

# CDN Resource Laboratories Ltd.

## Certificate of Analysis

### STANDARD REFERENCE MATERIAL: CDN-W-2

<b>Tungsten</b>	<b>2.78%</b>	<b>± 0.39%</b>	<b>Variety of methods</b>	<b>Certified value</b>
<b>Copper</b>	<b>0.45 %</b>	<b>± 0.034 %</b>	<b>4 Acid digestion / ICP or AA</b>	<b>Certified value</b>
<b>Bismuth</b>	<b>0.32 %</b>	<b>± 0.0028 %</b>	<b>4 Acid digestion / ICP or AA</b>	<b>Certified value</b>

Recommended values and the "Between Lab" Two Standard Deviations

**Note 1:** 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.  
**PREPARATION CERTIFIED BY:** Duncan Sanderson, B.Sc., Licensed Assayer of British Columbia  
**CERTIFIED BY INDEPENDENT GEOCHEMIST:** Dr. Barry Smee., Ph.D., P. Geo.  
**DATE OF CERTIFICATION:** July 24, 2006

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

Standard CDN-W-2 was supplied from underground workings at North America Tungsten's Cantung mine in the NWT. It is high sulfide consisting primarily of pyrrhotite containing chalcopyrite. Native gold and bismuth are associated with chalcopyrite. The tungsten occurs as scheelite.

#### **METHOD OF PREPARATION:**

Reject ore material was dried, crushed, pulverized and then passed through a 200 mesh screen. The +200 material was discarded. The -200 material was mixed for 5 days in a rotary mixer. After internal assaying to test for homogeneity, splits were taken and sent to 11 laboratories for round robin assaying.

#### **Assay Procedures:**

**W:** Variety of methods: a) fusion, XRF b) digestion, ICP c) fusion, ICP-MS d) fusion, ICP.  
**Bi:** 4-acid digestion, AA or ICP finish.  
**Cu:** 4-acid digestion, AA or ICP finish.

#### **Statistical Procedures:**

The mean and standard deviation for all data was calculated. Outliers were defined as samples beyond the mean  $\pm 2$  Standard Deviations from all data. These outliers were removed from the data and a new mean and standard deviation was determined. 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 Certified Limits published on other standards.

#### **LEGAL NOTICE:**

This certificate and the reference material described in it have been prepared with due care and attention. However, CDN Resource Laboratories Ltd. nor Barry Smee accept any liability for any decisions or actions taken following the use of the reference material. Our liability is limited solely to the cost of the reference material.

Whole rock analysis and 30 element ICP analysis (4-acid digestion) were also conducted on 3 samples.

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## APPROXIMATE CHEMICAL COMPOSITION (by whole rock analysis):

Analyte	Percent	Analyte	Percent
SiO <sub>2</sub>	27.9	Na <sub>2</sub> O	0.8
Al <sub>2</sub> O <sub>3</sub>	3.1	K <sub>2</sub> O	1.0
Fe <sub>2</sub> O <sub>3</sub>	43.4	TiO <sub>2</sub>	0.1
CaO	10.1	LOI	5.7
MgO	5.2		

## Participating Laboratories: (not in same order as table of assays)

Acme Analytical Laboratories Ltd., Vancouver	GTK Laboratory, Finland
Assayers Canada Ltd., Vancouver	International Plasma Labs. Ltd., Vancouver
ALS Chemex Laboratories, North Vancouver	OMAC Laboratories Ltd., Ireland
EcoTech Laboratory, Kamloops, B.C	SGS-XRAL, Toronto
Teck Cominco - Global Discovery Laboratory, Vancouver	TSL Laboratories, Saskatoon
Genalysis Laboratory Services Pty. Ltd., Australia	

## General Notes

### Intended Use

This Certified Reference Material, CRM, fit for use as a control sample in routine assay laboratory quality control when inserted within runs of test samples and measured in parallel to test samples. This material can also be used for method development, use as independent calibration verification check standard or for validation of accuracy in a method validation exercise.

This Certified Reference Material can also be used to assess inter-laboratory or instrument bias and establish within-laboratory precision and within-laboratory reproducibility. The certified concentrations and expanded uncertainty for this material are property values based on an inter-laboratory measurement campaign and reflect consensus results from the laboratories that took part in the exercise.

### Handling

Do not use the product if the seal is broken or there are any signs of contamination.

The material is packaged in either Tin Tie envelopes, foil envelopes or jars that must be shaken before use.

### Storage information

The material should be stored in a dry place, in such a way that it does not compromise the integrity of the CRM. The material should be stored in conditions which will ensure it does not absorb moisture.

Certificate is not valid if re-packaged by a third party.

### Minimum Sample Size

Most of the laboratory's reporting used a 0.5g sample size for the ICP and a 30g sample size for the fire assay.

Our certified gold values are based on 30 g Fire Assay determinations. For optimal results, we strongly recommend you assay our standards with similar methods using "at least" 30 g of material. Using a smaller sample weight may result in erratic values. These are the recommended minimum sample sizes for the use of this material.

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Results from round-robin assaying:

Sample	Lab 1	Lab 2	Lab 3	Lab 8	Lab 4	Lab 5	Lab 6	Lab 7	Lab 9	Lab 10	Lab 11
<b>W (%) by Variety of methods</b>											
<b>W-2</b>	2.81	2.64	3.04	2.98	1.51	2.64	3.08	2.62	2.90	2.47	2.68
	2.90	2.56	3.08	2.99	1.39	2.73	3.02	2.43	2.88	2.52	2.71
	2.84	2.65	3.08	3.01	1.50	2.76	3.02	2.53	2.89	2.48	2.72
	2.77	2.59	3.07	2.97	1.48	2.8	3.03	2.52	2.91	2.56	2.67
	2.79	2.64	3.13	2.97	1.47	2.79	2.88	2.44	2.89	2.55	2.66
	2.68	2.57	3.12	3.02	1.50	2.73	2.96	2.58	2.88	2.51	2.65
	2.81	2.58	3.06	3.00	1.47	2.77	2.85	2.61	2.91	2.53	2.60
	2.90	2.66	3.04	2.98	1.53	2.82	2.86	2.52	2.87	2.5	2.59
	2.80	2.54	3.05	2.99	1.43	2.91	2.89	2.98	2.88	2.48	2.64
	2.84	2.56	3.05	2.98	1.42	2.83	2.91	2.66	2.90	2.49	2.66
<b>Mean</b>	2.81	2.60	3.07	2.99	1.47	2.78	2.95	2.59	2.89	2.51	2.66
<b>Std. Dev</b>	0.064	0.044	0.032	0.017	0.044	0.072	0.083	0.156	0.014	0.031	0.042
<b>% RSD</b>	2.27	1.70	1.03	0.56	3.01	2.59	2.80	6.04	0.47	1.22	1.56
<b>Bi (%) by 4 Acid digestion- AA or ICP finish</b>											
<b>W-2</b>	0.32	0.34	0.316	0.324	0.390	0.306	0.32	0.356	0.34	0.317	0.294
	0.31	0.33	0.322	0.324	0.393	0.306	0.32	0.361	0.34	0.318	0.293
	0.32	0.34	0.340	0.326	0.393	0.308	0.32	0.368	0.34	0.309	0.296
	0.32	0.34	0.336	0.328	0.394	0.308	0.32	0.371	0.34	0.308	0.292
	0.32	0.33	0.328	0.325	0.388	0.317	0.32	0.376	0.34	0.310	0.294
	0.31	0.34	0.328	0.330	0.415	0.300	0.32	0.338	0.34	0.317	0.296
	0.32	0.35	0.314	0.326	0.383	0.304	0.32	0.368	0.34	0.311	0.293
	0.32	0.33	0.327	0.331	0.368	0.319	0.31	0.376	0.34	0.313	0.287
	0.31	0.33	0.327	0.320	0.376	0.296	0.31	0.380	0.34	0.312	0.294
	0.32	0.33	0.347	0.326	0.379	0.304	0.32	0.375	0.34	0.310	0.292
<b>Mean</b>	0.32	0.34	0.329	0.326	0.388	0.307	0.32	0.367	0.34	0.313	0.293
<b>Std. Dev</b>	0.005	0.007	0.010	0.003	0.013	0.007	0.004	0.013	0.000	0.004	0.003
<b>% RSD</b>	1.524	2.081	3.118	0.970	3.293	2.268	1.326	3.413	0.000	1.161	0.873
<b>Cu (%) by 4 Acid digestion- AA or ICP finish</b>											
<b>W-2</b>	0.430	0.46	0.435	0.47	0.458	0.475	0.452	0.465	0.42	0.457	0.452
	0.425	0.45	0.425	0.47	0.442	0.472	0.446	0.463	0.42	0.461	0.461
	0.436	0.45	0.424	0.47	0.442	0.468	0.454	0.463	0.41	0.443	0.458
	0.433	0.45	0.422	0.46	0.438	0.466	0.451	0.466	0.42	0.448	0.457
	0.428	0.45	0.431	0.47	0.442	0.468	0.446	0.466	0.42	0.442	0.462
	0.435	0.45	0.423	0.47	0.446	0.475	0.453	0.475	0.41	0.464	0.470
	0.429	0.46	0.429	0.48	0.450	0.469	0.460	0.469	0.42	0.46	0.456
	0.433	0.44	0.427	0.47	0.447	0.463	0.450	0.469	0.42	0.453	0.451
	0.433	0.46	0.432	0.47	0.450	0.455	0.458	0.470	0.42	0.447	0.471
	0.430	0.45	0.431	0.46	0.443	0.471	0.454	0.470	0.42	0.448	0.467
<b>Mean</b>	0.431	0.45	0.428	0.47	0.446	0.468	0.452	0.468	0.42	0.452	0.461
<b>Std. Dev</b>	0.003	0.006	0.004	0.006	0.006	0.006	0.005	0.004	0.004	0.008	0.007
<b>% RSD</b>	0.79	1.40	1.02	1.21	1.29	1.28	1.00	0.80	1.01	1.73	1.53

Notes: Bi data from Lab 5 and Lab 8 was removed for failing the "t" test.