

CDN Resource Laboratories Ltd.

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REFERENCE MATERIAL: CDN-PGMS-30

Recommended values and the “Between Lab” Two Standard Deviations

Gold	1.897 g/t	±	0.130 g/t	30 g FA, instrumental	Certified value
Platinum	0.223 ppm	±	0.022 ppm	30 g FA, instrumental	Certified value
Palladium	1.660 ppm	±	0.116 ppm	30 g FA, instrumental	Certified value
Copper	0.864 %	±	0.048 %	4 Acid / ICP or AA	Certified value
Nickel	0.062 %	±	0.004 %	4 Acid / ICP or AA	Certified value

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: January 17, 2018

ORIGIN OF REFERENCE MATERIAL:

Standard CDN-PGMS-30 was prepared by combining miscellaneous ores.

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 15 commercial laboratories for round robin assaying.

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

	Percent		Percent
SiO ₂	53.7	Na ₂ O	1.9
Al ₂ O ₃	13.2	MgO	7.7
Fe ₂ O ₃	10.6	K ₂ O	1.0
CaO	5.7	TiO ₂	0.4
MnO	0.1	LOI	3.8
S	2.0	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 ± 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.

Assay Procedures:

Au, Pt, Pd: Fire assay with AA or ICP finish using 30g sub-samples

Cu, Ni: 4-acid digestion, AA or ICP finish.

Results from round-robin assaying:

Instrumental	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
PGMS-30-1	1.800	1.800	1.940	2.050	1.925	1.940	1.988	1.890	1.869	1.884	1.796	1.896	1.857	1.890	1.915
PGMS-30-2	1.820	1.890	1.920	1.870	1.855	1.900	2.006	2.140	1.909	1.901	1.881	2.042	1.832	1.970	1.960
PGMS-30-3	1.690	1.880	2.030	1.925	1.800	1.950	1.875	1.900	1.972	1.906	1.776	1.914	1.966	1.900	1.840
PGMS-30-4	1.760	1.830	1.870	1.920	2.060	1.940	1.986	1.857	1.980	1.843	1.976	1.841	1.903	1.820	1.970
PGMS-30-5	1.910	1.880	1.850	1.845	1.830	1.940	1.806	1.930	1.971	1.845	1.815	1.908	1.868	1.860	2.040
PGMS-30-6	1.710	1.950	1.790	1.920	1.840	1.890	1.981	1.727	1.947	1.849	1.880	1.966	1.772	1.880	1.880
PGMS-30-7	1.88	1.760	1.940	1.875	1.805	1.950	1.897	1.908	1.947	1.927	1.952	2.007	1.805	1.920	1.845
PGMS-30-8	1.840	1.920	1.780	1.805	1.985	1.900	1.969	1.887	1.957	1.937	1.740	1.985	1.984	1.930	1.865
PGMS-30-9	1.820	1.780	1.960	1.995	1.885	1.960	1.920	1.965	1.883	1.872	1.848	1.949	1.859	1.890	1.965
PGMS-30-10	2.040	1.990	2.070	1.760	1.910	1.960	1.929	1.900	1.884	1.878	1.831	1.854	1.785	1.880	1.970
Mean	1.827	1.868	1.915	1.897	1.890	1.933	1.936	1.910	1.932	1.884	1.850	1.936	1.863	1.894	1.925
Std. Dev.	0.102	0.075	0.095	0.086	0.083	0.026	0.063	0.102	0.042	0.033	0.075	0.065	0.071	0.041	0.066
% RSD	5.56	4.01	4.94	4.52	4.40	1.36	3.25	5.34	2.16	1.77	4.04	3.37	3.82	2.14	3.44
Instrumental	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
	Pt g/t	Pt g/t	Pt g/t	Pt g/t	Pt g/t	Pt g/t	Pt g/t	Pt g/t	Pt g/t	Pt g/t	Pt g/t	Pt g/t	Pt g/t	Pt g/t	Pt g/t
PGMS-30-1	0.220	0.203	0.228	0.23	0.232	0.21	0.234	0.221		0.215	0.233	0.263	0.253	0.23	0.22
PGMS-30-2	0.223	0.232	0.243	0.20	0.235	0.23	0.205	0.214		0.217	0.202	0.285	0.261	0.21	0.21
PGMS-30-3	0.217	0.212	0.240	0.21	0.199	0.21	0.230	0.249		0.225	0.219	0.262	0.228	0.23	0.22
PGMS-30-4	0.203	0.215	0.221	0.23	0.240	0.23	0.235	0.213		0.225	0.241	0.265	0.239	0.23	0.23
PGMS-30-5	0.225	0.217	0.233	0.22	0.206	0.23	0.229	0.236		0.227	0.229	0.274	0.226	0.22	0.22
PGMS-30-6	0.192	0.207	0.252	0.22	0.223	0.23	0.225	0.218		0.220	0.211	0.280	0.214	0.22	0.22
PGMS-30-7	0.240	0.222	0.243	0.23	0.200	0.23	0.218	0.247		0.221	0.237	0.290	0.227	0.22	0.23
PGMS-30-8	0.254	0.209	0.222	0.21	0.222	0.23	0.214	0.264		0.222	0.223	0.288	0.235	0.23	0.22
PGMS-30-9	0.229	0.217	0.222	0.22	0.213	0.23	0.234	0.245		0.218	0.210	0.293	0.223	0.22	0.23
PGMS-30-10	0.253	0.219	0.221	0.20	0.230	0.23	0.203	0.222		0.218	0.216	0.282	0.225	0.22	0.21
Mean	0.23	0.22	0.23	0.22	0.22	0.23	0.22	0.23		0.22	0.22	0.28	0.23	0.22	0.22
Std. Dev.	0.020	0.008	0.011	0.011	0.015	0.008	0.012	0.018		0.004	0.013	0.012	0.014	0.007	0.008
% RSD	8.78	3.84	4.89	5.21	6.72	3.73	5.41	7.60		1.78	5.75	4.16	6.17	3.03	3.65

Notes: Pt results from Lab 12 were removed for failing the t test.

Results from round-robin assaying-Continue:

Instrumental	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
	Pd g/t	Pd g/t	Pd g/t	Pd g/t	Pd g/t	Pd g/t	Pd g/t	Pd g/t	Pd g/t	Pd g/t	Pd g/t	Pd g/t	Pd g/t	Pd g/t	Pd g/t
PGMS-30-1	1.630	1.560	1.850	1.665	1.625	1.820	1.748	1.688		1.711	1.523	1.840	1.649	1.600	1.625
PGMS-30-2	1.720	1.660	1.650	1.665	1.660	1.760	1.718	1.633		1.743	1.518	1.851	1.678	1.700	1.675
PGMS-30-3	1.560	1.590	1.700	1.675	1.625	1.740	1.664	1.810		1.756	1.567	1.847	1.681	1.680	1.605
PGMS-30-4	1.600	1.650	1.680	1.635	1.670	1.750	1.706	1.587		1.667	1.556	1.841	1.683	1.670	1.660
PGMS-30-5	1.670	1.590	1.690	1.615	1.600	1.730	1.756	1.761		1.691	1.569	1.959	1.736	1.660	1.685
PGMS-30-6	1.500	1.560	1.760	1.615	1.640	1.740	1.731	1.577		1.692	1.575	1.945	1.608	1.660	1.700
PGMS-30-7	1.670	1.550	1.710	1.650	1.590	1.700	1.715	1.685		1.764	1.552	1.986	1.690	1.680	1.675
PGMS-30-8	1.590	1.560	1.650	1.710	1.650	1.770	1.624	1.763		1.766	1.594	1.984	1.690	1.670	1.655
PGMS-30-9	1.630	1.540	1.710	1.600	1.695	1.840	1.658	1.758		1.703	1.578	1.997	1.677	1.630	1.600
PGMS-30-10	1.660	1.660	1.670	1.640	1.650	1.740	1.643	1.606		1.709	1.590	1.912	1.617	1.580	1.640
Mean	1.623	1.592	1.707	1.647	1.641	1.759	1.696	1.687		1.720	1.562	1.916	1.671	1.653	1.652
Std. Dev.	0.063	0.047	0.060	0.033	0.032	0.042	0.046	0.084		0.035	0.026	0.066	0.037	0.038	0.034
% RSD	3.90	2.97	3.50	2.01	1.94	2.39	2.70	4.96		2.01	1.64	3.44	2.24	2.30	2.05
Instrumental	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
	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu
PGMS-30-1	0.855	0.857	0.811	0.882	0.836	0.845		0.847	0.866	0.888	0.845	0.921	0.901	0.893	0.843
PGMS-30-2	0.879	0.852	0.844	0.888	0.871	0.857		0.853	0.861	0.864	0.829	0.901	0.886	0.896	0.835
PGMS-30-3	0.867	0.852	0.807	0.900	0.871	0.837		0.859	0.866	0.890	0.844	0.912	0.887	0.884	0.853
PGMS-30-4	0.861	0.838	0.798	0.915	0.876	0.836		0.851	0.862	0.888	0.838	0.909	0.878	0.871	0.832
PGMS-30-5	0.864	0.842	0.826	0.896	0.885	0.854		0.844	0.871	0.902	0.837	0.902	0.930	0.888	0.844
PGMS-30-6	0.837	0.844	0.797	0.872	0.864	0.846		0.849	0.864	0.850	0.845	0.906	0.877	0.886	0.846
PGMS-30-7	0.847	0.853	0.803	0.869	0.896	0.839		0.843	0.869	0.870	0.834	0.912	0.889	0.871	0.829
PGMS-30-8	0.825	0.834	0.794	0.901	0.844	0.836		0.853	0.865	0.863	0.837	0.909	0.919	0.887	0.826
PGMS-30-9	0.842	0.849	0.832	0.910	0.846	0.849		0.841	0.873	0.859	0.836	0.902	0.910	0.869	0.830
PGMS-30-10	0.852	0.844	0.794	0.888	0.804	0.837		0.835	0.881	0.878	0.836	0.913	0.900	0.877	0.838
Mean	0.853	0.847	0.811	0.892	0.859	0.844		0.848	0.868	0.875	0.838	0.909	0.898	0.882	0.838
Std. Dev.	0.016	0.007	0.018	0.015	0.027	0.008		0.007	0.006	0.017	0.005	0.006	0.018	0.010	0.009
% RSD	1.86	0.86	2.17	1.70	3.15	0.93		0.82	0.68	1.89	0.62	0.69	1.97	1.09	1.04
Instrumental	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
	% Ni	% Ni	% Ni	% Ni	% Ni	% Ni	% Ni	% Ni	% Ni	% Ni	% Ni	% Ni	% Ni	% Ni	% Ni
PGMS-30-1	0.065	0.063	0.062	0.063	0.061	0.062		0.063	0.060	0.062	0.062	0.058	0.058	0.061	0.062
PGMS-30-2	0.065	0.063	0.064	0.063	0.059	0.063		0.064	0.061	0.061	0.061	0.059	0.058	0.057	0.062
PGMS-30-3	0.065	0.066	0.064	0.065	0.060	0.061		0.065	0.061	0.064	0.062	0.059	0.057	0.059	0.063
PGMS-30-4	0.065	0.062	0.062	0.065	0.060	0.062		0.064	0.061	0.062	0.061	0.059	0.056	0.061	0.062
PGMS-30-5	0.063	0.064	0.064	0.064	0.061	0.061		0.063	0.060	0.063	0.062	0.058	0.059	0.057	0.062
PGMS-30-6	0.064	0.063	0.062	0.062	0.059	0.061		0.064	0.061	0.061	0.063	0.058	0.056	0.059	0.062
PGMS-30-7	0.065	0.065	0.062	0.062	0.062	0.061		0.064	0.059	0.061	0.061	0.059	0.057	0.058	0.061
PGMS-30-8	0.064	0.063	0.061	0.065	0.061	0.061		0.064	0.060	0.061	0.062	0.059	0.058	0.059	0.062
PGMS-30-9	0.063	0.063	0.063	0.065	0.061	0.061		0.064	0.061	0.061	0.062	0.059	0.057	0.058	0.062
PGMS-30-10	0.064	0.063	0.064	0.064	0.059	0.062		0.063	0.060	0.061	0.062	0.059	0.057	0.058	0.062
Mean	0.064	0.064	0.063	0.064	0.060	0.061		0.064	0.060	0.062	0.062	0.059	0.057	0.059	0.062
Std. Dev.	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.001	0.001	0.000	0.001	0.001	0.000
% RSD	1.28	1.86	1.75	1.96	1.76	1.07		0.99	1.10	1.72	1.14	0.81	1.71	2.33	0.78

Notes: Pd results from Lab 12 were removed for failing the t test.
Cu results from Lab 3 were removed for failing the t test.
Ni results from Lab 13 were removed for failing the t test.

Participating Laboratories:

(not in same order as table of assays)

- Activation Laboratories, Ancaster, Ontario, Canada
- Activation Laboratories, Thunder Bay, Ontario, Canada
- AGAT Labs, Mississauga, Ontario, Canada
- ALS Canada, North Vancouver, BC, Canada
- ALS, Loughrea, Ireland
- ALS, Lima, Peru
- Bureau Veritas, Perth, Australia
- Bureau Veritas, Reno, Nevada, USA
- Bureau Veritas, Vancouver, BC, Canada
- Certimin S.A., Lima, Peru
- MS Analytical, Langley, BC, Canada
- SGS, Lakefield, Ontario, Canada
- SGS, Lima, Peru
- SGS, Vancouver, BC, Canada
- TSL Laboratories Ltd., Saskatoon, SK, Canada


Legal Notice:

This certificate and the reference material described in it have been prepared with due care and attention. However CDN Resource Laboratories Ltd. or Barry Smee accept no 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.

Certified by


Duncan Sanderson, Certified Assayer of B.C.

Geochemist


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