

ICS 77.120.99

CCS H14



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

GB/T 16484.10-2009

Replacing GB/T 16484.10-1996

**Chemical analysis methods of rare earth chloride and light rare
earth carbonate - Part 10: Determination of manganese oxide
content - Flame atomic absorption spectrometry**

氯化稀土、碳酸轻稀土化学分析方法 第10部分：氧化锰量的测定 火焰原子吸收
光谱法

Issued on: October 30, 2009

Implemented on: May 1, 2010

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

Table of Contents

- 1 Scope
- 2 Principle of the method
- 3 Reagents and materials
- 4 Instrument
- 5 Sample
- 6 Analysis

Foreword

GB/T 16484-2009 "rare earth chloride and light rare earth carbonate chemical analysis method" is divided into 22 parts.

- Part 1. Determination of cerium oxide content of ammonium ferrous sulfate titration;
- Part 2. europium oxide content - Inductively Coupled Plasma Mass Spectrometry;
- Part 3. 15 with a rare earth element oxide component measured by inductively coupled plasma atomic emission spectrometry;
- Part 4. Determination of thorium oxide content arsenazo III spectrophotometry;
- Part 5. Determination of barium oxide by inductively coupled plasma atomic emission spectrometry;
- Part 6. Determination of calcium oxide content by flame atomic absorption spectrometry;
- Part 7. Determination of magnesium oxide content - Flame atomic absorption spectrometry;
- Part 8. Determination of the amount of sodium oxide flame atomic absorption spectrometry;
- Part 9. Determination of the amount of nickel oxide by flame atomic absorption spectrometry;
- Part 10. Determination of manganese oxide content by flame atomic absorption spectrometry;
- Part 11. Determination of lead oxide content by flame atomic absorption spectrometry;
- Part 12. Determination of the amount of sulfate;
- Part 13. Determination of the amount of ammonium chloride distillation - titration;

1 Scope

GB/T 16484.10-2009 is the Chinese national standard on chemical analysis methods of rare earth chloride and light rare earth carbonate - part 10: determination of manganese oxide content - flame atomic absorption spectrometry, in the field of metallurgy. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 30 October 2009 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 May 2010. Classification: ICS 77.120.99, CCS H14. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

GB/T 16484 provisions of this part of the determination of earth chloride and light rare earth carbonate, manganese oxide content. This section applies to the determination of earth chloride and light rare earth carbonate, manganese oxide content. Measurement range. 0.0020% to 0.20%.

2 Principle of the method

The sample was dissolved in nitric acid in acid medium, with air - acetylene flame, using the standard addition method in atomic absorption spectrophotometer wavelength 279.5nm measured absorbance manganese, manganese oxide content is calculated in the sample.

3 Reagents and materials

3.1 Hydrogen peroxide (30%).

3.2 nitric acid (1 + 1).

3.3 HCl (1 + 1).

3.4 manganese standard stock solution. Weigh 0.5000g Jinzhumeng [$w_1(\text{Mn}) \geq 99.99\%$], in the 200mL beaker, add 20mL hydrochloric acid (3.3) to dissolve. Cooled to room temperature and transferred to 500mL volumetric flask, dilute with water to volume, and mix. 1mL solution containing 1mg manganese.

3.5 manganese standard solution. Pipette 25.00mL manganese standard stock solution (3.4) in 100mL volumetric flask, was added 10mL of hydrochloric acid (3.3), Dilute with water to volume, and mix. This solution 1mL containing 250 μg manganese.

3.6 manganese standard solution. Pipette 5.00mL manganese standard stock solution (3.4) in 200mL volumetric flask, was added 20mL of hydrochloric acid (3.3), with Dilute with

water to volume, and mix. This solution 1mL containing 25 μ g manganese.

4 Instrument

Atomic absorption spectrometer, with a sodium hollow cathode lamp. Under optimum conditions the instrument, those who can reach the following indicators can be used.

--- Characteristic concentration. measurement of the sample solution with the matrix phase in the same solution, wherein the sodium concentration is not more than 0.0062 μ g/mL.

--- Precision. measuring the absorbance of the standard solution 10 times the highest concentration, the absorbance of the standard deviation does not exceed an average of 1.0%; most Low concentrations of the standard solution (not a zero standard solution) absorbance measured 10 times, and the standard deviation should not exceed the maximum average absorption solution 0.5% luminosity.

--- Linear curve. The curve is divided into five sections according to concentration, absorbance difference between the absorbance difference between the highest and the lowest segment of the segment Ratio of not less than 0.7.

5 Sample

5.1 Preparation of rare earth chloride sample. A sample was crushed, quickly placed in a weighing bottle immediately weighed.

5.2 Preparation of light rare earth carbonate sample. weigh the sample immediately after the opening. Step

6 Analysis

6.1 Sample Table 1 sample was weighed, accurate to 0.0001g.