Certificate of Analysis 1015

Date: 07-30-2024
Version: 01

CRM ITAK-713

Certified Reference Material – Rare Earth Mineral

Table 1 – ITAK-713 – Certified Values

Element/Unit	Certified Value [1]	s [2]	s_r [3]	s_L [4]	U [5]
Ce (mg/kg) [a]	165.9	5.8	2.8	5.1	± 2.2
Dy (mg/kg) [a]	12.93	0.37	0.30	0.21	± 0.11
Er (mg/kg) [a]	10.09	0.37	0.37	0.0027	± 0.021
Eu (mg/kg) [a]	0.228	0.028	0.028	0.000075	± 0.0055
Gd (mg/kg) [a]	7.84	0.40	0.28	0.29	± 0.14
Ho (mg/kg) [a]	2.90	0.13	0.11	0.069	± 0.035
La (mg/kg) [a]	36.9	1.5	1.1	1.1	± 0.48
Lu (mg/kg) [a]	2.15	0.15	0.088	0.12	± 0.052
Nd (mg/kg) [a]	36.0	1.1	1.0	0.47	± 0.29
Pr (mg/kg) [a]	9.73	0.46	0.22	0.41	± 0.17
Sm (mg/kg) [a]	8.94	0.37	0.37	0.00086	± 0.014
Tb (mg/kg) [a]	1.74	0.08	0.050	0.063	± 0.027
Th (mg/kg) [a]	66.7	3.8	1.5	3.5	± 1.4
Tm (mg/kg) [a]	1.809	0.090	0.090	0.00042	± 0.011
U (mg/kg) [a]	6.58	0.35	0.23	0.27	± 0.13
Y (mg/kg) [a]	79.7	2.5	2.5	0.0070	± 0.28
Yb (mg/kg) [a]	13.56	0.71	0.51	0.50	± 0.24

[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.

Note: The letters in front of the elements are codes for Analytical Methods used.

DESCRIPTION

ITAK-713 was prepared from a sample of Rare Earth Mineral donated by a Rare Earth Mineral Mining Company from Midwest of Brazil in 2024.

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

INTENDED USE AND INSTRUCTIONS

ITAK-713 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-713.

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-713 was analyzed by six 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-022/2024 STD contains full details of all phases of manufacturing, characterization 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 characterization of CRM ITAK-713 are mentioned as follows:

- **a**: Fusion method and determination by Atomic Emission Spectrometry - ICP-MS.

PERIOD OF VALIDITY

This CRM characterization is valid until: **July 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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