



## CCRMP

Canadian Certified Reference Materials Project

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## PCMRC

Projet canadien de matériaux de référence certifiés

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# Certificate of Analysis

First issued: 1994

Last revision: August 1997

## *WGB-1*

### Gabbro Rock PGE Reference Material

**Certified Values and  
95% Confidence Intervals**

Constituent	Certified Value	95% C.I.
Au, ng/g	2.9	± 1.1
Pd, ng/g	13.9	± 2.1
Pt, ng/g	6.1	± 1.6
Fe <sub>2</sub> O <sub>3</sub> , %	6.71	± 0.14
K <sub>2</sub> O, %	0.94	± 0.04
MgO, %	9.40	± 0.19
Cr, µg/g	291	± 13

**Provisional Values and  
95% Confidence Intervals**

Constituent	Provisional Value	95% C.I.
Ir, ng/g	0.33	0.17
Rh, ng/g	0.32	0.21
Ru, ng/g	0.3	---

Informational value



### **Source**

WGB-1 was obtained from the Wellgreen Complex, Yukon Territory, Canada. WGB-1 was prepared and certified in cooperation with the Analytical Method Development Section of the Mineral Deposits Division of the Geological Survey of Canada (GSC).

### **Description**

The mineralogy of this gabbro rock consists of plagioclase feldspar, pyroxene, chlorite, prehnite and calcite. Sulphide mineralization in the sample is sparse and includes chalcopyrite, pyrrhotite, pentlandite and galena (intimately associated with the pyrrhotite). Other minerals identified include titanite, ilmenite and rutile.

### **Intended Use**

WGB-1 is intended for analysis of platinum-group elements in exploration samples and for other samples where very low concentrations of gold and PGEs are required. WGB-1 is also intended for general rock analysis for a gabbro-type rock.

### **Instructions for Use**

WGB-1 should be used "as is" without drying.

### **Method of Preparation**

The rock was hand-picked by a GSC geologist. The raw material was dried, comminuted and sieved to obtain a sub-74-micron (-200 mesh) product which was blended and bottled.

### **State of Homogeneity**

The homogeneity of the stock with respect to its gold, platinum and palladium contents was confirmed using bottles chosen according to a stratified random sampling scheme. The analytical method was a fire-assay preconcentration followed by an

inductively-coupled plasma - mass spectrometric (ICP-MS) finish performed at GSC. The homogeneity was also confirmed, at a commercial laboratory, for all major constituents by X-ray fluorescence.

### **Method of Certification**

WGB-1 was certified by an interlaboratory analysis program. Thirty-three university, commercial, and government laboratories from Canada, United States, Europe, Australia, Africa, and Japan participated in an interlaboratory certification program. Up to 80 elements were analyzed by methods of each laboratory's choice. A statistical analysis of the data yielded certified values for gold, palladium, platinum,  $\text{Fe}_2\text{O}_3$ ,  $\text{K}_2\text{O}$ ,  $\text{MgO}$ , and chromium. Provisional values were assigned for rhodium, iridium and thirty-two others. Informational values for ruthenium and other elements are also given.

### **Legal Notice**

The Canadian Certified Reference Materials Project has prepared this reference material and statistically evaluated the analytical data of the interlaboratory certification program to the best of its ability. The purchaser, by receipt hereof, releases and indemnifies the Canadian Certified Reference Materials Project from and against all liability and costs arising out of the use of this material and information.

**Reference**

The preparation and certification procedures used for WGB-1, including values obtained by individual laboratories, are given in CANMET report *CCRMP 94-3E*. This report is available free of charge on application to:

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**Certifying Officers**

  
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Additional provisional values and 95% confidence limits

Provisional Constituents	Mean	95% Conf. Limits
Al <sub>2</sub> O <sub>3</sub> , %	11.15	± 0.27
CaO, %	15.78	± 0.85
MnO, %	0.143	± 0.014
Na <sub>2</sub> O, %	2.15	± 0.08
P <sub>2</sub> O <sub>5</sub> , %	0.099	± 0.034
SiO <sub>2</sub> , %	49.1	± 0.8
TiO <sub>2</sub> , %	0.84	± 0.07
Ba, µg/g	851	± 61
Co, µg/g	29.8	± 1.7
Cs, µg/g	0.52	± 0.15
Cu, µg/g	106	± 9
Eu, µg/g	1.27	± 0.06
Hf, µg/g	1.5	± 0.2
Ho, µg/g	0.52	± 0.07
La, µg/g	8.7	± 1.1
Mo, µg/g	1.2	± 0.5

Provisional Constituents	Mean	95% Conf. Limits
Nb, µg/g	8	± 4
Nd, µg/g	9.9	± 0.9
Ni, µg/g	76	± 7
Rb, µg/g	19.5	± 1.5
Sb, µg/g	2.0	± 0.4
Sc, µg/g	44	± 4
Sm, µg/g	2.8	± 0.3
Sr, µg/g	118	± 9
Tb, µg/g	0.5	± 0.1
Th, µg/g	1.0	± 0.1
U, µg/g	0.75	± 0.1
V, µg/g	222	± 17
Y, µg/g	14.6	± 2.7
Yb, µg/g	1.42	± 0.18
Zn, µg/g	31.5	± 8.5
Zr, µg/g	44	± 16

### Informational ranges

(these are not certified values - they are intended to be used as a guide only)

Informational Ranges	
H <sub>2</sub> O, %	0.16 - 0.21
LOI, %	3.6 - 4.0
S total, %	0.01 - 0.03
Ag, µg/g	0.1 - 1
As, µg/g	1.5 - 5
B, µg/g	250 - 280
Be, µg/g	0.2 - 0.8
Bi, µg/g	0.1 - 2
Cd, µg/g	0.1 - 0.4
Ce, µg/g	14 - 20
Dy, µg/g	2.5 - 3.5
Er, µg/g	1.2 - 1.8
Ga, µg/g	11 - 13

Informational Ranges	
Gd, µg/g	2.5 - 3.5
Ge, µg/g	0.2 - 7
Hg, µg/g	0.01
Li, µg/g	43 - 51
Lu, µg/g	0.20 - 0.36
Pb, µg/g	4 - 14
Pr, µg/g	2.3 - 2.6
Se, µg/g	0.1 - 0.8
Sn, µg/g	4.2 - 5.2
Ta, µg/g	0.3 - 1
Th, µg/g	1.0 - 1.6
Tm, µg/g	0.15 - 0.30
W, µg/g	1 - 3.5