

Annexe B-2 : Résultats de l'étude minéralogique au système EDS du microscope électronique à balayage (MEB)

Certains échantillons minéralisés ont été analysés à l'aide du système EDS du microscope électronique à balayage de l'INRS afin de déterminer la composition des minéraux métalliques.

Appareils utilisés

Scanning electron microscope (SEM), modèle Carl Zeiss EVO 50.

L'analyse élémentaire de la surface de l'échantillon est rendue possible par la spectroscopie X à dispersion d'énergie (modèle : Oxford Instruments, INCAx-sight EDS Detectors).

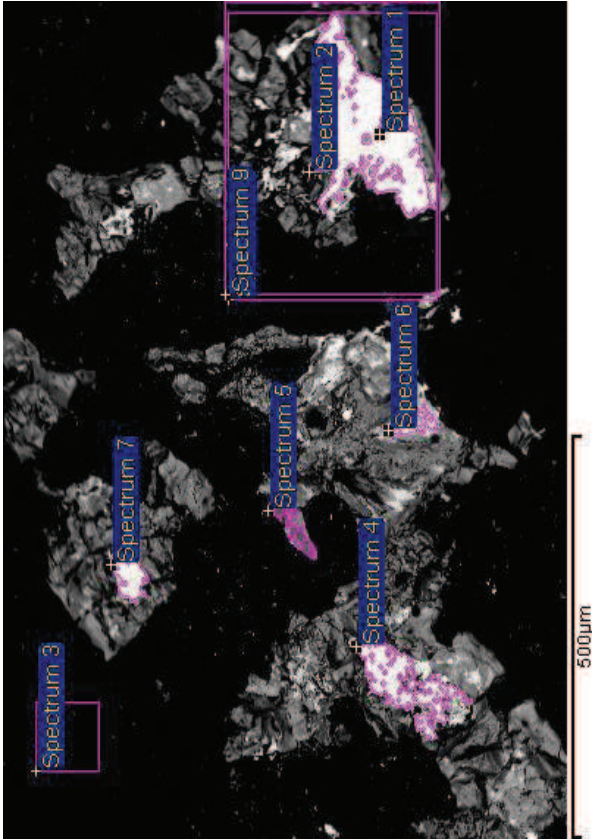
Les échantillons ont été enduits d'une fine couche (20-30 nm) de carbone à l'aide de l'appareil SPITM Carbon Coater System de l'INRS afin de les rendre électriquement conducteurs.

Mesures

Les sites 1 à 7 sont issus d'une roche prélevée à la main sur la veine 22 de la zone Nord.

Les sites 8 à 11 sont issus de l'échantillon SR10 prélevé sur la veine 32 de la zone Centre.

Annexe B-2 : Résultats du système EDS du MEB

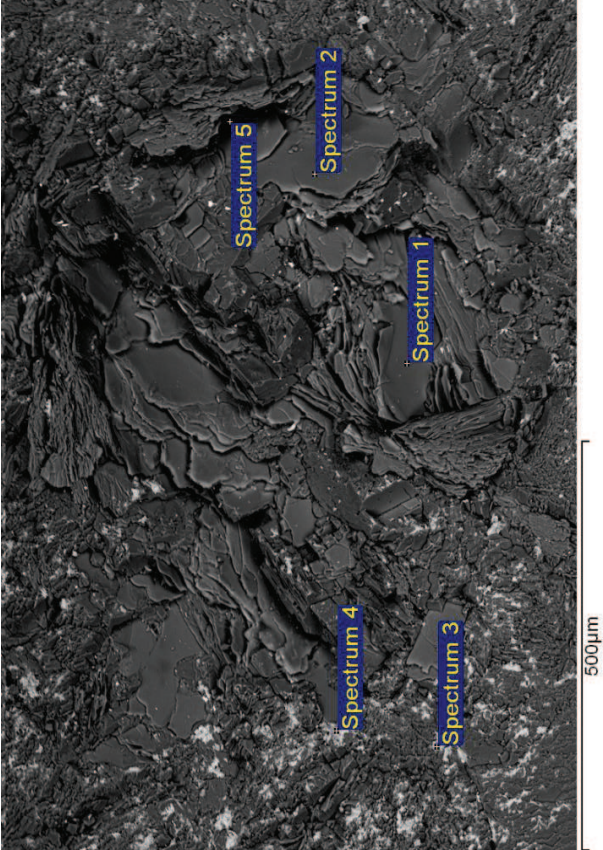


Site 1
Grossissement
x 500

Spectrum 1		
	Weight %	Atomic %
O K	31.38	72.96
Si K	0.65	0.86
S K	13.34	15.47
Fe K	1.20	0.80
Br K		
As L		
Ag L	2.38	0.82
Sb L		
Pb M		
Bi M	51.05	9.09
Total	100	

Spectrum 2			Spectrum 4			Spectrum 5			Spectrum 6			Spectrum 7		
	Weight %	Atomic %	Weight %	Atomic %		Weight %	Atomic %		Weight %	Atomic %		Weight %	Atomic %	
O K	30.45	70.00	18.44	58.79		12.10	25.29		31.62	53.23		23.33	56.27	
Si K	0.66	0.87	0.75	1.36		0.82	0.98		0.49	0.47		0.68	0.93	
S K	16.34	18.74	12.90	20.53		49.15	51.24		39.51	33.19		23.81	28.66	
Fe K	2.35	1.55	2.65	2.42		36.75	22.00		25.17	12.14		7.62	5.27	
Br K						1.18	0.49							
As L			0.33	0.23					1.93	0.70				
Ag L			1.85	0.87								2.68	0.96	
Sb L			1.90	0.80					1.27	0.28		1.39	0.44	
Pb M			28.35	6.98										
Bi M	50.19	8.83	32.82	8.01								40.49	7.48	
Total	100		100			100			100			100		
Conclusion	Bismuthinite Bi2S3		Cosalite Pb2Bi2S5			Pyrite FeS2			Pyrite FeS2			Bismuthinite Bi2S3		

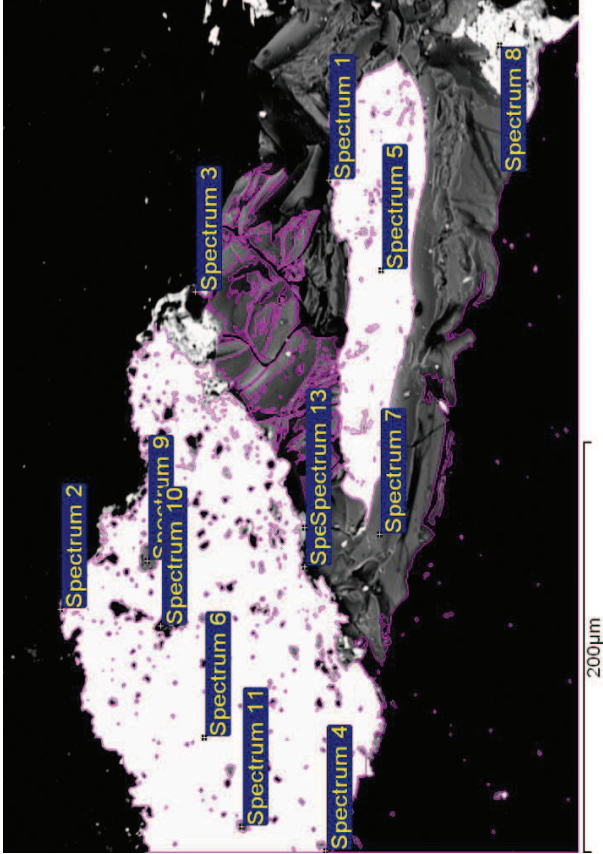
Site 2
Grossissement x 500



	Spectrum 1		Spectrum 2		Spectrum 3		Spectrum 4		Spectrum 5	
	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %
O K	52.49	66.87	41.95	57.49	47.00	73.01	31.34	60.09	51.06	67.75
Na K	0.65	0.58	0.76	0.73	0.73	0.79				
Al K	17.20	12.99	19.03	15.47	1.19	1.09	0.77	0.87	13.65	10.74
Si K	20.75	15.06	23.38	18.26	2.90	2.57	2.09	2.28	16.93	12.79
S K					2.64	2.05	1.51	1.44		
K K	7.99	4.16	13.19	7.40					10.61	5.76
Cl K					0.88	0.62				
Fe K	0.92	0.34	1.69	0.66	44.66	19.88	64.30	35.32	7.76	2.95
Total	100		100		100		100		100	
Conclusion	Mica blanc		Mica blanc		Hematite Fe ₂ O ₃		Hematite Fe ₂ O ₃			

Annexe B-2 : Résultats du système EDS du MEB

Site 3
x 1000

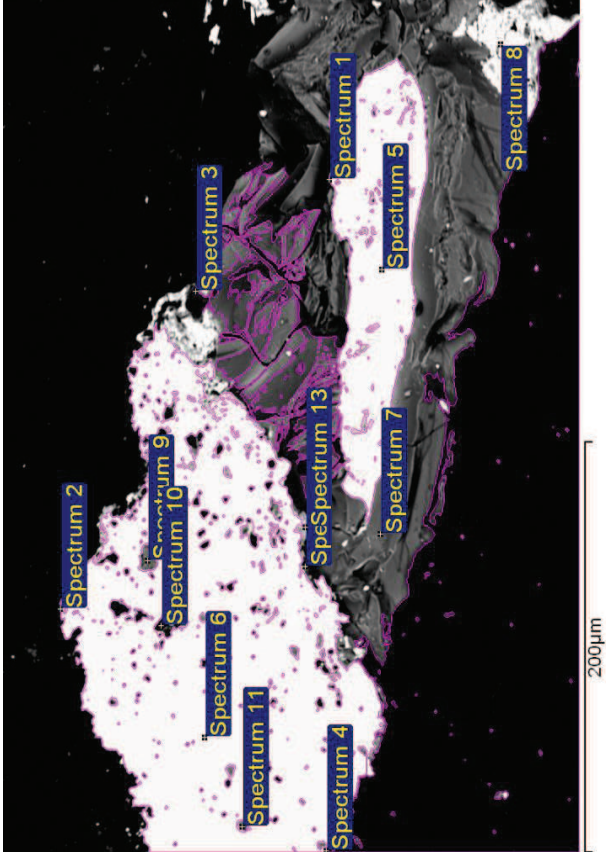


Spectrum 1		Spectrum 2	
Weight %	Atomic %	Weight %	Atomic %
B K			
O K	39.10	12.63	47.36
Si K	2.29	1.85	3.95
S K	32.66	14.53	27.18
Fe K	2.34	0.80	0.86
Ag L	1.66		
Sb L	0.79	2.01	0.99
Pb M	11.97	36.18	10.48
Bi M	9.18	32.01	9.19
Total	100		100
Conclusion	Cosalite Pb ₂ Bi ₂ S ₅		

Spectrum 3		Spectrum 4		Spectrum 5		Spectrum 6		Spectrum 7	
Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %
B K									
O K	13.10			8.20	38.74	9.30	38.80		
Si K	2.63			6.21	19.82	9.22	25.97		
S K	47.75					0.85	1.37	0.54	0.74
Fe K	36.52			14.01	22.31	13.56	19.06	60.45	72.42
Ag L				1.02	0.93			39.02	26.84
Sb L				2.30	1.09				
Pb M				1.94	0.82	1.65	0.61		
Bi M				37.34	9.20	35.82	7.80		
Total	100			28.97	7.08	29.60	6.39		
		100				100		100	
Conclusion	Pyrite FeS ₂	Quartz SiO ₂		Cosalite Pb ₂ Bi ₂ S ₅		Cosalite Pb ₂ Bi ₂ S ₅		Pyrite FeS ₂	

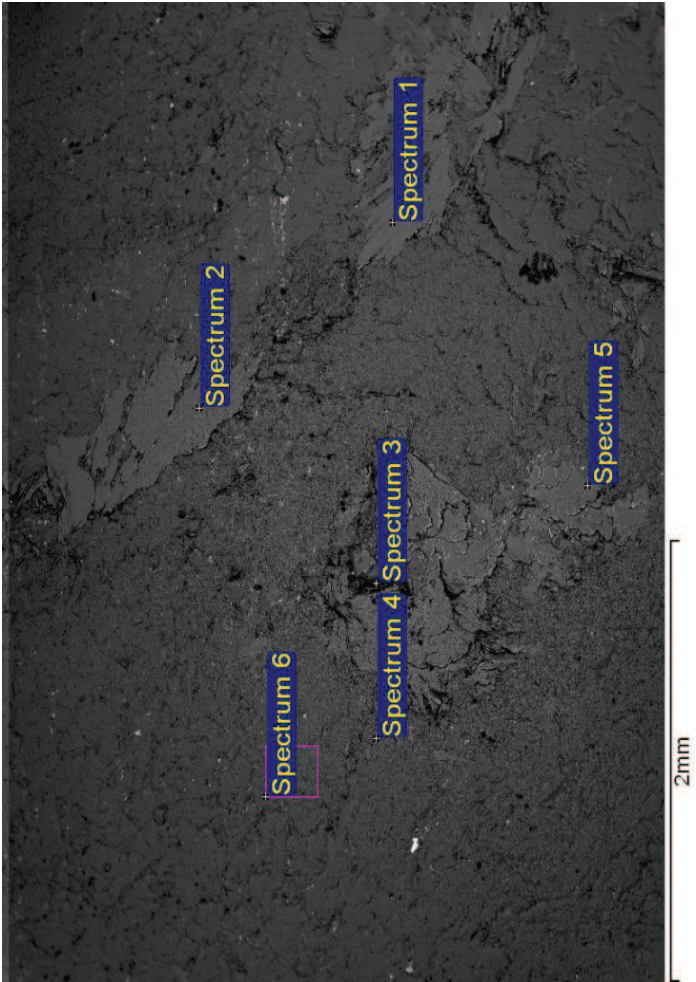
Annexe B-2 : Résultats du système EDS du MEB

Site 3
x 1000



Spectrum 9		Spectrum 10		Spectrum 11		Spectrum 12		Spectrum 13	
Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %
O K		54.75	68.01	10.72	22.33	43.67	63.33	33.96	58.51
Si K	0.67	44.86	31.75	0.67	0.79	15.45	12.76	11.58	11.36
S K	61.03	0.39	0.24	54.17	56.32	22.44	16.24	21.35	18.35
Fe K	38.30			34.45	20.56	18.44	7.66	20.48	10.11
Bi M								12.64	1.67
Total	100	100		100		100		100	
Conclusion	Pyrite FeS ₂	Quartz SiO ₂		Pyrite FeS ₂					

Annexe B-2 : Résultats du système EDS du MEB

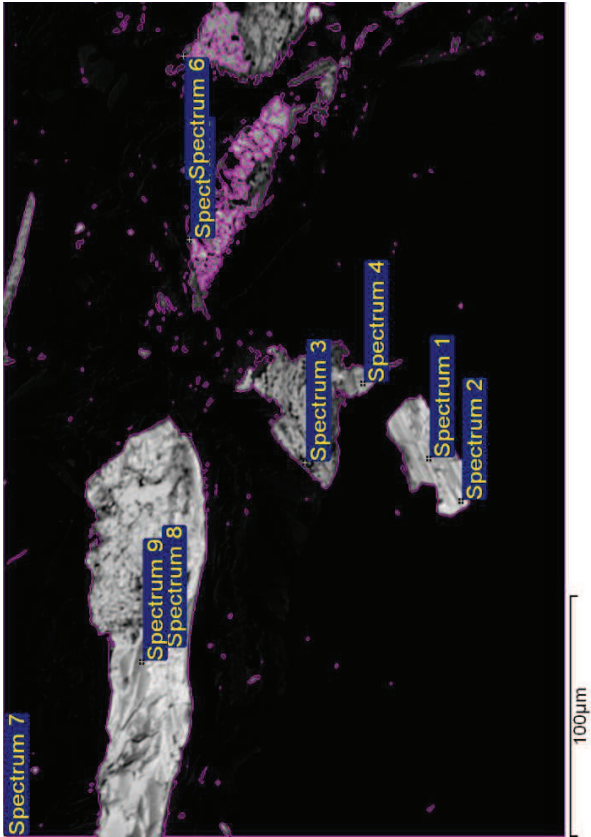


Site 4
x 100

	Spectrum 1		Spectrum 2	
	Weight %	Atomic %	Weight %	Atomic %
O K	55.42	69.32	57.30	70.89
Na K			0.34	0.30
Al K	16.62	12.33	15.87	11.64
Si K	20.71	14.75	19.51	13.75
K K	6.55	3.35	6.29	3.18
Fe K	0.70	0.25	0.68	0.24
Total		100		100
Conclusion	Mica blanc			

	Spectrum 3		Spectrum 4		Spectrum 5	
	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %
O K	62.34		53.06	65.53	56.42	68.83
Na K		74.28	7.59	6.52	4.92	4.17
Al K	5.93		9.20	6.73	4.74	3.43
Si K	31.73	4.19	30.16	21.21	33.92	23.57
K K		21.54				
Fe K						
Total		100		100		100
Conclusion			Albite NaAlSi3O8		Albite NaAlSi3O8	

Annexe B-2 : Résultats du système EDS du MEB

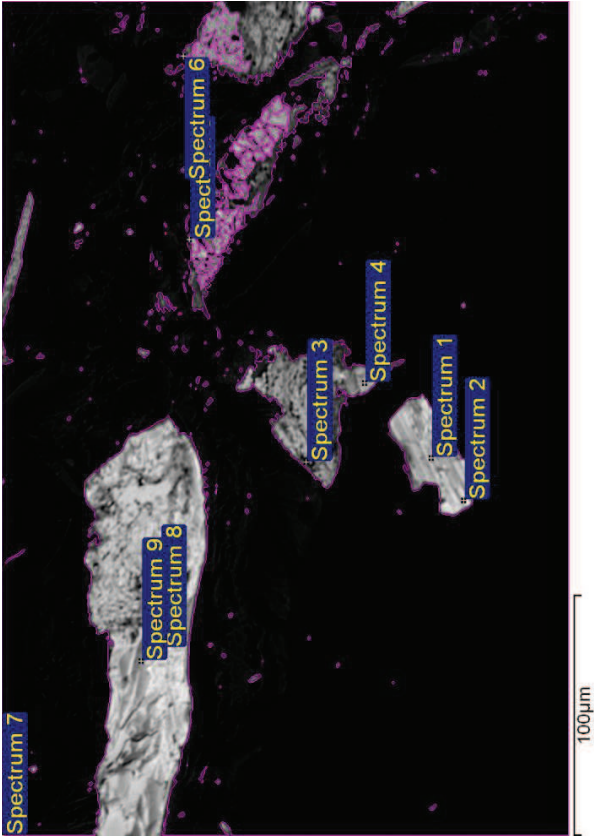


Site 5 a
x 1200

	Spectrum 1		Spectrum 2	
	Weight %	Atomic %	Weight %	Atomic %
B K	9.59	32.26	7.95	34.94
O K	18.79	42.69	8.20	24.37
Si K	1.69	2.19	3.01	5.10
S K	10.47	11.87	13.48	19.98
Cu K	0.69	0.40		
As L	-0.10	-0.05		
Ag L	1.01	0.34		
Sb L	1.51	0.45	1.31	0.51
Pb M	26.37	4.63	37.12	8.52
Bi M	30.09	5.23	28.92	6.58
Ac M	-0.12	-0.02		
Total		100	100	
Conclusion	Cosalite Pb ₂ Bi ₂ S ₅		Cosalite Pb ₂ Bi ₂ S ₅	

	Spectrum 3		Spectrum 4		Spectrum 5		Spectrum 6	
	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %
B K								
O K	31.92	64.31	22.00	62.93	29.79	70.71	12.63	33.66
Si K	3.88	4.45	10.23	16.68	1.14	1.54	27.50	49.54
S K	17.69	17.78			12.77	15.12	0.93	0.95
Cu K							8.75	7.87
Fe K	13.92	8.03	2.46	2.02	4.68	3.18		
As L	0.41	0.18					2.63	1.36
Te L	2.87	0.73	29.07	10.43				
Ag L								
Pb M			4.69	1.04	51.62	9.46	47.57	6.62
Bi M	29.31	4.52	31.55	6.91				
Ac M								
Total	100		100		100		100	
Conclusion	Bismuthinite Bi ₂ S ₃		Galene PbS					

Annexe B-2 : Résultats du système EDS du MEB

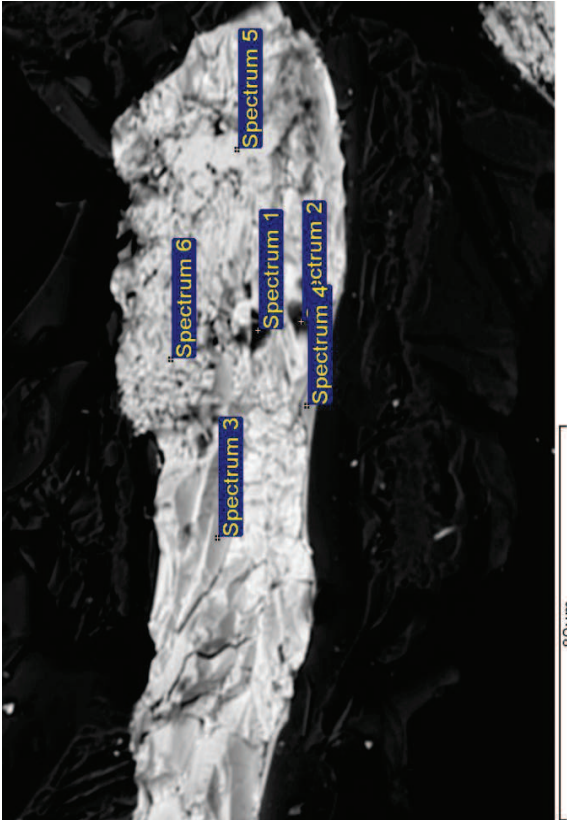


Site 5 a
x 1200

	Spectrum 7		Spectrum 8		Spectrum 9	
	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %
B K			7.50	37.77	11.00	45.51
O K	41.73	60.33	5.34	18.17	5.53	15.45
Si K	22.41	18.46			0.81	1.29
S K	20.71	14.94	13.84	23.50	15.25	21.28
Cu K						
Fe K	15.16	6.28	0.64	0.62	2.40	1.92
Ag L			2.48	1.25	1.77	0.73
Sb L			1.56	0.70	1.36	0.50
Pb M			38.66	10.16	34.84	7.52
Bi M			29.99	7.82	27.05	5.79
Total	100		100		100	
Conclusion	Quartz SiO ₂		Cosalite Pb ₂ Bi ₂ S ₅		Cosalite Pb ₂ Bi ₂ S ₅	

Annexe B-2 : Résultats du système EDS du MEB

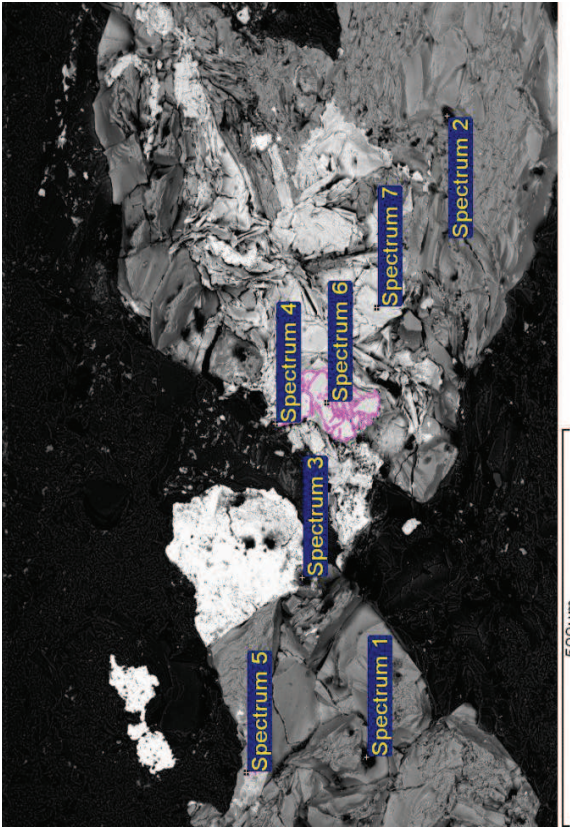
Site 5 b
x 2500



	Spectrum 1		Spectrum 2	
	Weight %	Atomic %	Weight %	Atomic %
O K	64.02	76.62	51.77	78.64
Si K	27.25	18.58	2.14	1.85
S K	7.12	4.25	5.15	3.90
Fe K	1.62	0.55	34.00	14.80
Bi M			6.95	0.81
Total	100		100	
Conclusion	Quartz SiO ₂			

	Spectrum 3		Spectrum 4		Spectrum 5		Spectrum 6	
	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %
B K					6.24	34.79		
O K	7.31	32.86	6.30	30.57	3.64	13.70	6.34	30.87
Si K	0.80	2.05	0.82	2.26			0.94	2.60
S K	15.81	35.47	14.57	35.28	14.82	27.87	14.98	36.36
Fe K	1.95	2.51	1.35	1.87	0.76	0.82		
Ag L	3.06	2.04	2.54	1.83	3.54	1.98	3.09	2.23
Sb L	1.78	1.05	1.59	1.02	1.27	0.63		
Pb M	41.36	14.35	42.66	15.98	37.24	10.84	41.73	15.68
Bi M	29.59	10.18	30.17	11.21	32.50	9.38	32.93	12.27
Th M	-1.67	-0.52						
Total	100		100		100		100	
Conclusion	Cosalite Pb ₂ Bi ₂ S ₅		Cosalite Pb ₂ Bi ₂ S ₅		Cosalite Pb ₂ Bi ₂ S ₅		Cosalite Pb ₂ Bi ₂ S ₅	

Annexe B-2 : Résultats du système EDS du MEB



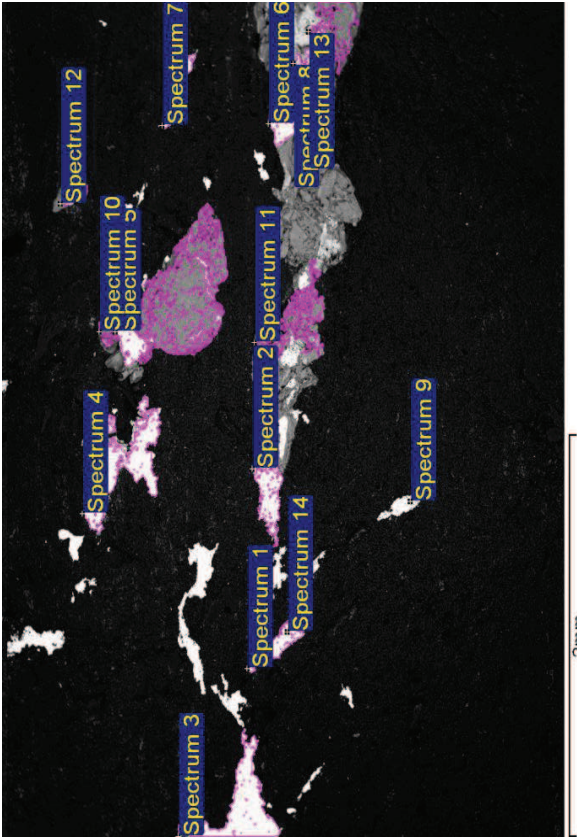
Site 6
x 400

	Spectrum 1		Spectrum 2	
	Weight %	Atomic %	Weight %	Atomic %
B K				86.56
O K	25.48	44.48	77.60	7.85
Si K	1.67	1.66	12.35	
P K				5.59
S K	45.27	39.43	10.04	
Cl K	1.38	1.09		
K K	1.12	0.80		
Fe K	25.08	12.54		
Total		100		100
Conclusion	Pyrite FeS ₂		Quartz SiO ₂	

	Spectrum 3		Spectrum 4		Spectrum 5		Spectrum 6		Spectrum 7	
	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %
O K	54.67	72.92	10.82	29.51	19.63	36.95	15.66	27.09	4.79	14.33
Si K	10.00	7.60	0.60	0.93	2.64	2.83	0.68	0.67	0.37	0.64
P K							1.13	1.01		
S K	20.18	13.43	32.96	44.83	45.80	43.01	82.53	71.23	38.44	57.38
K K	1.62	0.88								
Fe K	13.53	5.17			31.93	17.21			0.68	0.58
Mo L			53.16	24.17					52.86	26.37
Pt M			2.46	0.55					2.87	0.70
Total		100		100		100		100		100
Conclusion	Pyrite FeS ₂		Molybdenite MoS ₂		Pyrite FeS ₂				Molybdenite MoS ₂	

Annexe B-2 : Résultats du système EDS du MEB

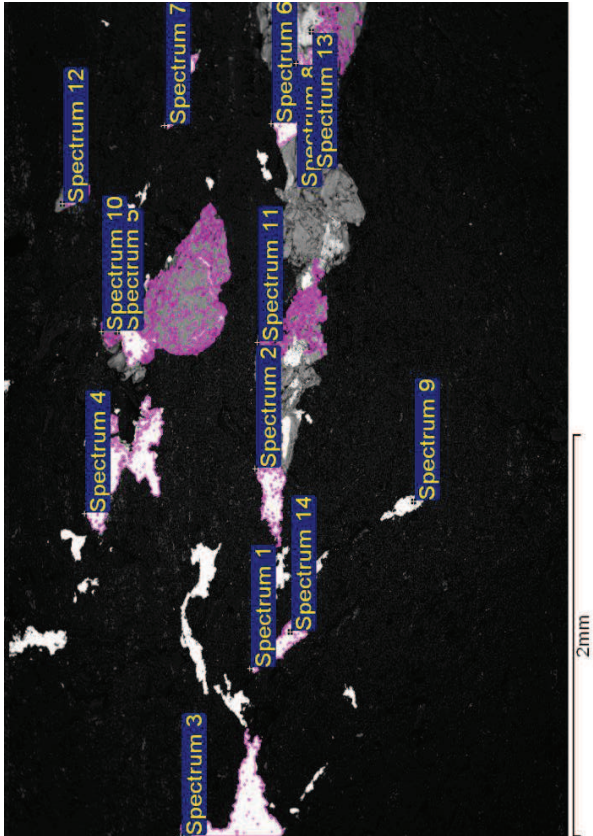
Site 7
x 100



	Spectrum 1		Spectrum 2	
	Weight %	Atomic %	Weight %	Atomic %
B K	7.78	29.31		
O K	15.11	38.45	12.40	47.23
Si K	3.47	5.02	2.11	4.57
S K	11.47	14.57	13.89	26.40
Cu K	0.16	0.11		
Ag L	1.19	0.45	1.43	0.81
Sb L	1.33	0.45	2.09	1.05
Pb M	34.63	6.81	38.77	11.40
Bi M	24.86	4.84	29.30	8.54
Total	100		100	
Conclusion	Cosalite Pb ₂ Bi ₂ S ₅		Cosalite Pb ₂ Bi ₂ S ₅	

	Spectrum 3		Spectrum 4		Spectrum 5		Spectrum 6		Spectrum 7	
	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %
O K	18.86	57.17	16.99	55.53	11.30	42.06	20.79	60.09	29.88	66.24
Si K	5.17	8.92	3.77	7.02	1.55	3.28	2.01	3.31	12.91	16.31
S K	12.45	18.82	11.96	19.50	16.71	31.05	13.70	19.75	8.02	8.87
Fe K			1.04	0.98	3.97	4.24	3.84	3.18		
Ag L					1.26	0.70				
Sb L	1.69	0.67	1.67	0.72			1.32	0.50		
Te L							1.38	0.50	1.49	0.42
Pb M	35.59	8.33	40.46	10.21	33.97	9.77	36.17	8.07	47.70	8.17
Bi M	26.24	6.09	24.11	6.03	31.24	8.91	20.79	4.60		
Total	100		100		100		100		100	
Conclusion	Cosalite Pb ₂ Bi ₂ S ₅		Cosalite Pb ₂ Bi ₂ S ₅		Cosalite Pb ₂ Bi ₂ S ₅		Cosalite Pb ₂ Bi ₂ S ₅		Galene PbS	

Annexe B-2 : Résultats du système EDS du MEB

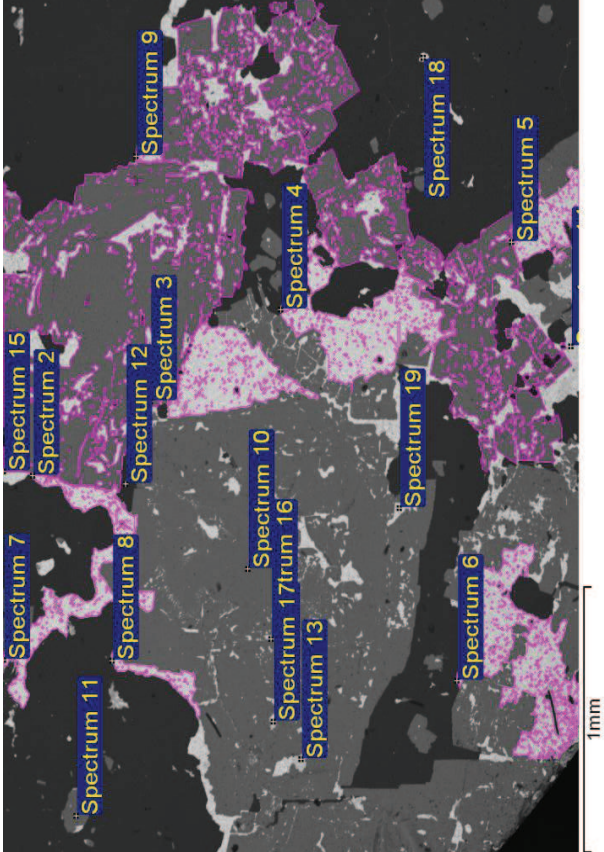


Spectrum 8		Spectrum 9	
Weight %	Atomic %	Weight %	Atomic %
B K		20.31	67.67
O K	33.54	3.43	7.72
Si K	1.04		
S K	42.22	10.45	11.74
Fe K	1.13		
Mo L	21.54	5.22	1.96
Ag L		1.30	0.43
Sb L		1.74	0.52
Pb M		31.78	5.52
Bi M		25.76	4.44
Pt M	0.52		
Total	100	100	
Conclusion	Molybdenite MoS ₂		

Spectrum 10		Spectrum 11		Spectrum 12		Spectrum 13		Spectrum 14	
Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %
O K	9.67	20.64	23.43	20.23	39.28	11.66	23.98	5.98	29.64
Si K	1.37	1.66	2.16	2.08	2.31	1.43	1.68		
S K	51.39	54.73	51.19	43.30	41.95	52.88	54.28	15.81	39.10
Fe K	37.57	22.97	23.21	27.85	15.49	34.03	20.06		
Cu K								0.58	0.72
Ag L								1.29	0.95
Sb L								1.80	1.17
Pb M								39.18	15.00
Bi M				6.53	0.97			35.36	13.42
Total	100		100	100		100		100	
Conclusion	Pyrite FeS ₂		Pyrite FeS ₂			Pyrite FeS ₂			

Annexe B-2 : Résultats du système EDS du MEB

Site 8
x 130



	Spectrum 2		Spectrum 3	
	Weight %	Atomic %	Weight %	Atomic %
B K			8.08	38.03
O K	6.72	32.38	6.72	21.37
Na K	1.16	3.17	1.22	2.21
S K	14.22	34.19	12.58	19.97
Fe K	1.28	1.76	1.35	1.23
Mo L	72.41	26.95	70.06	17.21
Bi M	4.22	1.56		
Total	100		100	
Conclusion	Galene PbS		Galene PbS	

Spectrum 4			Spectrum 5			Spectrum 6			Spectrum 7			Spectrum 8		
Weight %	Atomic %		Weight %	Atomic %		Weight %	Atomic %		Weight %	Atomic %		Weight %	Atomic %	
B K														
O K	6.20	30.70	5.74	28.87		7.33	33.97		7.82	35.59		7.35	33.56	
Na K														
Si K	1.46	4.12	1.35	3.86		1.82	4.81		1.72	4.47		1.86	4.83	
S K	13.90	34.33	13.86	34.77		13.91	32.18		14.02	31.86		14.49	32.99	
Fe K	0.85	1.21	1.41	2.03		1.52	2.02		1.26	1.65		1.81	2.37	
Mo L														
Ag L														
Cd L														
Te L			1.40	0.88										
Pb M	73.30	28.01	76.23	29.59		75.43	27.01		75.18	26.43		74.48	26.24	
Bi M	4.28	1.62												
Total	100			100			100			100			100	
Conclusion	Galene PbS		Galene PbS			Galene PbS			Galene PbS			Galene PbS		

Annexe B-2 : Résultats du système EDS du MEB

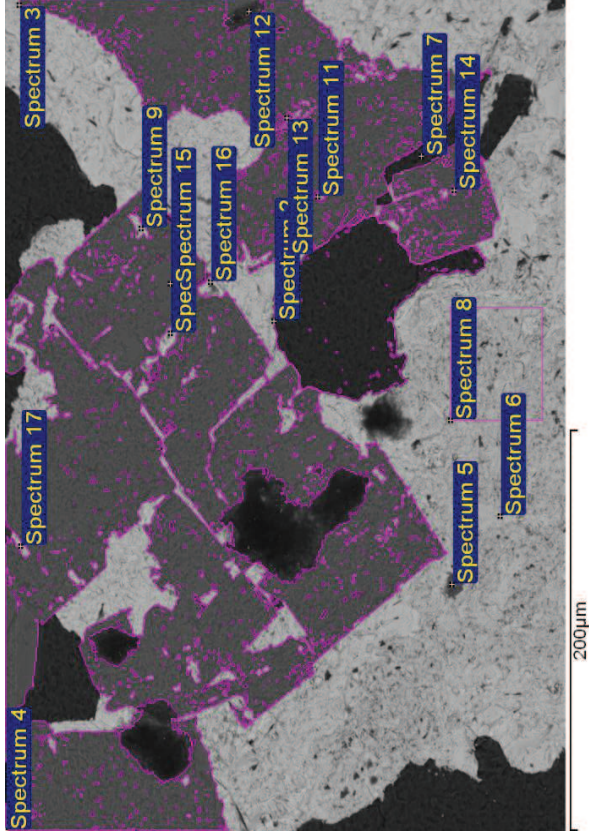
Site 8 x130

	Spectrum 9		Spectrum 10		Spectrum 11		Spectrum 12		Spectrum 13	
	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %
O K	7.99	36.14	7.20	16.16	5.53	12.52	53.13	66.92	22.31	76.00
Na K					0.53	0.83				
Si K	1.76	4.53	0.86	1.09	0.33	0.42	45.80	32.86		
S K	13.78	31.10	49.65	55.57	52.97	59.86				
Fe K	1.58	2.05	42.29	27.18	40.64	26.36			0.66	0.65
Mo L							1.07	0.22	10.13	5.75
Pb M	74.90	26.17							66.90	17.60
Total		100		100		100		100		100
Conclusion	Galene PbS		Pyrite FeS ₂		Pyrite FeS ₂		Quartz SiO ₂		Wulfenite PbMoO ₄	

	Spectrum 14		Spectrum 15		Spectrum 16		Spectrum 17		Spectrum 18	
	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %
B K	7.03	39.77								
O K	2.31	8.82	9.42	20.38	3.50	20.28			5.12	27.74
Si K			0.96	1.19						
S K	14.86	28.33	49.84	53.79	13.93	40.30	14.08	50.72	14.23	38.50
Fe K			39.77	24.64	2.02	3.36	0.92	1.90		
Ag L	1.70	0.96								
Cd L		1.3	0.71							
Te L										
Pb M	46.80	13.81			80.55	36.06	85.00	47.38	80.65	33.76
Bi M	26.00	7.61								
Total		100		100		100		100		100
Conclusion	Cosalite Pb ₂ Bi ₂ S ₅		Pyrite FeS ₂		Galene PbS		Galene PbS		Galene PbS	

Annexe B-2 : Résultats du système EDS du MEB

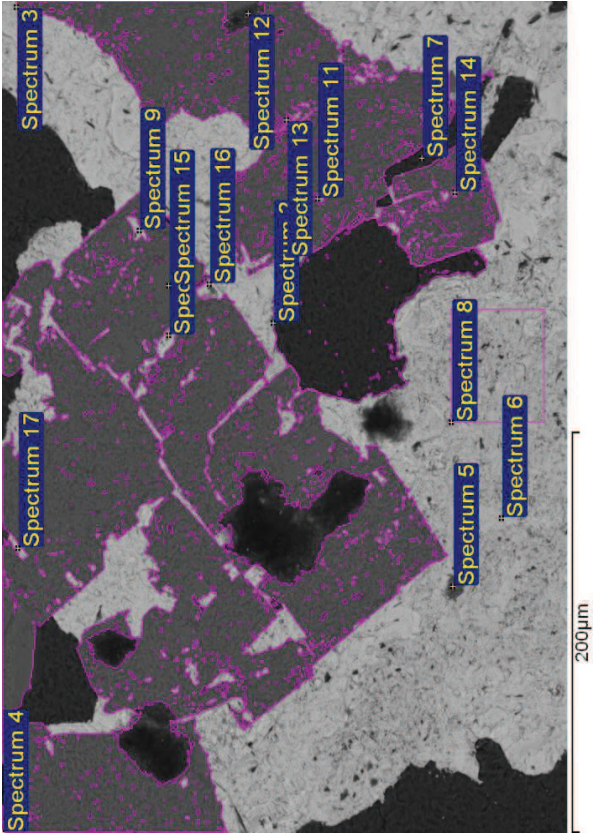
Site 9
x 1000



	Spectrum 2		Spectrum 3	
	Weight %	Atomic %	Weight %	Atomic %
B K				
O K	53.95	67.63	7.72	17.04
Si K	43.70	31.20	0.55	0.69
S K	1.23	0.77	51.65	56.91
Fe K	1.11	0.40	40.07	25.35
Total	100		100	
Conclusion	Quartz SiO ₂		Pyrite FeS ₂	

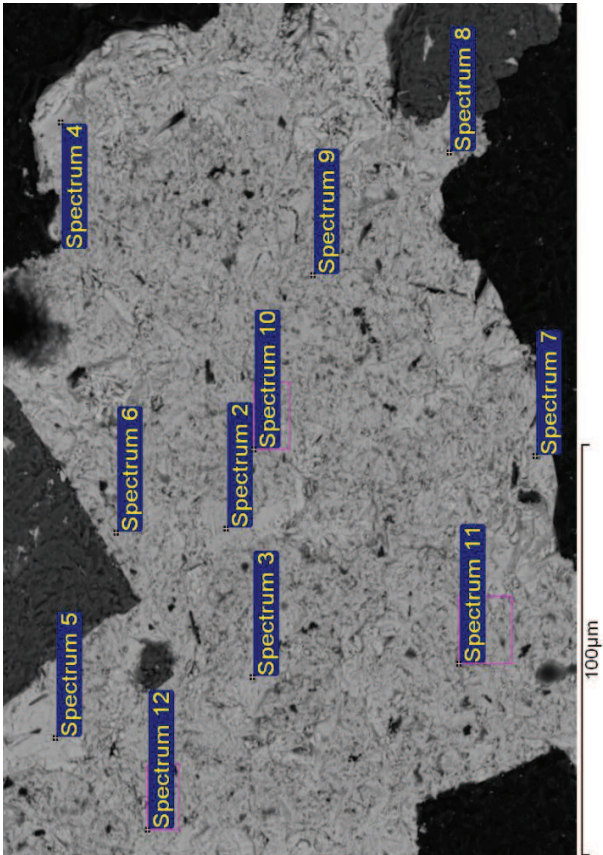
	Spectrum 4		Spectrum 5		Spectrum 6		Spectrum 7		Spectrum 8	
	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %
B K										
O K	6.96	15.54			4.32	22.33	48.16	62.39	7.13	32.70
Si K	0.59	0.75			1.85	5.45	48.69	35.93	2.00	5.24
S K	51.89	57.78	58.07	70.69	14.89	38.38	1.84	1.19	14.47	33.11
Fe K	40.56	25.93	41.93	29.31	1.57	2.32	1.31	0.49	1.54	2.03
Ag L					1.98	1.52			1.61	1.09
Pb M					53.33	21.28			43.12	15.27
Bi M					22.06	8.73			30.12	10.57
Total	100		100			100	100			100
Conclusion	Pyrite FeS ₂		Pyrite FeS ₂		Cosalite Pb ₂ Bi ₂ S ₅		Quartz SiO ₂		Cosalite Pb ₂ Bi ₂ S ₅	

Annexe B-2 : Résultats du système EDS du MEB



	Spectrum 9		Spectrum 11		Spectrum 12		Spectrum 14		Spectrum 16	
	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %
B K										
O K	3.80	20.40	3.49	8.31	11.69	24.00			4.88	15.02
Al K					1.13	1.37				
Si K					6.01	7.03				
S K	15.50	41.52	51.32	60.90	44.60	45.68	56.33	69.20	33.85	52.01
K K					1.62	1.36				
Fe K	4.11	6.32	45.19	30.79	34.96	20.56	43.67	30.80	28.57	25.20
Ag L										
Pb M	76.60	31.76							32.70	7.78
Bi M										
Total	100		100				100		100	
Conclusion	Galene PbS		Pyrite FeS ₂				Pyrite FeS ₂			

Annexe B-2 : Résultats du système EDS du MEB

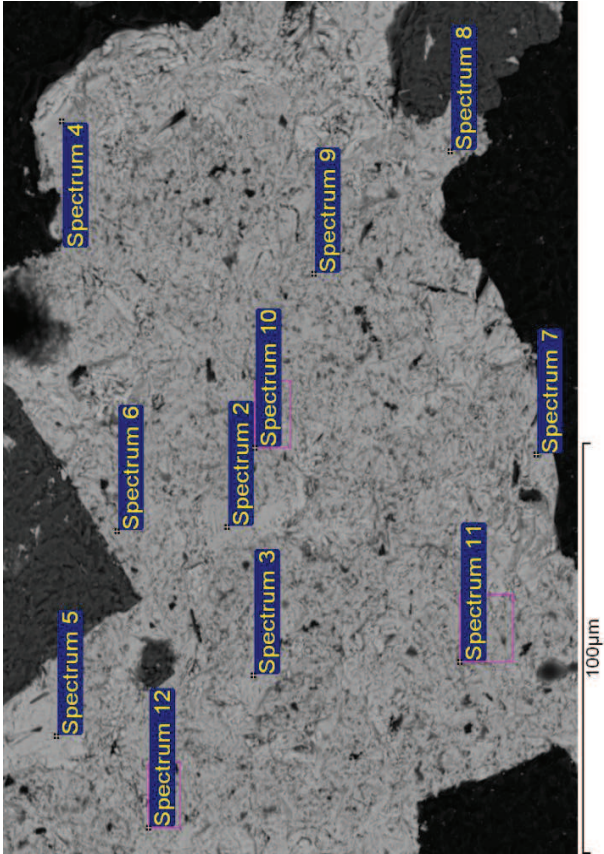


Site 10
x 2000

	Spectrum 2		Spectrum 3	
	Weight %	Atomic %	Weight %	Atomic %
B K				
O K	2.49	14.74	2.87	17.33
Si K				
S K	16.00	47.22	14.72	44.33
Fe K				
Te L				
Ag L	2.27	1.99		
Pb M	43.83	20.02	70.31	32.76
Bi M	35.42	16.04	12.10	5.59
Total	100		100	
Conclusion	Cosalite Pb ₂ Bi ₂ S ₅		Cosalite Pb ₂ Bi ₂ S ₅	

	Spectrum 4		Spectrum 5		Spectrum 6		Spectrum 7		Spectrum 8	
	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %
O K	4.84	34.56	3.75	21.73	5.24	25.37	2.72	15.27		
Si K	0.70	2.84			2.70	7.43	1.42	4.53		
S K			13.97	40.36	15.02	36.25	14.85	41.54	13.82	49.92
Fe K			0.93	1.54	1.44	1.99	1.94	3.11	1.26	2.62
Te L	31.01	27.80								
Ag L					2.42	1.74	3.31	2.75		
Pb M	14.14	7.81	81.34	36.36	39.36	14.70	75.76	32.80	84.92	47.47
Bi M	49.31	26.99			33.82	12.52				
Total	100		100		100		100		100	
Conclusion	Cosalite Te Pb ₂ Bi ₂ S ₅		Galene PbS		Cosalite Pb ₂ Bi ₂ S ₅		Galene PbS		Galene PbS	

Annexe B-2 : Résultats du système EDS du MEB



	Spectrum 9		Spectrum 11		Spectrum 12		Spectrum 14	
	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %	Atomic %
O K	7.22	33.09	4.52	23.99	4.49	24.30	6.74	31.96
Si K	1.22	3.17					1.28	3.45
S K	15.13	34.59	15.66	41.44	15.29	41.29	14.67	34.68
Fe K	1.40	1.83	1.06	1.61			1.03	1.40
Te L								
Ag L	2.68	1.82	2.10	1.66	2.55	2.04	2.06	1.45
Pb M	38.40	13.59	47.17	19.32	50.08	20.93	42.16	15.43
Bi M	33.95	11.91	29.49	11.98	27.59	11.43	32.06	11.63
Total	100		100		100		100	
Conclusion	Cosalite Pb ₂ Bi ₂ S ₅		Cosalite Pb ₂ Bi ₂ S ₅		Cosalite Pb ₂ Bi ₂ S ₅		Cosalite Pb ₂ Bi ₂ S ₅	