CRM ITAK-079

Certified Reference Material — Iron ore

Table 1 — ITAK-079 — Certified Values

Element/Unit	Certified Value [1]	s [2]	s_r [3]	s_L [4]	U [5]
Fe (%) [a, c]	59.10	0.27	0.21	0.16	± 0.063
Al_2O_3 (%) [a]	1.505	0.032	0.026	0.020	± 0.0075
SiO_2 (%) [a]	6.270	0.086	0.050	0.070	± 0.025
Mn (%) [a]	2.249	0.017	0.012	0.012	± 0.0048
TiO_2 (%) [a]	0.0371	0.0070	0.0037	0.0059	± 0.0020
P (%) [a]	0.1012	0.0020	0.0014	0.0013	± 0.00050
CaO (%) [a]	0.0213	0.0057	0.0053	0.0022	± 0.0011
MgO (%) [a]	0.082	0.014	0.0051	0.013	± 0.0049
K_2O (%) [a]	0.0734	0.0053	0.0019	0.0050	± 0.0018
[6] LOI (%) [b]	4.338	0.075	0.028	0.070	± 0.027

[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*).

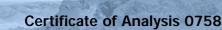[3] The within-laboratory standard deviation was calculated according to ISO 5725-2.

[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.

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Table 2 – ITAK-079 – Informative Values

Element/Unit	Reference Value [7]
Na_2O (%) [a]	< 0.1
FeO (%) [c]	< 0.2

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

DESCRIPTION

ITAK-079 was prepared from a sample of Iron ore donated by an Iron ore Mining Company from Southeast of Brazil in 2018.

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

INTENDED USE AND INSTRUCTIONS

ITAK-079 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-079.

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.

CERTIFICATION AND STATISTICAL EVALUATION OF ANALYTICAL DATA

ITAK-079 was analyzed by ten 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-013/19 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 on the certification of CRM ITAK-079 are mentioned as follows:

- **a**: Fusion method and determination by X-Ray Fluorescence.
- **b**: Gravimetric method.
- **c**: Titrimetric method.

PERIOD OF VALIDITY

This CRM certification is valid until: **January 31**, **2029**.

CERTIFICATE REPRODUCTION

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

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Technical Director