Certificate of Analysis 1028

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CRM ITAK-1029

Certified Reference Material – Bauxite

Table 1 – ITAK-1029 – Certified Values

Element/Unit	Certified Value [1]	s [2]	s_r [3]	s_L [4]	U [5]
Available Al_2O_3 (%) [d]	53.57	0.29	0.21	0.20	± 0.11
Reactive SiO_2 (%) [b, c, g]	1.43	0.16	0.036	0.16	± 0.065
Al_2O_3 (%) [a]	55.38	0.38	0.23	0.30	± 0.11
SiO_2 (%) [a]	2.340	0.033	0.033	0.00026	± 0.0048
Fe_2O_3 (%) [a]	11.23	0.12	0.043	0.12	± 0.045
TiO_2 (%) [a]	1.776	0.034	0.0095	0.033	± 0.013
V_2O_5 (%) [a]	0.0421	0.0069	0.0042	0.0054	± 0.0026
ZrO_2 (%) [a]	0.0770	0.0045	0.0029	0.0034	± 0.0018
[6] LOI (%) [e, f]	29.394	0.052	0.017	0.049	± 0.025

[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 combined standard uncertainty of the certified value 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.

Table 2 – ITAK-1029 – Informative Values

Element/Unit	Reference Value [7]
CaO (%) [a]	0.014
MnO (%) [a]	< 0.015
P_2O_5 (%) [a]	0.019

[7] These values are informative. They were calculated according to ISO Guide 35 and ISO 5725-2 from twenty to thirty-five results from a varying number of laboratories.

DESCRIPTION

ITAK-1029 was prepared from a sample of Bauxite donated by a Bauxite Mining Company from the North of Brazil in 2019.

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

INTENDED USE AND INSTRUCTIONS

ITAK-1029 provides an 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, assess 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-1029.

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-1029 was analyzed by nine specialized laboratories. The statistical evaluation was carried out according to ISO GUIDE 35 and ISO 5725-2, using: the 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-020/2024 STD contains full details of all phases of manufacturing, certifying results, participating laboratories, and 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-1029 are mentioned as follows:

- **a**: Fusion method and determination by X-Ray Fluorescence.
- **b**: Alkaline Digestion and determination by Atomic Absorption Spectrometry – AAS.
- **c**: Alkaline Digestion and determination by Atomic Emission Spectrometry – ICP-OES.
- **d**: Alkaline Digestion and determination by Titrimetric Method.
- **e**: Gravimetric Method.
- **f**: Thermogravimetric Method (TGA).
- **g**: Alkaline Digestion and determination by Gravimetric Method.

PERIOD OF VALIDITY

This CRM characterization is valid until **February 20, 2033**.

CERTIFICATE REPRODUCTION

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

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