

## Certified Manganese Reference Material - GMN-01

### Certificate of Analysis

Analyte	Units	Average	Standard Deviation	Count	95% Confidence Interval
TiO <sub>2</sub>	%	0.203	0.0065	40	+/- 0.0022
Fe	%	5.003	0.087	40	+/- 0.03
Al <sub>2</sub> O <sub>3</sub>	%	4.634	0.071	40	+/- 0.024
SiO <sub>2</sub>	%	25.76	0.15	40	+/- 0.05
Mn	%	13.56	0.14	40	+/- 0.05
CaO	%	12.89	0.12	40	+/- 0.04
MgO	%	2.785	0.024	40	+/- 0.008
P	%	0.1512	0.0021	40	+/- 0.0007
S	%	0.0041	0.002	30	+/- 0.0007
BaO	%	0.0283	0.0038	30	+/- 0.0013
K <sub>2</sub> O	%	1.202	0.015	40	+/- 0.005
Pb	%	<0.02			
LOI	%	25.19	0.19	50	+/- 0.06

#### Control Statistic Details

Control values for this material were determined during a certification program.

#### Certification Date

This material was certified with the above values on: 1/02/2011

#### Source Material

Prior to homogenisation and testing, this material was sourced from  
Manganese Carbonate

#### Usage

This product is for use in the mining industry as a reference material for monitoring and testing the accuracy of laboratory assaying.

#### Preparation and Packaging

This certified reference material was dried in an oven for a minimum of 8 hours at 120C. The dry material was pulverised in an automated LM5 pulveriser and then homogenised in a vee-blender. The material is then packaged into 10g plastic packets, ready for shipment.

#### Certification Testwork

This certified reference material was tested in a dedicated certification program. 10 samples were sent to 5 laboratories for XRF analyses. Assay distributions are checked and processed statistically, producing monitoring statistics for these standards. Materials are tested regularly to ensure stability and homogeneity.