

ICS 81.080

CCS Q 40



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 6901.1-2004

**Chemical analysis of silica refractories -- Part 1: Determination
of loss on ignition -- Gravimetric method
(English Translation)**

Issued on: January 19, 2004

Implemented on: July 1, 2004

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China**

Table of Contents

Foreword...	3
1 Scope...	5
2 Normative references...	5
3 Principle...	5
4 Instruments...	5
5 Sampling...	6
6 Analysis procedures...	6
7 Calculation of analysis results...	7
8 Tolerance...	7
9 Quality assurance and control...	8
10 Test report...	8
Annex A...	9

Foreword

GB/T 6901 "Chemical analysis of silica refractories" contains the following 11 parts.

- Part 1.Determination of loss on ignition - Gravimetric method
- Part 2.Determination of silicon dioxide - Gravimetric-molybdenum blue photometric method
- Part 3.Determination of silicon dioxide - Hydrofluoric acid gravimetric method
- Part 4.Determination of iron oxide content - Phenanthroline photometric method
- Part 5.Determination of aluminium oxide - Chromazurol S photometric method
- Part 6.Determination of aluminium oxide - EDTA volumetric method
- Part 7.Determination of titanium dioxide - Diantipyrylmethane photometric method
- Part 8.Determination of calcium oxide and magnesium oxide - Atomic absorption spectrophotometric method
- Part 9.Determination of potassium oxide and sodium oxide - Atomic absorption spectrophotometric method

- Part 10.Determination of manganese oxide - Atomic absorption spectrophotometric method

- Part 11.Determination of phosphorus pentoxide - Molybdenum blue photometric method

This Part is the first part of GB/T 6901.

The Part replaces GB/T 6901.1-1986 "Chemical analysis of silica refractories - Determination of loss content on ignition by gravimetric method".

Compared with GB/T 6901.101986, the major changes of this Part are as follows.

- ADD chapters - foreword, normative reference, quality assurance and control, and test report;
- SPECIFY the sample preparation, INCREASE the operability;
- EXTEND "the determination range (mass fraction) is 0.10%~2.00%" TO "the determination range (mass fraction) is $\leq 10.00\%$ ";

Chemical analysis of silica refractories

Part 1.Determination of loss on ignition -

Gravimetric method

1 Scope

This Part specifies the determination of loss content on ignition by gravimetric method.

This Part applies to the determination of loss content on ignition in silica refractories.

The determination range (mass fraction) is not more than 10.00%.

2 Normative references

The provisions in following documents become the provisions of this Part through reference in this Part. For dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this Part, however, parties who reach an agreement based on this Part are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 8170 Rules for rounding off of numerical values

GB/T 10325 Shaped refractory products - Sampling and acceptance testing

GB/T 17617 Refractory products - Sampling of raw materials and unshaped products

3 Principle

Samples are ignited to a constant weight at $1,050^{\circ}\text{C} \pm 50^{\circ}\text{C}$. CALCULATE the loss content on ignition base on the loss.

4.2 Platinum or porcelain crucibles (30mL).

WEIGH it. REPEAT igniting (15min each time) and WEIGH it, until it becomes constant (when the loss content on ignition is not more than 1%; the difference of the two times of ignition weight is not greater than 0.2mg; when the loss content on ignition is more than 1%, the difference is not greater than 0.4mg, that is, constant).

7.1 The loss content on ignition, expressed as mass fraction ω (loss content on

ignition), with the value expressed in terms of %, is calculated according to the following formula.

100m

$m_1 - m_2$ (loss content on ignition) $\times \omega$

Where,

m_1 - the value of the total mass of the sample before ignition and crucible, in the units of grams (g).

m_2 - the value of the total mass of the sample after ignition and crucible, in the units of grams (g).

m - the value of the mass of the sample, in the units of grams (g).

7.2 Whether the analysis value is effective depends firstly on whether the analysis

value of the reference material analyzed under repeatability conditions is consistent with the reference value. When the difference between the analysis value of the

reference material and the reference value is not more than 0.7 time of the tolerance as stated in Table 1, the analysis value of the sample is effective; otherwise, it is ineffective.

7.3 When the acquired difference of the two effective analysis values of the samples

is not more than the tolerance as stated in Table 1, the arithmetic mean value of them shall be deemed as the final analysis result; otherwise, additional analysis and data processing shall be made according to Annex A.

7.4 The acquired results shall be rounded to two decimal places according to GB/T

8170; when the content is less than 0.10%, the result shall be rounded to two significant digits. If there are other requirements in the contract or relevant standards, the result can be rounded off according to the requirements.

8 Tolerance

The difference of the two independent test results acquired under repeatability
.....