

Ken

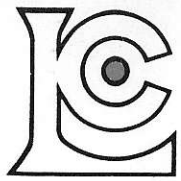
Gibraltar Oxide Study 675003

Why not follow field proven assay procedures ~~as~~ for oxides as practiced in the U.S. Southwest has found to be acceptable?

Pure mineral specimens although similarly crushed & ground as for assay probably do not respond to leaching anything like that in the Gibraltar ore occurrence - particularly in the case of poorly chalcite.

Obviously, an 8% difference in total copper grade is unacceptable and so is the continuing lack of reliability of all eastern assay labs.

Variations due to sample split indicate too small of samples for fineness of crush
K.S.



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA
TELEPHONE: 985-0648

• CHEMISTS • GEOCHEMISTS • ANALYSTS • ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 13794
INVOICE NO. 4714
DATE RECEIVED February 9/71
DATE ANALYSED February 12/71

TO: Canex Aerial Explorations Ltd.,
800 Burrard Bldg.
1030 W. Georgia St.,
Vancouver, B. C.
ATTN: Dr. K. Dawson

SAMPLE NO.:	% Copper	% Copper (as Oxide)
4831	2.02	0.59
4832	1.10	0.23
8684	0.22	0.13
8685	0.19	0.12
8686	0.45	0.36
8690	1.12	0.05
9631	0.22	0.06
10311	1.11	0.13
10316	0.74	0.11
12010	0.37	0.11

Certified by Harry Buller

Table 1

Comparison of Canex and Chemex Assays

No	Canex		Chemex		Canex % difference		
	Cu ox	Cu TOT	Cu ox	Cu TOT	% difference	% difference	
4831	.882	2.18	.59	2.02	+50%	+7%	FeSO ₄ + H ₂ SO ₄ ↓ Cu ⁺⁺
4832	.396	1.17	.23	1.10	+42%	+6%	(CuFeS ₂ + H ₂ SO ₄)
8684	.194	.25	.13	.22	+33%	+12%	(Cu ⁺⁺ SO ₄) ⁻
8685	.17	.20	.12	.19	+30%	+5%	
8686	.44	.48	.36	.45	+9%	+6%	H ₂ SO ₄ → H ₂ S + SO ₂ + H ⁺ (SO ₂) (H ₂ O)
8690	.106	1.28	.05	1.12	+53%	+12%	
9631	.112	.21	.06	.22	+46%	-5%	
10311	.196	1.19	.13	1.11	+34%	+7%	
10316	.174	.77	.11	.74	+37%	+4%	
12010	.164	.51	.11	.37	³³ +39 %	+27%	
					Σ = 347 Σ = 373	Σ = 81	
					avg +37%	avg +8%	
					avg +37%	avg +8%	

1.02
- .02

1.00

80
- 80

0

oxide assay treatment

Chemex | oxide 5% H₂SO₄ 30 min then AA on filtrate
 total: Hot perchloric + nitric 2gm samp + 25ml 70% perchl
 203°C + 5ml conc HNO₃ 1 1/2 - 2 hrs.
 no dilution.

Loring? | perchloric + nitric total - says John Wilson.

Canex | 30% H₂SO₄ 1 1/2 hrs. (Bert Wilson) better uniformity.
 Some total at Chemex (John Wilson)

Table-2 Mineralogical Composition of Samples before and after leaching* in 30% H₂SO₄ x 30% H₂SO₄ for 90 min.

No	Assay OX/TOT	OX/TOT ratio	Mal	Cup.	Cc	Cpy	Bn	Nat Cu	Py	Cu ox mins CuS mins	
8686 ✓	44/48	.92	5	4	1	-		tr		.9	
4831 ✓	.882/2.18	.405	-	2.5	5	2	tr.	.5	++	.3	
8690 ✓	.106/1.28	.083	-	.2	5	4	.8		+	.02	
10311 ✓	.196/1.19	.165	-	tr	6	4			✓	-	
8684 ✓	.194/.25	.776	2	3	3	1.5	-	.5		.55	
10316 ✓	.174/1.77	.226	-	2	5	2	1		++	.2	
9631 ✓	.112/.21	.53	1	1	4	3.5	-	.5	++	.25	
8685 ✓	.17/.20	.85	1	3	4	1	-	1	✓	.5	
12010 ✓	.164/.51	.32 528	-	2	6	2		tr	++	.2	vfg sulfides, cuprite
4832 ✓	.396/1.17	.34		2	35	2		2.5		.45	nat Cu mainly cpy.

AFTER 30% H₂SO₄ (ONDR ASSAY) LEACH

	Mal	Cuprite	Cc	Cpy	Bn	Nat Cu	Py.
8686	-	1	9	-	-	tr	
4831	-	1	6	2		1	cpy blue tarn. cc tarn, corrod.
8690	-	-	5	5		-	
10311	-	-	6	4		-	no vis cup. cpy bronze to red tarn. cc corrod, blue
8684	-	.5	6	3		.5	cpy red tarn cc corrod, blue.
10316	-	1	6	3		-	cup f.g. red cc corrod, blue cpy bronze, red.
9631	-	-	5	4		1	++ cpy tarn red, purple cc corrod, tarn blue.
8685	-	1	6	1.5		1.5	cc tarn, corrod. cup dull cpy tarn. Cu pitted.
10210	-	.5	7	2.5		tr	++ furnished cc corroded, cup dull red
4832	-	1	5	2	2	2	cpy tarn.

Spec	Assay	Minerals (Total 10)				
		Malachite	Cuprite	Chalcocite	Chalcopyrite	Born.
8686 ✓	.440/.480	5	4	1	—	
		high in qtz, chlorite. low heavies fract. Lt colour.				
4831 ✓	.882/2.18	—	3	5	2	(incl minor bornite, covellite)
		mag fract contains cpy, py or po? + limonite mins + abund f.g. magnetite non mag is very high in heavies - abund. sulfides, only minor chl, qtz, limon.				
8690	.106/1.26	—	.2	5	4	bn .8
		mag fract: mag + (po or py (?)) + cpy mainly py				
10311 ✓	.196/1.19	—	tr	6	4	
8684	.194/.25	2	3	3	1.5	nat. Cu 15.

TAILS OF ABOVE SPECS.

- 8686 malachite & cuprite only see phenom present. Not abund., < 1%.
Cuprite/malachite ~ 2:1
- 4831 vfg cpy + cc fairly abund. Cuprite also ~~No malachite.~~
~~even~~ Cuprite ≥ cpy + cc, both ~ 2% of tails.
- 10311 vfg cpy, cc, py tr cuprite no malachite.

ACID DIGESTION OF CALCOPYRITE USING
5% H₂SO₄ SOLUTION

TIME IN MINUTES	% COPPER IN +150 MESH	% COPPER IN SOLVABLE -150 MESH	WEIGHT OF INSOL IN GRAMS.
15	0.045	0.066	0.9934 0.9507
30	0.060	0.071	0.9900 0.9573
60	0.070	0.136	0.9940 0.9403

ACID DIGESTION OF CALCOHITE USING
5% H₂SO₄ SOLUTION

TIME IN MINUTES	% COPPER IN +150 MESH	% COPPER IN SOLVABLE -150 MESH	WEIGHT OF INSOL IN GRAMS.
15	0.068	0.266	0.9701 0.9360
30	0.064	0.264	0.9674 0.9274
60	0.062	0.260	0.9650 0.9269 1.0000±

ACID DIGESTION OF COPRITE USING
5% H₂SO₄ SOLUTION

TIME IN MINUTES	% COPPER IN +150 MESH	% COPPER IN SOLVABLE -150 MESH	WEIGHT OF INSOL IN GRAMS.
30	24.10	30.14	0.5922 0.4700

ACID DIGESTION OF METALLIC COPPER
USING 5% H₂SO₄ SOLUTION

TIME IN MINUTES	% COPPER IN +150 MESH	% COPPER IN SOLVABLE -150 MESH	WEIGHT OF INSOL IN GRAMS.
15	0.504		0.9934
30	0.474		0.9804
60	0.472		0.9896

ACID DIGESTION OF CALCOPYRITE
USING 30% H₂SO₄ SOLUTION (LAB 30%)

TIME IN MINUTES	% COPPER IN +150 MESH SOLVABLE	% COPPER IN -150 MESH SOLVABLE	WEIGHT OF INSOL IN GRAMS
60	0.050	0.039	0.9918 0.9541
90	0.046	0.028	0.9931 0.9498
120	0.044	0.034	0.9939 0.9525


ACID DIGESTION OF CALCOITE
USING 30% H₂SO₄ SOLUTION

TIME IN MINUTES	% COPPER IN +150 MESH SOLVABLE	% COPPER IN -150 MESH SOLVABLE	WEIGHT OF INSOL IN GRAMS
60	0.070	0.186	0.9719 0.9431
90	0.068	0.170	0.9719 0.9425
120	0.064	0.188	0.9681 0.9404

ACID DIGESTION OF CUPIRITE
USING 30% H₂SO₄ SOLUTION

TIME IN MINUTES	% COPPER IN +150 MESH SOLVABLE	% COPPER IN -150 MESH SOLVABLE	WEIGHT OF INSOL IN GRAMS
90	27.30	29.17	0.5214 0.4564 .55

ACID DIGESTION OF METALLIC COPPER
USING 30% H₂SO₄ SOLUTION

TIME IN MINUTES	% COPPER IN +150 MESH SOLVABLE	% COPPER IN -150 MESH SOLVABLE	WEIGHT OF INSOL IN GRAMS
60	0.506		
90	0.478		
120	0.414		