

# CDN Resource Laboratories Ltd.

#2, 20148 – 102<sup>nd</sup> Ave, Langley, B.C., Canada, V1M 4B4, 604-882-8422, Fax: 604-882-8466 (www.cdnlabs.com)

## REFERENCE MATERIAL: CDN-CM-23

Recommended values and the “Between Lab” Two Standard Deviations

<i>Gold</i>	<i>0.549 g/t ± 0.060 g/t</i>	<i>Certified value</i>	<i>30g FA / ICP or AA</i>
<i>Copper</i>	<i>0.472 % ± 0.026 %</i>	<i>Certified value</i>	<i>4-acid / ICP or AA</i>
<i>Copper</i>	<i>0.471 % ± 0.026 %</i>	<i>Certified value</i>	<i>Aqua regia / ICP or AA</i>
<i>Molybdenum</i>	<i>0.025 % ± 0.002 %</i>	<i>Certified value</i>	<i>4-acid / ICP or AA</i>
<i>Molybdenum</i>	<i>0.025 % ± 0.002 %</i>	<i>Certified value</i>	<i>Aqua regia / ICP or AA</i>

**Note:** Standards with an RSD of near or less than 5% are certified; RSD's of between 5% and 15% are Provisional; RSD's over 15% are Indicated. Provisional and Indicated values cannot be used to monitor accuracy with a high degree of certainty.

**PREPARED BY:** CDN Resource Laboratories Ltd.  
**CERTIFIED BY:** Duncan Sanderson, B.Sc., Licensed Assayer of British Columbia  
**INDEPENDENT GEOCHEMIST:** Dr. Barry Smee, Ph.D., P. Geo.  
**DATE OF CERTIFICATION:** May 22, 2012

### **METHOD OF PREPARATION:**

Reject ore material was dried, crushed, pulverized and then passed through a 270 mesh screen. The +270 material was discarded. The -270 material was mixed for 5 days in a double-cone mixer. Splits were taken and sent to 14 laboratories for round robin assaying.

### **ORIGIN OF REFERENCE MATERIAL:**

Standard CDN-CM-23 was prepared using 782 kg of a granitic rock blended with 18 kg of a Cu-Au-Mo concentrate.

**Approximate chemical composition (from whole rock analysis) is as follows:**

	Percent		Percent
SiO <sub>2</sub>	66.5	MgO	2.4
Al <sub>2</sub> O <sub>3</sub>	12.8	K <sub>2</sub> O	1.1
Fe <sub>2</sub> O <sub>3</sub>	7.0	TiO <sub>2</sub>	0.6
CaO	3.8	LOI	1.9
Na <sub>2</sub> O	3.0	S	0.6
C	0.1		

### **Statistical Procedures:**

The final limits were calculated after first determining if all data was compatible within a spread normally expected for similar analytical methods done by reputable laboratories. Data from any one laboratory was removed from further calculations when the mean of all analyses from that laboratory failed a t test of the global means of the other laboratories. The means and standard deviations were calculated using all remaining data. Any analysis that fell outside of the mean  $\pm 2$  standard deviations was removed from the ensuing data base. The mean and standard deviations were again calculated using the remaining data. This method is different from that used by Government agencies in that the actual “between-laboratory” standard deviation is used in the calculations. This produces upper and lower limits that reflect actual individual analyses rather than a grouped set of analyses. The limits can therefore be used to monitor accuracy from individual analyses, unlike the Confidence Limits published on other standards.

## REFERENCE MATERIAL CDN-CM-23

### Results from round-robin assaying:

	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6	Lab 7	Lab 8	Lab 9	Lab 10	Lab 11	Lab 12	Lab 13	Lab 14	Lab 15
	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t
CM-23-1	0.567	0.575	0.526	0.545	0.620	0.518	0.524	0.564	0.480	0.517	0.600	0.554	0.589	0.574	0.529
CM-23-2	0.548	0.559	0.537	0.526	0.661	0.524	0.583	0.501	0.503	0.478	0.577	0.545	0.537	0.581	0.557
CM-23-3	0.550	0.539	0.555	0.513	0.551	0.479	0.538	0.576	0.481	0.484	0.528	0.574	0.528	0.577	0.546
CM-23-4	0.575	0.526	0.529	0.567	0.618	0.515	0.576	0.518	0.534	0.492	0.590	0.538	0.518	0.617	0.559
CM-23-5	0.596	0.543	0.562	0.565	0.588	0.544	0.606	0.556	0.529	0.504	0.548	0.579	0.544	0.594	0.534
CM-23-6	0.606	0.557	0.544	0.533	0.600	0.588	0.550	0.525	0.495	0.503	0.611	0.552	0.528	0.579	0.533
CM-23-7	0.593	0.573	0.569	0.487	0.569	0.562	0.562	0.534	0.519	0.535	0.547	0.519	0.542	0.575	0.537
CM-23-8	0.592	0.542	0.551	0.516	0.660	0.514	0.562	0.547	0.516	0.520	0.567	0.572	0.522	0.568	0.529
CM-23-9	0.581	0.557	0.526	0.552	0.612	0.524	0.585	0.530	0.497	0.491	0.609	0.572	0.521	0.569	0.529
CM-23-10	0.595	0.612	0.565	0.528	0.574	0.543	0.532	0.550	0.509	0.524	0.617	0.554	0.547	0.596	0.544
Mean	0.580	0.558	0.546	0.533	0.605	0.531	0.562	0.540	0.506	0.505	0.579	0.556	0.538	0.583	0.540
Std. Devn.	0.0200	0.0243	0.0164	0.0249	0.0367	0.0299	0.0262	0.0227	0.0186	0.0188	0.0310	0.0189	0.0208	0.0152	0.0113
% RSD	3.44	4.35	3.00	4.66	6.06	5.63	4.66	4.21	3.67	3.72	5.35	3.39	3.86	2.60	2.10
Total	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu
CM-23-1	0.466	0.473	0.459	0.494	0.452	0.471		0.478	0.460	0.496	0.486	0.475	0.456	0.471	0.50
CM-23-2	0.473	0.463	0.468	0.493	0.463	0.478		0.471	0.453	0.483	0.473	0.476	0.456	0.441	0.49
CM-23-3	0.473	0.469	0.467	0.493	0.431	0.464		0.469	0.450	0.465	0.482	0.476	0.466	0.470	0.50
CM-23-4	0.476	0.470	0.463	0.487	0.463	0.470		0.463	0.452	0.490	0.478	0.473	0.462	0.450	0.49
CM-23-5	0.471	0.458	0.463	0.478	0.454	0.467		0.474	0.449	0.489	0.464	0.472	0.467	0.462	0.49
CM-23-6	0.477	0.476	0.465	0.487	0.447	0.477		0.480	0.446	0.483	0.482	0.473	0.460	0.462	0.50
CM-23-7	0.472	0.497	0.464	0.451	0.429	0.471		0.468	0.448	0.468	0.476	0.469	0.481	0.471	0.49
CM-23-8	0.475	0.482	0.463	0.495	0.479	0.479		0.475	0.453	0.486	0.472	0.473	0.479	0.455	0.50
CM-23-9	0.477	0.464	0.469	0.505	0.443	0.456		0.473	0.456	0.473	0.482	0.473	0.468	0.457	0.49
CM-23-10	0.471	0.481	0.472	0.492	0.442	0.468		0.471	0.443	0.488	0.472	0.474	0.479	0.456	0.49
Mean	0.473	0.473	0.465	0.488	0.450	0.470		0.472	0.451	0.482	0.477	0.473	0.467	0.460	0.494
Std. Devn.	0.0034	0.0114	0.0037	0.0146	0.0154	0.0070		0.0050	0.0049	0.0102	0.0066	0.0021	0.0094	0.0099	0.0052
% RSD	0.71	2.40	0.80	2.99	3.41	1.49		1.05	1.09	2.11	1.38	0.44	2.02	2.14	1.05
Aqua regia	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu
CM-23-1	0.447	0.472	0.463	0.463	0.483	0.460	0.482	0.477	0.437	0.484	0.468	0.474	0.477	0.464	0.49
CM-23-2	0.443	0.464	0.466	0.436	0.487	0.447	0.479	0.477	0.446	0.485	0.480	0.478	0.459	0.455	0.49
CM-23-3	0.452	0.478	0.466	0.470	0.495	0.461	0.480	0.476	0.452	0.489	0.474	0.473	0.451	0.476	0.49
CM-23-4	0.448	0.463	0.472	0.506	0.500	0.472	0.483	0.464	0.437	0.493	0.479	0.471	0.469	0.470	0.49
CM-23-5	0.448	0.468	0.481	0.467	0.485	0.496	0.483	0.466	0.437	0.473	0.477	0.473	0.475	0.465	0.48
CM-23-6	0.449	0.461	0.474	0.458	0.494	0.479	0.485	0.487	0.451	0.474	0.468	0.475	0.450	0.462	0.48
CM-23-7	0.454	0.475	0.479	0.489	0.463	0.471	0.482	0.469	0.449	0.489	0.462	0.475	0.472	0.469	0.49
CM-23-8	0.451	0.462	0.494	0.469	0.470	0.468	0.478	0.471	0.448	0.458	0.479	0.474	0.466	0.463	0.49
CM-23-9	0.454	0.478	0.475	0.457	0.481	0.484	0.483	0.464	0.444	0.493	0.477	0.476	0.465	0.467	0.48
CM-23-10	0.452	0.465	0.461	0.475	0.453	0.453	0.479	0.482	0.458	0.478	0.468	0.476	0.466	0.460	0.49
Mean	0.450	0.469	0.473	0.469	0.481	0.469	0.481	0.473	0.446	0.482	0.473	0.475	0.465	0.465	0.487
Std. Devn.	0.0035	0.0066	0.0099	0.0189	0.0149	0.0147	0.0023	0.0078	0.0072	0.0110	0.0063	0.0020	0.0092	0.0060	0.0048
% RSD	0.77	1.42	2.10	4.02	3.11	3.14	0.47	1.65	1.61	2.28	1.33	0.41	1.99	1.29	0.99

**Note:** Lab 7 could not provide Cu data with a 4-acid digestion.

## REFERENCE MATERIAL CDN-CM-23

### Results from round-robin assaying:

	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6	Lab 7	Lab 8	Lab 9	Lab 10	Lab 11	Lab 12	Lab 13	Lab 14	Lab 15
Total	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo
CM-23-1	0.025	0.027	0.026	0.026	0.024	0.025		0.025	0.024	0.026	0.027	0.025	0.026	0.024	0.03
CM-23-2	0.025	0.026	0.027	0.024	0.025	0.025		0.024	0.025	0.025	0.025	0.025	0.025	0.023	0.03
CM-23-3	0.026	0.027	0.027	0.025	0.024	0.025		0.024	0.024	0.024	0.027	0.025	0.025	0.023	0.03
CM-23-4	0.026	0.027	0.026	0.026	0.025	0.025		0.023	0.025	0.025	0.026	0.025	0.026	0.023	0.03
CM-23-5	0.026	0.026	0.026	0.024	0.023	0.024		0.024	0.025	0.026	0.025	0.025	0.025	0.024	0.03
CM-23-6	0.026	0.027	0.026	0.025	0.024	0.026		0.024	0.025	0.025	0.026	0.025	0.026	0.024	0.03
CM-23-7	0.027	0.026	0.027	0.023	0.024	0.025		0.024	0.025	0.024	0.026	0.026	0.026	0.023	0.03
CM-23-8	0.027	0.027	0.025	0.025	0.025	0.025		0.024	0.024	0.025	0.026	0.024	0.026	0.024	0.03
CM-23-9	0.026	0.026	0.025	0.026	0.024	0.025		0.024	0.025	0.024	0.026	0.025	0.026	0.023	0.03
CM-23-10	0.026	0.027	0.026	0.025	0.025	0.025		0.024	0.025	0.025	0.026	0.025	0.026	0.023	0.03
Mean	0.026	0.027	0.026	0.025	0.024	0.025		0.024	0.024	0.025	0.026	0.025	0.026	0.023	0.030
Std. Devn.	0.0007	0.0005	0.0007	0.0010	0.0007	0.0004		0.0005	0.0005	0.0007	0.0005	0.0005	0.0005	0.0004	0.0000
% RSD	2.56	1.94	2.83	3.99	2.78	1.79		2.05	2.05	2.96	2.09	1.89	1.88	1.51	0.00
Aqua regia	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo
CM-23-1	0.023	0.026	0.025	0.024	0.026	0.021	0.024	0.025	0.022	0.025	0.026	0.025	0.026	0.022	0.03
CM-23-2	0.023	0.026	0.025	0.022	0.027	0.021	0.025	0.025	0.022	0.025	0.027	0.026	0.025	0.021	0.03
CM-23-3	0.024	0.026	0.026	0.024	0.028	0.020	0.025	0.025	0.023	0.025	0.026	0.026	0.025	0.021	0.03
CM-23-4	0.024	0.026	0.026	0.025	0.028	0.021	0.025	0.024	0.021	0.026	0.027	0.026	0.026	0.021	0.03
CM-23-5	0.024	0.026	0.026	0.024	0.028	0.022	0.025	0.024	0.023	0.025	0.027	0.026	0.025	0.022	0.03
CM-23-6	0.024	0.026	0.026	0.024	0.028	0.022	0.024	0.025	0.023	0.025	0.025	0.025	0.026	0.021	0.03
CM-23-7	0.024	0.026	0.025	0.025	0.027	0.021	0.024	0.025	0.022	0.025	0.026	0.024	0.027	0.023	0.03
CM-23-8	0.024	0.026	0.026	0.023	0.027	0.021	0.024	0.025	0.023	0.024	0.027	0.024	0.025	0.023	0.03
CM-23-9	0.024	0.025	0.025	0.024	0.028	0.022	0.023	0.024	0.023	0.026	0.027	0.025	0.026	0.022	0.03
CM-23-10	0.024	0.026	0.026	0.024	0.027	0.022	0.025	0.026	0.021	0.025	0.026	0.025	0.026	0.022	0.03
Mean	0.024	0.026	0.026	0.024	0.027	0.021	0.024	0.025	0.022	0.025	0.026	0.025	0.026	0.022	0.030
Std. Devn.	0.0004	0.0003	0.0005	0.0009	0.0007	0.0006	0.0005	0.0006	0.0007	0.0006	0.0005	0.0008	0.0007	0.0006	0.0000
% RSD	1.77	1.22	2.02	3.66	2.55	2.87	2.09	2.44	3.30	2.26	1.90	3.13	2.63	2.64	0.00

**Note:** 4-acid Mo results from Lab 15 were excluded for failing the t test  
 Aqua regia results from Labs 6 and 15 were excluded for failing the t test.  
 Lab 7 could not provide Mo data with a 4-acid digestion.

**REFERENCE MATERIAL CDN-CM-23**

**Participating Laboratories:**

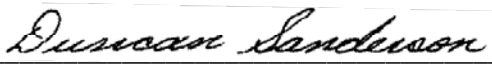
(not in same order as listed in table of results)

Acme Analytical Laboratories Ltd., Vancouver, B.C., Canada  
Acme Analytical Laboratories Ltd., Santiago, Chile  
Actlabs, Ancaster, Ontario, Canada  
Actlabs, Thunder Bay, Ontario, Canada  
Actlabs, Stewart, B.C., Canada  
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American Assay Laboratories, Nevada, USA  
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CIMM, Lima, Peru  
OMAC Laboratories, Ireland  
SGS, Lima, Peru  
SGS, Toronto, Ontario, Canada  
SGS, Vancouver, B.C., Canada  
TSL Laboratories, Saskatoon, Canada


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Certified by

  
Duncan Sanderson, Certified Assayer of B.C.

Geochemist

  
Dr. Barry Smee, Ph.D., P. Geo.