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XB

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

XB/T 601.4-2008

Replacing XB/T 601.9-1993

**Chemical analysis methods of lanthanum boride -
Determination of carbon content - High frequency induced
combustion infrared ray absorbs method**

(English Translation)

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Foreword

This standard is divided into the following 5 parts.

XB/T 601.1-2008 Methods for chemical analysis of lanthanum hexaboride. Determination of boron content. Acid-base titration XB/T 601.2-2008 Methods for chemical analysis of lanthanum hexaboride Determination of iron, calcium, magnesium, chromium, manganese, and copper content inductively coupled plasma Emission spectroscopy XB/T 601.3-2008 Methods for chemical analysis of lanthanum hexaboride-Determination of tungsten content-Inductively coupled plasma emission spectrometry XB/T 601.4-2008 Methods for chemical analysis of lanthanum hexaboride. Determination of carbon content. High frequency induction combustion infrared absorption method XB/T 601.5-2008 Methods for chemical analysis of lanthanum hexaboride-Determination of acid-soluble silicon content-Silicon molybdenum blue spectrophotometric method this part is part 4. This part is a reference to XB/T 601.9-1993 "Methods for chemical analysis of lanthanum hexaboride, high frequency induction combustion infrared the revision of the "Line Absorption Method to Determine Carbon Content"; compared with XB/T 601.9-1993, the main changes in this part are as follows.

---Edited the standard text;

--- Added precision (repeatability) clause.

This part was proposed and managed by the National Rare Earth Standardization Technical Committee.

1 Scope

This section specifies the determination method of carbon content in lanthanum hexaboride.

This section applies to the determination of carbon content in lanthanum hexaboride.
Measurement range. 0.015% to 1,000%.

2 Principles of the method

The sample is placed in a ceramic crucible, in the presence of pure iron flux and tungsten tin flux, in an oxygen stream, high-frequency induction combustion, carbon generates dioxygen the carbonized carbon is precipitated and enters the infrared absorption detector with the oxygen flow to detect the total carbon content.

3 Reagents and materials

3.1

Oxygen. Purity >99.5%.

3.2

Nitrogen.

3.3

Tungsten tin flux. 0.84mm~0.42mm, carbon content < 0.0005%.

3.4

Pure iron flux. carbon content < 0.001%.

3.5

Steel standard samples. carbon content of 0.010% to 1%.

3.6

Special crucible for carbon. After burning at 1200°C for 2 hours, after natural cooling, place it in a desiccator for later use.

3.7

Platinum-plated silica gel or solid reagent with similar properties and effects.

4 Instruments

4.1

High-frequency infrared carbon and sulfur analyzer or high-frequency infrared carbon analyzer.

4.2

High-frequency furnace power. 1.0kW~3.5kW; oscillation frequency. >6.0MHz; infrared absorption detector sensitivity. 0.0001%.

5 Sample

The sample is mixed and dried at 105°C to 110°C for 1 h, then cooled to room temperature in a desiccator and weighed immediately.

6.1 Sample

Weigh the sample (5) according to Table 1 to the nearest 0.0001g.

Table 1

Carbon mass fraction/%	Sample size/g	0.001~0.05	1.00	0.05~0.1	5,000	0.1~0.3	0.1500
0.3~0.5	0.001	0.5~1.0	0.001	XB/T 601.4-2008			