Certificate of Analysis 1049

Date: 09-30-2024
Version: 01

CRM ITAK-216

Certified Reference Material – Nickel Laterite Ore

Table 1 – ITAK-216 – Certified Values

Element/Unit	Certified Value [1]	s [2]	s_r [3]	s_L [4]	U [5]
Fe (%) [a, b]	42.42	0.53	0.26	0.46	± 0.12
Al_2O_3 (%) [a, b]	8.09	0.17	0.043	0.16	± 0.040
SiO_2 (%) [a, b]	13.21	0.25	0.066	0.24	± 0.060
Ni (%) [a, b]	0.794	0.012	0.0062	0.0098	± 0.0023
Co (%) [a, b]	0.1176	0.0069	0.0014	0.0067	± 0.0016
Cr_2O_3 (%) [a, b]	5.036	0.072	0.040	0.060	± 0.016
Cu (%) [a, b]	0.333	0.033	0.0050	0.033	± 0.0085
TiO_2 (%) [a, b]	0.1864	0.0069	0.0043	0.0054	± 0.0018
MnO (%) [a, b]	0.917	0.024	0.0058	0.023	± 0.0058
MgO (%) [a, b]	1.875	0.063	0.018	0.061	± 0.015
CaO (%) [a]	0.0612	0.0044	0.0025	0.0037	± 0.0011
Zn (%) [a, b]	0.0399	0.0012	0.00045	0.0011	± 0.00057
[6] LOI (%) [c, d]	7.53	0.19	0.066	0.17	± 0.044

[1] The Certified Value was calculated according to ISO Guide 35 and ISO 5725-2.
[2] The standard deviation for proficiency assessment was calculated according to ISO 13528 and 5725-2. This standard deviation can be used for control charts for individual analysis (*n=1)*.
[3] The within-laboratory standard deviation was calculated according to ISO 5725-2.
[4] The between-laboratory standard deviation was calculated according to ISO 5725-2.
[5] The extended standard uncertainty of the mean (α=5%) was calculated according to ISO Guide 35.
[6] Loss On Ignition.
Note: The letters in front of the elements are codes for Analytical Methods used.

DESCRIPTION

ITAK-216 was prepared from a sample of Nickel Laterite Ore donated by a Nickel Mining Company from the Midwest of Brazil in 2008.

This Certified Reference Material (CRM) is presented as a fine powder.

INTENDED USE AND INSTRUCTIONS

ITAK-216 provides important control in analytical data from exploration and can be used as a tool for grade control in routine mining and laboratory operations.

This Certified Reference Material can be used for calibration of analytical equipment, assessment and develop new methods, validation of analytical methods, and arbitration – proficiency testing for example.

The bottles/sachets content should be thoroughly mixed before taking samples of ITAK-216.

The Certified Reference Material should be used without pre-treatment. ITAK is not responsible for any changes occurring after opening said bottles/sachets.

The Certified Reference Material should be stored in a dry place and without contact with excessive heat or moisture.

The minimum test portion of the Certified Reference Material is 0.5 g.

CHARACTERIZATION AND STATISTICAL EVALUATION OF ANALYTICAL DATA

ITAK-216 was analyzed by twenty-four specialized laboratories. The statistical evaluation was carried out according to ISO GUIDE 35 and ISO 5725-2, using: identification and treatment of outliers, stragglers and technically invalid data, certified value calculation, standard deviation calculation, and extended standard uncertainty calculation.

The Technical Report: RT-029/2024 STD contains full details of all phases of manufacturing, certifying results, participating laboratories, and the statistical evaluation.
Note: This report is available on the ITAK database for CRM users.

ANALYTICAL METHODS

The methods used in the characterization of CRM ITAK-216 are mentioned as following:

- **a**: Fusion method and determination by X-Ray Fluorescence.
- **b**: Fusion method and determination by Atomic Emission Spectrometry (ICP).
- **c**: Gravimetric method.
- **d**: Thermogravimetric method (TGA).

PERIOD OF VALIDITY

This CRM certification is valid until **September 30**, **2034**.

CERTIFICATE REPRODUCTION

This certificate must not be modified and may only be reproduced in its entirety and without change.

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