

Electron Microprobe Data

Ruff ID: **R050442** Mineral: **Chalcopyrite**
 Locality: **Butte, Silver Bow County, Montana, USA**

Weight Percents

Analysis	#61	#62	#63	#65	#66	#67	#68	#70	#71	#72	#73	#74	#75	#76	#77	#78	#79	#80	Average	StDev
As	18.32	18.47	18.56	18.48	18.33	18.46	18.47	18.48	18.29	18.13	18.42	18.22	18.28	18.62	18.22	18.36	18.44	18.67	18.40	0.14
Cu	47.79	48.23	48.10	48.54	48.59	48.36	47.79	48.06	47.76	47.91	48.29	47.85	48.11	48.36	48.09	48.29	48.39	48.06	48.14	0.26
S	32.53	32.72	32.71	32.84	32.67	32.59	32.76	32.46	32.63	32.63	32.48	32.43	32.65	32.51	32.57	32.61	32.63	32.76	32.62	0.11
Sb	0.65	0.47	0.59	0.91	0.86	0.86	0.84	0.77	0.97	0.66	0.72	1.14	1.08	0.98	0.87	0.80	0.51	0.46	0.79	0.20
Totals	99.29	99.89	99.96	100.77	100.45	100.27	99.86	99.77	99.65	99.33	99.91	99.64	100.12	100.47	99.75	100.06	99.97	99.95	99.95	0.38

Cation numbers normalized to 4 S

																			ACN	StDev	NCN*
As	0.96	0.97	0.97	0.96	0.96	0.97	0.97	0.98	0.96	0.95	0.97	0.96	0.96	0.98	0.96	0.96	0.97	0.98	0.97	0.01	0.97
Cu	2.97	2.98	2.97	2.98	3.00	3.00	2.95	2.99	2.96	2.96	3.00	2.98	2.97	3.00	2.98	2.99	2.99	2.96	2.98	0.02	3.00
Sb	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.04	0.04	0.03	0.03	0.03	0.02	0.02	0.03	0.01	0.03
Totals	3.96	3.96	3.96	3.98	4.00	4.00	3.95	4.00	3.95	3.94	4.00	3.99	3.98	4.02	3.97	3.98	3.98	3.95	3.98	0.02	4.00

Ideal Chemistry: Cu_3AsS_4

Calculated Chemistry: $\text{Cu}_3(\text{As}_{0.97}\text{Sb}_{0.03})\text{S}_4$

Instrument: Cameca SX50
 Sample Voltage: 15 kV
 Acceleration Current: 20 nA
 Beam Size: Spot
 Date of Analysis: 01/13/2006

ACN: Average Number of Cations

NCN*: Normalized Cation Numbers = ACN*4/3.98, balanced for each structural site

StDev: Standard Deviation

Xtal	El	Line	Pk(s)	Bkg(s)	Bkg(+)	Bkg(-)	Standards
TAP	As	La	20	10	500	-500	enargite
TAP	Se	La	20	10	500	-500	se_2
LIF	Fe	Ka	20	10	400	-400	chalcopy
LIF	Cu	Ka	20	10	401	-400	enargite
PET	S	Ka	20	10	300	-300	chalcopy
PET	Pb	Ma	20	10	300	-500	galena2
PET	Sb	La	20	10	400	-400	stib2
PET	Sn	La	20	10	400	-400	sn_2