

Appendix D - Mineral chemical data

Analytical conditions and detection limits (2s) of EMPA analyses
Acceleration voltage 25 kV, probe current 15 nA

	X-ray line	Crystal	Channel/Spectro-meter	Peak pos. (nm)	Detection limit (ppm)	Peak (s)	Background (s)	Standard
Fe	K α	LIFH	5	134.728	80	15	10	ChpNWM
Cu	K α	LIFH	5	107.094	110	15	10	CuS_N20
Ag	L α	PETH	4	132.862	180	20	10	AgBiSe2
Au	L α	LIFH	5	88.371	~800	20	5	AuAgTecabri16
Sb	L α	PETJ	3	110.032	1680	15	10	PdSbcabri29720K
Hg	M α	PETJ	3	180.859	~1900	15	5	Pd3HgTe3cabri
Pb	M α	PETJ	2	169.095	1690	15	5	PbSCZ25KvLB
Bi	M α	PETH	4	163.870	1780	15	5	AgBiSe2
S	K α	LIFH	3	172.123	110	15	5	42spiZnS
As	L α	TAP	1	105.156	500	20	10	19Skutt

Cu-Fe-As-S Measurements

Sample P.1

Spot no.	P.1kr1-a1	P.1kr3-a1	P.1kr4-a1
	Cu_{1.92}S	Cu_{1.70}S	Fe_{0.83}As_{0.9}S
	Djurleite	Anilite	Arsenopyrite
Mass%			
Fe	0.00	0.00	33.39
Cu	79.56	77.83	0.77
Ag	0.07	0.01	0.00
Bi	0.06	0.12	0.04
S	20.90	23.08	22.99
As	0.00	0.02	40.36
total	100.58	101.05	97.55
Calculation on the basis of 1 S			
Fe	0.000	0.000	0.834
Cu	1.921	1.701	0.017
S	1.000	1.000	1.000
As	0.000	0.000	0.751

Sample P.18

Spot no.	P.18kr8-a1	P.18kr8-a3	P.18kr6-a1	P.18kr6-a2	P.18kr6-a3	P.18kr6-a4
	Cu_{5.12}As₂	Cu_{5.04}As₂	Cu₅As₂	Cu_{2.73}As	Cu_{2.6}As	Cu_{2.69}As
	Koutekite	Koutekite	Koutekite	Domeykite	Domeykite	Domeykite
Mass%						
Fe	1.71	2.48	0.00	0.46	0.00	0.23
Cu	66.39	67.11	68.44	69.29	70.32	69.53
Ag	0.02	0.05	0.05	0.10	0.06	0.00
Bi	0.01	0.07	0.00	0.11	0.03	0.11
S	0.05	0.05	0.00	0.00	0.01	0.00
As	30.59	31.42	32.29	29.92	31.86	30.43
total	98.77	101.17	100.78	99.87	102.27	100.31
Calculation on the basis of 1 As						
Fe	0.150	0.212	0.000	0.020	0.000	0.010
Cu	5.118	5.037	4.998	2.730	2.602	2.694
S	0.007	0.007	0.000	0.000	0.001	0.000
As	2.000	2.000	2.000	1.000	1.000	1.000

Spot no.	P.18kr5-a1	P.18kr5-a3	P.18kr5-a4	P.18kr4-a2	P.18kr4-a3
	Cu_{1.12}S	Cu_{1.85}S	Cu_{1.82}S	Cu_{1.84}S	Cu_{1.86}S
	Yarrowite	Digenite	Digenite	Digenite	Digenite
Mass%					
Fe	1.99	0.58	0.00	0.60	0.00
Cu	67.92	78.38	78.03	79.01	79.58
Ag	0.06	0.04	0.00	0.01	0.03
Bi	0.03	0.18	0.10	0.00	0.08

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S	30.62	21.42	21.59	21.63	21.60
As	0.00	0.00	0.11	0.00	0.00
total	100.61	100.60	99.83	101.25	101.29
Calculation on the basis of 1 S					
Fe	0.037	0.016	0.000	0.016	0.000
Cu	1.119	1.846	1.823	1.843	1.859
S	1.000	1.000	1.000	1.000	1.000
As	0.000	0.000	0.002	0.000	0.000

Spot no.	P.18kr4-a4	P.18kr4-a1	P.18kr7-a1	P.18kr7-a2
	Fe_{0.91}As_{0.8}S	Fe_{1.05}S₂	Cu_{5.13}As₂	Cu_{4.7}As₂
	Arsenopyrite	Pyrite	Koutekite	Koutekite
Mass%				
Fe	36.11	44.24	0.00	0.00
Cu	0.21	4.01	68.54	67.61
Ag	0.04	0.01	0.00	0.02
Bi	0.00	0.02	0.09	0.01
S	22.70	48.54	0.02	0.00
As	42.66	2.40	31.48	33.94
total	101.72	99.23	100.13	101.57
Calculation on the basis of 1 Fe				
Fe	0.913	1.046	0.000	0.000
Cu	0.005	0.083	5.134	4.697
S	1.000	2.000	0.003	0.000
As	0.804	0.042	2.000	2.000

Sample P.12

Spot no.	P.12kr1-1	P.12kr1-15	P.12kr1-16	P.12kr1-4	P.12kr1-5	P.12kr1-9
	Cu_{1.74}S	Cu_{1.82}S	Cu_{1.84}S	Cu_{1.13}S	Cu_{1.1}S	Cu_{1.12}S
	Anilite	Digenite	Digenite	Yarrowite	Yarrowite	Yarrowite
Mass%						
Fe	2.39	3.23	4.32	1.49	1.05	0.65
Cu	75.62	77.62	76.62	68.94	68.88	69.30
S	21.89	21.46	21.03	30.75	31.71	31.21
As	0.09	0.09	0.18	0.07	0.00	0.13
Total	99.99	102.40	102.15	101.25	101.64	101.30
Calculation on the basis of 1 S						
Fe	0.063	0.086	0.118	0.028	0.019	0.012
Cu	1.743	1.825	1.838	1.131	1.096	1.120
S	1.000	1.000	1.000	1.000	1.000	1.000
As	0.002	0.002	0.004	0.001	0.000	0.002

Spot no.	P.12kr1-7	P.12kr1-18	P.12kr1-10	P.12kr1-11	P.12kr1-12	P.12kr1-13
	Cu_{1.86}S	Cu_{1.8}S	Cu_{1.91}S	Cu_{5.17}As₂	Cu_{2.7}As	Cu_{2.85}As
	Digenite	Digenite	Djurleite	Koutekite?	Domeykite	Domeykite
Mass%						
Fe	2.59	3.45	1.63	1.30	2.95	1.81
Cu	78.61	77.30	77.77	66.12	66.34	68.67
S	21.36	21.68	20.50	0.03	0.02	0.17

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As	0.00	0.00	0.38	30.15	29.02	28.38
Total	102.56	102.43	100.28	97.60	98.33	99.03
Calculation on the basis of 1 As (2 As)						
Fe	0.070	0.091	0.046	0.116	0.136	0.086
Cu	1.857	1.799	1.914	5.171	2.695	2.853
S	1.000	1.000	1.000	0.004	0.002	0.014
As	0.000	0.000	0.008	2.000	1.000	1.000

Spot no.	P.12kr1-14	P.12kr1-2	P.12kr1-3	P.12kr1-17	P.12kr1-8	P.12kr1-6
	Cu_{2.67}As	Cu_{2.83}As	Cu_{2.62}As	Cu_{2.78}As	Cu_{2.89}As	Cu_{2.85}As
	Domeykite	Domeykite	Domeykite	Domeykite	Domeykite	Domeykite
Mass%						
Fe	0.97	3.24	1.45	1.57	1.17	3.77
Cu	67.66	67.39	66.13	69.02	68.96	67.90
S	0.00	0.05	0.16	0.00	0.01	0.02
As	29.83	28.03	29.71	29.26	28.17	28.08
Total	98.46	98.71	97.45	99.85	98.31	99.77
Calculation on the basis of 1 As						
Fe	0.044	0.155	0.065	0.072	0.056	0.180
Cu	2.674	2.835	2.624	2.781	2.886	2.851
S	0.000	0.004	0.013	0.000	0.001	0.002
As	1.000	1.000	1.000	1.000	1.000	1.000

Spot no.	P.12kr1-19	P.12kr2-7	P.12kr3-13	P.12kr3-14	P.12kr3-15	P.12kr3-16
	Cu_{1.14}S	Cu_{1.08}S	Cu_{1.87}S	Cu_{1.7}S	Cu_{1.13}S	Cu_{1.78}S
	Yarrowit	Yarrowite	Digenite	Anilite	Yarrowite	Digenite
Mass%						
Fe	0.83	1.64	0.60	0.74	1.86	2.71
Cu	69.85	68.47	79.42	77.25	68.99	77.20
S	30.89	31.87	21.46	22.89	30.75	21.90
As	0.10	0.00	0.01	0.12	0.00	0.08
Total	101.67	101.98	101.49	101.00	101.60	101.89
Calculation on the basis of 1 S						
Fe	0.015	0.030	0.016	0.019	0.035	0.071
Cu	1.141	1.084	1.867	1.703	1.132	1.778
S	1.000	1.000	1.000	1.000	1.000	1.000
As	0.001	0.000	0.000	0.002	0.000	0.001

Spot no.	P.12kr3-17	P.12kr2-3	P.12kr2-4	P.12kr2-1	P.12kr2-2
	Cu_{1.74}S	Cu_{1.85}S	Cu_{1.84}S	Cu_{1.08}S	Cu_{1.07}S
	Anilite	Digenite	Digenite	Yarrowite	Yarrowite
Mass%					
Fe	2.67	2.56	2.51	0.86	1.56
Cu	76.57	78.28	77.96	68.45	67.48

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S	22.21	21.32	21.34	31.97	31.83
As	0.16	0.19	0.17	0.09	0.00
Total	101.61	102.35	101.98	101.37	100.87

Calculation on the basis of 1 S

Fe	0.07	0.07	0.07	0.02	0.03
Cu	1.74	1.85	1.84	1.08	1.07
S	1.00	1.00	1.00	1.00	1.00
As	0.00	0.00	0.00	0.00	0.00

Spot no.	P.12kr3-11	P.12kr3-12	P.12kr2-8	P.12kr2-9	P.12kr2-5	P.12kr2-6
	Cu_{2.86}As	Cu_{2.86}As	Cu_{2.66}As	Cu_{2.92}As	Cu_{2.89}As	Cu_{5.08}As₂
	Domeykite	Domeykite	Domeykite	Domeykite	Domeykite	Koutekite
Mass%						
Fe	1.52	1.39	0.55	1.24	1.60	0.88
Cu	69.31	69.42	68.40	67.43	69.03	66.61
S	0.02	0.00	0.11	0.01	0.02	0.02
As	28.60	28.63	30.30	27.25	28.13	30.93
Total	99.45	99.44	99.35	95.93	98.78	98.44
Calculation on the basis of 1 S						
Fe	0.071	0.065	0.024	0.061	0.076	0.077
Cu	2.857	2.859	2.662	2.917	2.893	5.078
S	0.002	0.000	0.008	0.001	0.002	0.002
As	1.000	1.000	1.000	1.000	1.000	2.000

Spot no.	P.12kr3-1	P.12kr3-2	P.12kr3-4	P.12kr3-5	P.12kr3-6	P.12kr3-7
	Cu_{1.86}S	Cu_{1.87}S	Cu_{1.8}S	Cu_{1.72}S	Cu_{1.83}S	Cu_{1.17}S
	Digenite	Digenite	Digenite	Anilite	Digenite	Yarrowite
Mass%						
Fe	0.55	0.83	1.79	1.17	1.58	1.28
Cu	79.50	79.11	77.92	77.48	78.39	70.15
S	21.58	21.31	21.90	22.69	21.61	30.26
As	0.22	0.04	0.00	0.00	0.08	0.10
Total	101.85	101.30	101.61	101.34	101.66	101.79
Calculation on the basis of 1 S						
Fe	0.015	0.022	0.047	0.030	0.042	0.024
Cu	1.859	1.873	1.795	1.723	1.830	1.170
S	1.000	1.000	1.000	1.000	1.000	1.000
As	0.004	0.001	0.000	0.000	0.002	0.001

Spot no.	P.12kr3-8	P.12kr3-9	P.12kr3-10	P.12kr3-3	P.12kr4-1
	Cu_{2.84}As	Cu_{2.66}As	Cu_{4.61}As₂	Cu_{2.92}As	Cu_{1.6}S
	Domeykite	Domeykite	Koutekite?	Domeykite	Geerite
Mass%					
Fe	0.86	0.85	1.84	1.95	3.71
Cu	69.11	68.63	64.29	69.40	73.25
S	0.00	0.01	0.04	0.03	23.09

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As	28.71	30.41	32.89	28.06	0.80
Total	98.68	99.90	99.06	99.44	100.85
Calculation on the basis of 1 As (1 S. 2 As)					
Fe	0.040	0.037	0.150	0.093	0.092
Cu	2.838	2.661	4.609	2.916	1.601
S	0.000	0.001	0.005	0.002	1.000
As	1.000	1.000	2.000	1.000	0.015

Spot no.	P.12kr4-3	P.12kr4-4	P.12kr4-5	P.12kr4-7	P.12kr4-8	P.12kr4-2
	Cu_{1.86}S	Cu_{1.88}S	Cu_{1.14}S	Cu_{1.82}S	Cu_{1.67}S	Fe_{1.02}S₂
	Digenite	Digenite	Yarrowite	Digenite	Anilite?	Pyrite
Mass%						
Fe	0.39	0.39	1.25	0.39	1.20	45.32
Cu	78.96	79.33	68.88	78.67	75.95	2.01
S	21.37	21.27	30.45	21.80	22.92	51.25
As	0.44	0.52	0.44	0.24	0.67	1.93
Total	101.16	101.52	101.02	101.10	100.74	100.51
Calculation on the basis of 1 S (2 S)						
Fe	0.011	0.011	0.024	0.010	0.030	1.015
Cu	1.864	1.882	1.141	1.821	1.672	0.040
S	1.000	1.000	1.000	1.000	1.000	2.000
As	0.009	0.011	0.006	0.005	0.012	0.032

Sample P.7

Spot no.	P.7kr1-1	P.7kr1-2	P.7kr1-3	P.7kr1-4	P.7kr1-5	P.7kr1-6
	Cu_{1.7}S	Fe_{1.01}S₂	Cu_{1.67}S	Cu_{1.28}S	Cu_{1.81}S	Cu_{1.8}S
	Anilite	Pyrit	Anilite?	Spinkopite?	Digenite	Digenite
Mass%						
Fe	0.60	44.58	1.59	2.43	1.17	0.51
Cu	77.44	2.66	77.03	70.80	78.89	79.10
S	22.98	50.60	23.33	28.00	21.96	22.16
As	0.00	1.23	0.00	0.14	0.00	0.03
Total	101.02	99.07	101.95	101.37	102.02	101.80
Calculation on the basis of 1 S						
Fe	0.015	1.012	0.039	0.050	0.031	0.013
Cu	1.700	0.053	1.666	1.276	1.812	1.801
S	1.000	2.000	1.000	1.000	1.000	1.000
As	0.000	0.021	0.000	0.002	0.000	0.001

Spot no.	P.7kr1-7	P.7kr1-8	P.7kr2-1	P.7kr2-2	P.7kr2-3	P.7kr2-4
	Fe_{1.05}S₂	Cu_{1.82}S	Cu_{1.58}S	Cu_{1.14}S	Cu_{1.71}S	Cu_{1.83}S
	Pyrit	Digenite	Geerite	Yarrowite	Anilite	Digenite
Mass%						
Fe	46.42	0.42	0.54	2.28	1.05	0.58
Cu	0.53	78.64	76.81	68.56	77.40	78.98

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S	50.68	21.77	24.55	30.42	22.85	21.83
As	2.40	0.16	0.16	0.00	0.07	0.00
Total	100.03	100.99	102.05	101.26	101.37	101.39
Calculation on the basis of 1 S						
Fe	1.052	0.011	0.013	0.043	0.026	0.015
Cu	0.011	1.822	1.578	1.137	1.709	1.825
S	2.000	1.000	1.000	1.000	1.000	1.000
As	0.041	0.003	0.003	0.000	0.001	0.000
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Spot no.	P.7kr2-5	P.7kr2-6	P.7kr2-7	P.7kr3-1	P.7kr3-2	P.7kr3-3
	Cu_{1.84}S	Cu_{1.87}S	Cu_{2.76}As	Cu_{1.81}S	Cu_{1.75}S	Cu_{1.46}S
	Digenite	Digenite	Domeykite	Digenite	Anilite	Geerite?
Mass%						
Fe	1.94	1.13	1.10	1.45	2.12	3.36
Cu	78.41	79.47	68.40	78.33	77.52	74.10
S	21.54	21.48	0.01	21.86	22.17	25.53
As	0.00	0.00	29.26	0.01	0.17	0.00
Total	101.89	102.08	98.77	101.65	101.98	102.99
Calculation on the basis of 1 S						
Fe	0.052	0.030	0.050	0.038	0.055	0.076
Cu	1.837	1.867	2.756	1.808	1.764	1.464
S	1.000	1.000	0.001	1.000	1.000	1.000
As	0.000	0.000	1.000	0.000	0.003	0.000
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Spot no.	P.7kr3-4	P.7kr3-5	P.7kr3-7	P.7kr3-8	P.7kr3-10	P.7kr3-6
	Cu_{1.76}S	Cu_{1.5}S	Cu_{1.77}S	Cu_{1.71}S	Cu_{1.17}S	Cu_{4.83}As₂
	Anilite	Geerite?	Anilite	Anilite?	Yarrowite	Koutekite
Mass%						
Fe	0.42	1.89	1.67	1.63	1.32	2.01
Cu	78.14	74.80	77.82	77.56	69.88	64.16
S	22.46	25.20	22.19	22.82	30.26	0.23
As	0.00	0.00	0.00	0.20	0.03	31.14
Total	101.02	101.89	101.68	102.21	101.49	97.54
Calculation on the basis of 1 S (2 As)						
Fe	0.011	0.043	0.043	0.041	0.025	0.173
Cu	1.755	1.498	1.769	1.715	1.165	4.858
S	1.000	1.000	1.000	1.000	1.000	0.034
As	0.000	0.000	0.000	0.004	0.000	2.000
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Spot no.	P.7kr4-1	P.7kr4-2	P.7kr4-3	P.7kr4-5	P.7kr4-6	P.7kr4-4
	Cu_{1.8}S	Cu_{1.71}S	Cu_{1.09}S	Cu_{1.19}S	Cu_{1.79}S	Cu_{2.68}As
	Digenite	Anilite	Covellin	Yarrowite?	Digenite	Domeykite
Mass%						
Fe	0.53	0.30	1.85	1.11	2.51	0.96
Cu	78.77	77.93	68.07	70.16	76.83	67.73
S	22.09	22.97	31.51	29.86	21.67	0.63

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As	0.00	0.08	0.04	0.07	0.00	29.85
Total	101.39	101.28	101.47	101.20	101.01	99.17
Calculation on the basis of 1 S (1 As)						
Fe	0.014	0.008	0.034	0.021	0.066	0.043
Cu	1.799	1.712	1.090	1.185	1.789	2.675
S	1.000	1.000	1.000	1.000	1.000	0.049
As	0.000	0.001	0.001	0.001	0.000	1.000

Spot no.	P.7kr4-7	P.7kr4-8	P.7kr4-9	P.7kr4-10	P.7kr3-9
	Cu_{1.65}S	Cu_{1.13}S	Cu_{1.71}S	Fe_{1.04}S₂	Fe_{1.04}S₂
	Geerite	Yarrowite	Anilite	Pyrit	Pyrit
Mass%					
Fe	0.81	1.99	1.51	45.31	44.79
Cu	76.97	69.18	77.57	1.63	2.50
S	23.47	30.91	22.94	49.86	49.29
As	0.14	0.06	0.00	2.37	2.69
Total	101.39	102.14	102.02	99.17	99.27
Calculation on the basis of 1 S (2 S)					
Fe	0.020	0.037	0.038	1.043	1.043
Cu	1.655	1.129	1.706	0.033	0.051
S	1.000	1.000	1.000	2.000	2.000
As	0.002	0.001	0.000	0.041	0.047

Sample J.03

Spot no.	J.03-1	J.03-2	J.03-3	J.03-4	J.03-6	J.03-8
	Cu_{0.99}Fe_{0.99}S₂	CuFe_{0.99}S₂	CuFeS₂	Cu_{1.01}FeS₂	Cu_{1.02}FeS₂	Cu_{1.01}FeS₂
	Chalcopyrite	Chalcopyrite	Chalcopyrite	Chalcopyrite	Chalcopyrite	Chalcopyrite
Mass%						
Fe	30.71	30.68	30.59	30.53	30.46	30.67
Cu	34.99	35.05	35.10	35.09	35.18	34.94
S	35.63	35.46	35.28	35.19	34.94	35.05
As	0.00	0.00	0.09	0.01	0.00	0.00
Total	101.33	101.19	101.06	100.82	100.58	100.66
Calculation on the basis of 2 S						
Fe	0.990	0.993	0.996	0.996	1.001	1.005
Cu	0.991	0.997	1.004	1.006	1.016	1.006
S	2.000	2.000	2.000	2.000	2.000	2.000
As	0.000	0.000	0.002	0.000	0.000	0.000

Spot no.	J.03-11	J.03-14	J.03-15	J.03-19	J.03-20	J.03-22
	Cu_{1.03}Fe_{0.93}S₂	Cu_{1.01}Fe_{0.98}S₂	Cu_{1.01}Fe_{0.99}S₂	Cu_{0.99}Fe_{0.99}S₂	CuFe_{0.99}S₂	Cu_{0.99}Fe_{0.98}S₂
	Chalcopyrite	Chalcopyrite	Chalcopyrite	Chalcopyrite	Chalcopyrite	Chalcopyrite
Mass%						
Fe	27.95	30.08	30.55	30.47	30.58	30.36
Cu	37.45	35.08	35.22	34.79	35.28	34.75
S	34.48	35.18	35.29	35.39	35.57	35.53

Appendix D

As	0.13	0.01	0.00	0.00	0.00	0.03
Total	100.01	100.35	101.06	100.65	101.43	100.67
Calculation on the basis of 2 S						
Fe	0.931	0.982	0.994	0.989	0.987	0.981
Cu	1.096	1.006	1.007	0.992	1.001	0.987
S	2.000	2.000	2.000	2.000	2.000	2.000
As	0.003	0.000	0.000	0.000	0.000	0.001

Spot no.	J.03-24	J.03-29	J.03-30	J.03-5	J.03-9	J.03-13
	Cu_{0.99}Fe_{0.97}S₂	CuFe_{0.96}S₂	Cu_{0.99}Fe_{0.99}S₂	Cu_{3.13}AsS₄	Cu_{3.13}As_{1.07}S₄	Cu_{3.24}As_{0.99}S₄
	Chalcopyrite	Chalcopyrite	Chalcopyrite	Enargite?	Enargite?	Enargite?
Mass%						
Fe	29.82	30.33	30.56	7.11	2.69	3.81
Cu	34.78	35.10	35.09	45.56	48.52	47.54
S	35.35	35.45	35.60	29.33	29.26	29.59
As	0.00	0.03	0.07	17.07	18.30	17.11
Total	99.95	100.91	101.32	99.07	98.77	98.05
Calculation on the basis of 2 S (4 S)						
Fe	0.969	0.982	0.986	0.557	0.211	0.296
Cu	0.993	0.999	0.995	3.135	3.346	3.242
S	2.000	2.000	2.000	4.000	4.000	4.000
As	0.000	0.001	0.002	0.996	1.071	0.990

Spot no.	J.03-10	J.03-27	J.03-28	J.03-25	J.03-31
	Cu_{2.92}As_{0.89}S₄	Fe_{0.88}As_{0.68}S	Cu_{1.06}Fe_{0.83}S₂	Fe_{0.90}As_{0.76}S	Fe_{0.91}As_{0.74}S
	Enargite?	Arsenopyrite	Chalcopyrite	Arsenopyrite	Arsenopyrite
Mass%					
Fe	0.15	36.34	24.73	34.91	35.89
Cu	48.34	0.02	36.06	0.00	0.00
S	33.45	23.82	34.32	22.37	22.59
As	17.31	37.62	5.22	39.61	38.81
Total	99.25	97.80	100.33	96.89	97.29
Calculation on the basis of 1 Fe					
Fe	0.010	0.876	0.827	0.896	0.912
Cu	2.916	0.000	1.060	0.000	0.000
S	4.000	1.000	2.000	1.000	1.000
As	0.886	0.676	0.130	0.758	0.735

Spot no.	J.03-16	J.03-17	J.03-12	J.03-23	J.03-26	J.03-32
	Fe_{1.02}S₂	Fe_{1.05}S₂	Fe_{1.01}S₂	Fe_{1.01}S₂	Fe_{1.03}S₂	Fe_{1.05}S₂
	Pyrite	Pyrite	Pyrite	Pyrite	Pyrite	Pyrite
Mass%						
Fe	46.90	46.33	44.95	46.97	46.30	45.98
Cu	1.21	0.01	1.82	1.28	0.04	0.00
S	52.88	50.47	50.89	53.18	51.57	50.23
As	0.00	3.00	0.45	0.02	1.01	2.96
Total	100.99	99.81	98.11	101.45	98.92	99.17
Calculation on the basis of 1 Fe						
Fe	1.018	1.054	1.014	1.014	1.031	1.051
Cu	0.023	0.000	0.036	0.024	0.001	0.000
S	2.000	2.000	2.000	2.000	2.000	2.000
As	0.000	0.051	0.008	0.000	0.017	0.050

Spot no.	J.03-33	J.03-34	J.03-21
	Fe_{1.04}S₂	Fe_{1.02}S₂	Fe_{1.02}S₂
	Pyrite	Pyrite	Pyrite
Mass%			
Fe	45.94	46.52	47.26
Cu	0.02	0.00	0.36
S	50.61	52.30	53.25
As	2.57	0.86	0.00
Total	99.14	99.69	100.87
Calculation on the basis of 1 Fe			
Fe	1.042	1.021	1.019
Cu	0.000	0.000	0.007
S	2.000	2.000	2.000
As	0.043	0.014	0.000

Ag-Bi-S measurements**Sample P.18**

Spot no.	P.18sulfo-23	P.18sulfo-21	P.18sulfo-20
	Bi	Bi	Bi
	n. Bismuth	n. Bismuth	n. Bismuth
Mass(%)			
Pb	0.00	0.00	0.00
S	0.00	0.00	0.00
Fe	0.02	0.18	0.32
Sb	0.11	0.00	0.00
Cu	0.17	0.16	1.19
Ag	0.02	0.01	0.00
Bi	99.57	97.12	97.96
Total	99.90	97.47	99.47
Calculation on the basis of: Bismuth 1 Bi			
Pb	0.000	0.000	0.000
S	0.000	0.000	0.000
Fe	0.001	0.007	0.012
Sb	0.002	0.000	0.000
Cu	0.006	0.005	0.040
Ag	0.000	0.000	0.000
Bi	1.000	1.000	1.000

Spot no.	78568sulfo-1	78568sulfo-2	78568sulfo-4	78568sulfo-5	78568sulfo-6
	Ag_{0.85}Bi_{0.95}S₂	Bi	Ag_{0.85}Bi_{0.95}S₂	Ag_{0.85}Bi_{0.95}S₂	Bi_{1.90}S₃
	Matildite	n. Bismuth	Matildite	Matildite	Bismuthinite
Mass(%)					
Pb	0.00	0.00	0.00	0.00	0.00
S	18.60	0.10	18.22	18.49	19.50
Fe	0.29	0.13	0.77	0.23	0.47
Sb	3.69	0.03	0.00	2.13	0.15
Cu	4.46	0.07	0.09	2.23	0.98
Ag	24.52	0.33	26.36	25.97	0.08
Bi	47.64	97.01	55.48	52.50	80.46
Total	99.20	97.66	100.92	101.54	101.64
Calculation on the basis of: Bismuth 1 Bi, bismuthinite 3 S, Matildite 2 S					
Pb	0.000	0.000	0.000	0.000	0.000
S	2.000	0.007	2.000	2.000	3.000
Fe	0.018	0.005	0.049	0.014	0.041
Sb	0.104	0.000	0.000	0.061	0.006
Cu	0.242	0.002	0.005	0.121	0.076
Ag	0.784	0.007	0.860	0.835	0.004
Bi	0.786	1.000	0.934	0.871	1.899

Sample 78571

Spot no.	78571sulfo-7	78571sulfo-8	78571sulfo-9	78571sulfo-10	78571sulfo-11
	Bi₂S_{1.24}	Bi_{3.58}S₃	Bi_{1.86}S₃	Bi	Bi_{1.84}S₃
	Unknown	Unknown	Bismuthinite	n. Bismuth	Bismuthinite
Mass(%)					
Pb	0.00	0.00	0.00	0.00	0.00
S	8.45	11.84	19.29	0.00	19.97
Fe	0.10	0.03	0.16	0.01	0.29
Sb	0.35	0.41	1.08	0.03	0.39
Cu	0.10	0.04	0.08	0.00	0.80
Ag	0.02	0.02	0.02	0.00	0.20
Bi	88.82	92.17	78.10	97.12	79.77
Total	97.83	104.51	98.72	97.17	101.42
Calulation on the basis of: Bismuth 1 Bi, bismuthinite 3 S					
Pb	0.000	0.000	0.000	0.000	0.000
S	3.000	3.000	3.000	0.000	3.000
Fe	0.020	0.004	0.014	0.001	0.025
Sb	0.033	0.027	0.044	0.000	0.015
Cu	0.017	0.006	0.006	0.000	0.061
Ag	0.002	0.001	0.001	0.000	0.009
Bi	4.839	3.584	1.863	1.000	1.838

Spot no.	78571sulfo-12	78571sulfo-14	78571sulfo-15	78571sulfo-16	78571sulfo-17
	Sb_{0.744}Bi_{1.85}S₃	Bi	Sb_{0.19}Bi_{1.71}S₃	Ag_{0.86}Bi_{0.95}S₂	Cu_{0.97}Fe₉₃S₂
	Bismuthinite	n. Bismuth	Bismuthinite	Matildite	Chalkopyrite
Mass(%)					
Pb	0.00	0.00	0.00	0.00	0.00
S	16.11	0.24	20.14	17.73	35.35
Fe	0.74	0.02	0.00	0.94	28.56
Sb	15.02	0.01	4.92	0.00	0.05
Cu	1.38	0.03	0.19	2.11	33.91
Ag	0.78	0.02	0.00	25.54	0.27
Bi	64.80	96.65	74.67	54.79	0.96
Total	98.83	96.95	99.92	101.11	99.10
Calulation on the basis of: Bismuth 1 Bi, bismuthinite 3 S, Matildite & Chalkopyrite 2 S					
Pb	0.000	0.000	0.000	0.000	0.000
S	3.000	0.016	3.000	2.000	2.000
Fe	0.079	0.001	0.000	0.061	0.928
Sb	0.737	0.000	0.193	0.000	0.001
Cu	0.130	0.001	0.014	0.120	0.968
Ag	0.043	0.000	0.000	0.856	0.005
Bi	1.851	1.000	1.707	0.948	0.008

Spot no.	78571sulfo-18	78571sulfo-19
	Ag_{0.86}Bi_{0.95}S₂	Ag_{0.85}Bi_{0.99}S₂
	Matildite	Matildite
Mass(%)		
Pb	0.00	0.00
S	17.64	16.92
Fe	0.54	0.28
Sb	0.04	0.00
Cu	0.48	2.16
Ag	25.58	24.32
Bi	54.66	54.43
Total	98.94	98.10
Calulation on the basis of: Bismuth 1 Bi, bismuthinite 3 S, Matildite 2 S		
Pb	0.000	0.000
S	2.000	2.000
Fe	0.035	0.019
Sb	0.001	0.000
Cu	0.028	0.129
Ag	0.862	0.854
Bi	0.951	0.987

Gold measurements

Sample P.7

Spot no.	P.7KR4-1	P.7KR3-1	P.7KR3-2	P.7KR3-3	P.7KR3-4
Au	93.52	74.17	77.33	74.06	68.55
Hg	0.45	2.95	2.55	2.35	0.52
Ag	5.92	23.21	20.74	22.04	27.26
Cu	0.48	0.24	0.04	2.23	1.56
Total	100.37	100.57	100.66	100.68	97.89

Sample P.10

Spot no.	P.10KR1-1	P.10KR3-1	P.10KR4-1	P.10KR4-2	P.10-AU-BI
Au	94.94	73.45	75.90	72.85	72.91
Ag	5.37	23.86	22.59	23.08	23.60
Hg	0.85	2.41	1.18	2.57	2.00
Cu	0.78	0.55	bld*	0.02	0.14
Total	101.94	100.27	99.67	98.52	98.65

Sample P.12

Spot no.	P.12KR2	P.12KR2-1	P.12KR2-2
Au	74.36	73.45	69.55
Ag	23.37	23.25	25.36
Hg	2.07	2.27	2.22
Cu	bld*	0.05	0.21
Total	99.80	99.02	97.34

Sample P.15

Spot no.	P.15kr5-1	P.15kr5-2	P.15kr6-1	P.15kr4-1	P.15kr1-1	P.15kr2-1
Au	93.38	91.38	67.09	73.11	74.35	93.32
Ag	5.75	5.95	31.54	23.32	22.68	6.05
Hg	0.57	0.37	1.12	2.78	2.54	0.35
Cu	0.13	0.42	0.62	0.79	0.30	0.15
Total	99.83	98.12	100.37	100.00	99.87	99.87

Sample P.15

Spot no.	P.15kr3-1
Au	75.73
Ag	21.37
Hg	2.33
Cu	0.05
Total	99.48

Sample P.18

Spot no.	P.18KR5-1	P.18KA	P.18KA2
Au	71.32	66.47	73.30
Ag	24.65	29.26	23.81
Hg	3.62	1.75	2.63
Cu	0.98	0.06	0.17
Total	100.57	97.54	99.91

Sample P.22

Spot no.	p22kr4-1	p22kr4-2	p22kr4-3n	p22kr4-cl1	p22kr4-cl2	p22kr3-1
Au	37.77	38.93	39.46	38.69	47.00	51.22
Ag	42.40	43.06	44.75	48.11	38.67	36.40
Hg	12.49	9.00	7.19	8.54	10.18	7.00
Cu	0.19	0.22	0.12	0.44	0.70	7.27
Total	92.85	91.21	91.52	95.78	96.55	101.89

Spot no.	p22kr3-2	p22kr2-1	p22kr5-1	p22kr4 o	p22kr4oB1	p22kr4oB2
Au	38.67	44.22	38.86	43.38	33.91	34.63
Ag	46.34	44.33	42.65	39.71	44.24	41.99
Hg	6.08	5.91	11.38	12.02	15.13	13.68
Cu	2.10	0.61	0.22	0.17	2.31	3.86
Total	93.19	95.07	93.11	95.28	95.59	94.16

Appendix D

Sample 78562						
Spot no.	78562-1	78562-2	78562-3	78562-4	78562-5	78562-6
Hg	3.40	0.26	3.39	3.38	3.89	2.66
Ag	20.48	5.48	21.93	24.30	22.96	26.04
Au	76.50	95.22	74.56	71.09	71.95	69.73
Cu	0.07	0.06	0.46	0.38	0.20	0.09
Total	100.45	101.01	100.34	99.15	99.00	98.52

Sample 78568			Sample 78569	
Spot no.	78568-1	78568-2	Spot no.	78569-4
Hg	3.88	7.44	Hg	8.34
Ag	30.84	40.49	Ag	47.36
Au	64.13	45.86	Au	35.01
Cu	1.03	0.66	Cu	1.46
Total	99.88	94.45	Total	92.17

Sample 78573							
Spot no.	78573-1	78573-2	78573-3	78573-4	78573-5	78573-6	78573-7
Hg	3.84	2.07	1.44	3.36	2.82	2.01	1.98
Ag	15.94	19.84	21.71	19.23	19.97	21.73	12.03
Au	81.63	79.30	74.92	76.44	75.77	76.75	87.32
Cu	bld*	bld*	0.00	bld*	0.00	bld*	bld*
Total	101.41	101.21	98.07	99.03	98.56	100.49	101.33

Sample J.04				
Spot no.	j.04-1	j.04-2	j.04-3	j.04-4
Hg	14.29	2.44	7.72	5.96
Ag	39.02	29.23	28.07	34.73
Au	40.55	63.64	64.10	56.50
Cu	1,66**	1,81**	0.14	0.28
Total	95.52	97.12	100.03	97.47

Sample J.05							
Spot no.	j.05-1	j.05-2	j.05-3	j.05-4	j.05-5	j.05-6	j.05-7
Hg	3.37	3.65	4.07	3.79	3.13	3.70	2.76
Ag	20.46	23.02	29.33	23.28	25.83	23.14	23.39
Au	77.52	73.80	64.37	72.38	68.53	73.05	70.57
Cu	0.15	0.94	0.39	0.57	0.42	0.60	0.47
Total	101.50	101.41	98.16	100.02	97.91	100.49	97.19

Sample J.05							
Spot no.	j.05-8	j.05-9	j.05-10	j.05-11	j.05-12	j.05-13	j.05-14
Hg	3.32	3.62	3.17	3.90	3.98	3.50	3.72
Ag	26.51	23.64	26.03	26.61	23.51	25.33	24.28
Au	67.96	72.90	69.76	69.30	71.04	71.21	70.99
Cu	0.64	0.71	0.00	0.05	0.02	0.02	0.80
Total	98.43	100.87	98.96	99.86	98.55	100.06	99.79

*totals are too low due to small grain size of gold

**higher Cu contents likely are from Cu-rich matrix because of the small grain size of analyzed gold grains