEIGHT (%)	ASSAY (%)			DISTRIBUTION (%)			
		CON.	FLT.		IPX	NaCN	ZnSO ₄	CuSO ₄	H ₂ SO ₄			Lime	MIBC	Pb	Zn	Fe	Pb	Zn
29	Pb Rough	5	10	Natural (7.8)	20	25	100			50 10	Feed	100.00	5.64	0.63	2.60	100.00	100.00	100.00
	Zn Py Bulk	5	10	6 (7.5)	50		100			10	Pb - C	10.00	50.04	2.02	1.34	86.73	32.26	5.16
	Zn Rough	5	10	10	10		50	930	300	10	Zn - C	1.89	5.27	17.46	26.04	1.77	5.28	1.90
	Zn Clean	5	10	10					50		Zn RT	2.87	1.24	0.25	1.71	0.63	1.14	1.89
		5	10	10							ZnCl ₂ T	0.43	3.97	0.35	4.63	0.30	0.24	0.77
										T	84.81	0.57	0.10	2.24	3.57	13.55	73.15	
30	Pb Rough	5	10	Natural	20	25	100			50 10	Feed	100.00	5.77	0.50	2.11	100.00	100.00	100.00
	Zn Py Bulk	5	10	5 (7.8)	50		100	1,260		10	Pb - C	9.54	52.91	2.12	4.39	87.43	40.47	1.983
	Zn Rough	5	10	11 (9.0)	50		200	250		153	Zn - C	1.53	2.90	16.25	28.28	0.74	4.98	20.51
	Zn Clean1	5	10	11				500		1.90	Zn RT	1.90	1.28	0.10	1.95	0.42	0.38	1.76
	Zn Clean2	5	10	11				400		0.34	ZnCl ₂ T	0.34	3.34	0.61	7.41	0.20	0.42	1.19
										ZnCl ₂ T	0.10	6.20	1.31	11.21	0.11	0.26	0.53	
										T	86.59	0.74	0.05	1.37	1.110	6.67	56.18	
31	Pb Rough	5	10	Natural	20	25	100			50 10	Feed	100.00	6.56	0.54	2.02	100.00	100.00	100.00
	Zn Py Bulk	5	10	6 (8.0)	50		100	1,310		20	Pb - C	9.47	53.72	2.42	1.46	77.52	42.54	6.83
	Zn Rough	5	10	12	100		400	850		0.35	Zn - C	0.35	3.06	4.994	4.29	0.16	3.183	0.74
	Zn Clean1	5	10	12			30	900		2.47	Zn RT	2.47	2.22	0.66	10.29	0.84	3.03	12.56
	Zn Clean2	5	10	12				700		0.85	ZnCl ₂ T	0.85	2.50	1.87	22.14	0.32	2.95	9.30
										ZnCl ₂ T	0.36	3.23	5.35	22.04	0.19	3.58	3.92	
										T	86.50	1.59	0.10	1.56	20.97	16.07	66.65	

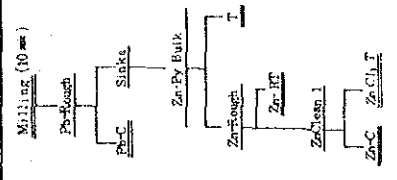


Table A-12 Zn · Py Flotation Test of Reagents of No. 1 Ore

TEST No	CONDITIONS										RESULTS									
	OPERATION	TIME (min)		pH	REAGENTS (g/l)						PRODUCTS	WEIGHT (%)	ASSAY (%)			DISTRIBUTION (%)				
		CON.	FLT.		IPX	NaCN	ZnSO ₄	CuSO ₄	H ₂ SO ₄	Lime			MIBC	Pb	Zn	Fe	Pb	Zn	Fe	
																				5
32	Pb Rough	5	10	10.5	20	25	100						5.53	0.51	1.64	100.00	100.00	100.00		
	Zn Py Bulk	5	10	10.5	20		100	7.50		50	40	20	48.45	2.52	1.46	90.76	5.10	9.23		
	Zn Rough	5	7	11.5	10		50		7.00	20	20	20	3.60	5.38	4.00	0.18	28.21	0.66		
	Zn Clean 1	5	5	12					8.00				0.86	0.25	6.97	0.34	1.07	9.29		
	Zn Clean 2	5	5	12	4				6.50	10			2.78	0.76	2.50	0.35	1.03	10.55		
	T												4.69	9.74	27.11	0.46	10.30	8.95		
33	Pb Rough	5	10	10.5	20	25	100			50	40	20	4.95	0.51	1.70	100.00	100.00	100.00		
	Zn Py Bulk	5	10	10.5	20		100	8.90		50	40	20	45.02	1.92	1.46	91.97	38.04	8.68		
	Zn Rough	5	7	11.5	2.5		20		6.50	30	30	20	4.48	4.56	5.22	0.50	4.92	1.69		
	Zn Clean 1	5	5	12					4.50	10			1.81	0.35	1.30	0.96	1.79	20.03		
	T												5.21	2.92	21.26	0.65	2.46	7.77		
	T												0.34	0.05	1.22	5.92	8.45	61.83		
34	Pb Rough	5	10	10.5	20	25	100			50	40	20	4.82	0.53	1.69	100.00	100.00	100.00		
	Zn Py Bulk	5	10	10.5	20		100	8.90		50	40	20	45.27	2.22	1.34	92.89	41.15	7.84		
	Zn Rough	5	7	12	50		200		8.20	10	10	20	4.45	4.82	3.80	0.47	4.47	1.15		
	Zn Clean 1	5	5	12					6.60				0.74	0.30	1.48	0.38	1.39	18.23		
	Zn Clean 2	5	5	12					6.20				2.74	0.96	2.92	0.29	0.92	8.12		
	T												5.52	9.38	19.11	0.24	3.69	2.37		
T												0.32	0.05	1.22	5.73	8.09	62.29			

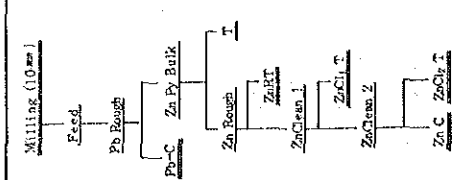


Table A-13 Pb Flotation Tests on Grinding Time of No. 2 Ore

TEST No	CONDITIONS					RESULTS									
	OPERATION	TIME (min)	REAGENTS (g/l)			PRODUCTS	WEIGHT (%)	ASSAY (%)			DISTRIBUTION (%)				
			IPX	NaCN	ZnSO ₄			Pb	Zn	Fe	Pb	Zn	Fe		
35 (7 mm)	Pb Rough	5	20	25	100	50 20	100.00	22.10	0.34	9.09	100.00	100.00	100.00	100.00	
	Pb Clean1	5	8.1			20	26.44	6.403	0.31	10.00	76.61	63.40	29.09		
	Pb Clean2	5	8.2				5.18	47.33	0.31	7.02	13.24	16.65	4.77		
						T	67.38	3.33	0.10	8.92	10.15	19.95	66.14		
36 (10 mm)	Pb Rough	5	20	25	100	50 20	100.00	22.72	0.22	8.78	100.00	100.00	100.00		
	Pb Clean1	5	8.2			20	25.68	7.231	0.50	6.34	81.73	59.19	18.56		
	Pb Clean2	5	8.2				3.56	45.11	0.50	5.97	7.22	8.20	2.42		
						T	70.76	3.55	0.10	9.80	11.05	3.261	7.902		
37 (15 mm)	Pb Rough	5	20	25	100	50 20	100.00	21.83	0.21	8.42	100.00	100.00	100.00		
	Pb Clean1	5	8.2			20	27.80	59.79	0.81	9.75	88.86	73.73	32.18		
	Pb Clean2	5	8.2				4.01	14.21	0.30	10.83	2.61	3.94	5.06		
						T	68.19	2.73	0.10	7.75	8.53	22.53	82.76		

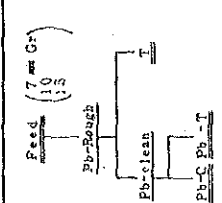


Table A-14 Pb Flotation Tests of Collectors of No. 2 Ore

TEST No.	CONDITIONS										RESULTS									
	OPERATION	TIME (M)		pH	AP #104	IPX	NaCN	ZnSO ₄	MIBC	PRODUCTS (%)	WEIGHT (%)	ASSAY (%)			DISTRIBUTION (%)					
		CON.	FLT.									Pb	Zn	Fe	Pb	Zn	Fe			
38	Pb Rough	5	7	Natural (7.9)		50	200	50	20	Feed	100.00	21.88	0.39	8.61	100.00	100.00	100.00			
	Pb Clean	5	5	8.1		50		20	Pb-C	30.74	66.53	1.01	7.36	95.45	79.16	26.27				
									Pb-T	4.15	10.37	0.40	12.29	1.97	4.24	5.88				
									T	65.11	1.54	0.10	8.97	4.58	16.60	67.80				
39	Pb Rough	5	7	Natural (7.9)	25	50	200	50	20	Feed	100.00	22.48	0.36	8.98	100.00	100.00	100.00			
	Pb Clean	5	5	8.1		50		20	Pb-C	23.46	71.28	0.81	4.19	74.37	53.11	10.85				
									Pb-T	3.57	3.50	0.51	6.68	5.24	6.09	2.66				
									T	72.97	6.28	0.20	10.63	20.39	40.80	86.39				
40	Pb Rough	5	7	Natural	50	50	200	50	20	Feed	100.00	22.63	0.38	9.84	100.00	100.00	100.00			
	Pb Clean	5	5	8.1		50		20	Pb-C	29.16	71.48	1.01	8.29	92.11	77.82	24.57				
									Pb-T	3.27	1.329	0.50	11.41	1.92	4.32	3.79				
									T	67.37	2.00	0.10	10.43	59.71	73.66	71.64				
41	Pb Rough	5	7	Natural	100	20	200	50	20	Feed	100.00	23.23	0.32	10.83	100.00	100.00	100.00			
	Pb Clean	5	5	8.1		50		20	Pb-C	30.46	67.99	0.81	7.18	89.13	74.66	20.19				
									Pb-T	3.55	11.07	0.50	13.26	1.69	5.37	4.34				
									T	65.99	3.23	0.10	12.39	91.81	13.97	75.47				

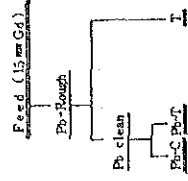


Table A-15 Pb Flotation Tests of Depressants of No. 2 Ore

TEST No	CONDITIONS										RESULTS									
	OPERATION	TIME (min)		pH	REAGENTS (g/l)					WEIGHT PRODUCTS (g)	ASSAY (%)					DISTRIBUTION (%)				
		CON.	FLT.		IPX	NaCN	ZnSO ₄	H ₂ SO ₄	Lime		MIBC	Pb	Zn	Fe	Pb	Zn	Fe			
42	Pb Rough	5	7	Natural	50	25	100			50	Feed	22.42	0.20	9.86	100.00	100.00	100.00			
	Pb Clean	5	5	8.1	20				20	Pb-C	69.82	1.01	5.75	89.00	7.95	16.49				
										Pb-T	17.68	0.40	10.53	2.69	3.68	3.60				
										T	27.4	0.10	11.70	8.31	13.37	7.991				
43	Pb Rough	5	7	Natural	50	100	400			50	Feed	22.97	0.32	8.53	100.00	100.00	100.00			
	Pb Clean	5	5	8.1	20				20	Pb-C	73.76	0.61	4.56	89.55	5.239	14.90				
										Pb-T	15.45	0.50	11.85	2.32	5.30	4.78				
										T	27.2	0.20	9.88	8.13	14.231	8.032				

