

ISO 21813:2019 (E)

Fine ceramics (advanced ceramics, advanced technical ceramics) — Methods for chemical analysis of high purity barium titanate powders

Contents

	Foreword
1	Scope
2	Normative references
3	Terms and definitions
4	Analytes and ranges
5	Preparation of test sample
5.1	General
5.2	Sampling
5.3	Drying
5.4	Weighing
6	Reporting the analytical values
6.1	Number of analyses
6.2	Blank test
6.3	Evaluation of the analytical values
6.4	Expression of the analytical values
7	Determination of the barium and titanium contents
7.1	Classification of the determination methods
7.2	Acid decomposition-gravimetric method
7.2.1	Principle
7.2.2	Reagents
7.2.3	Apparatus
7.2.4	Procedure
7.2.5	Blank test
7.2.6	Calculation
7.3	Acid decomposition-ICP-OES method
7.3.1	Principle
7.3.2	Reagents
7.3.3	Apparatus
7.3.4	Procedure
7.3.5	Blank test
7.3.6	Drawing of the calibration curve
7.3.7	Calculation
8	Determination of the trace element contents
8.1	Principle
8.2	Reagents
8.3	Apparatus
8.4	Procedure
8.5	Blank test
8.6	Drawing of the calibration curve
8.7	Calculation
9	Determination of the total nitrogen content
9.1	Principle
9.2	Reagents
9.3	Apparatus

- 9.4 Instrument
- 9.5 Procedure
- 9.5.1 Starting up of the instrument
- 9.5.2 Preliminary heating
- 9.5.3 Degassing of the graphite crucible
- 9.5.4 Measuring
- 9.6 Blank test
- 9.7 Calculation of the calibration coefficient
- 9.8 Calculation
- 10 Determination of the oxygen content
 - 10.1 Principle
 - 10.2 Reagents
 - 10.3 Apparatus
 - 10.4 Instrument
 - 10.5 Procedure
 - 10.6 Blank test
 - 10.7 Calculation of the calibration coefficient
 - 10.8 Calculation
- 11 Determination of the carbon content
 - 11.1 Classification of the determination methods
 - 11.2 Combustion (resistance furnace)-IR absorption spectrometry
 - 11.2.1 Principle
 - 11.2.2 Reagents
 - 11.2.3 Apparatus
 - 11.2.4 Instrument
 - 11.2.5 Procedure
 - 11.2.5.1 Stabilization of the instrument
 - 11.2.5.2 Mixture of the sample and combustion accelerators
 - 11.2.5.3 Sample combustion
 - 11.2.5.4 Measurement
 - 11.2.6 Blank test
 - 11.2.7 Calculation of the calibration coefficient
 - 11.2.8 Calculation
 - 11.3 Combustion (radio frequency heating furnace)-thermal conductometry
 - 11.3.1 Principle
 - 11.3.2 Reagents
 - 11.3.3 Apparatus
 - 11.3.4 Instrument
 - 11.3.5 Procedure
 - 11.3.5.1 Stabilization of the instrument
 - 11.3.5.2 Mixture of the sample and combustion accelerators
 - 11.3.5.3 Sample combustion
 - 11.3.5.4 Measurement
 - 11.3.6 Blank test
 - 11.3.7 Calculation of the calibration coefficient
 - 11.3.8 Calculation
 - 11.4 Combustion (radio frequency heating furnace)-IR absorption spectrometry
 - 11.4.1 Principle
 - 11.4.2 Reagents
 - 11.4.3 Apparatus
 - 11.4.4 Instrument
 - 11.4.5 Procedure
 - 11.4.5.1 Stabilization of the instrument
 - 11.4.5.2 Mixture of the sample and combustion accelerators
 - 11.4.5.3 Sample combustion
 - 11.4.5.4 Measurement
 - 11.4.6 Blank test
 - 11.4.7 Calculation of the calibration coefficient
 - 11.4.8 Calculation
- 12 Test report

Annex A (informative) Analytical results obtained from the round-robin test