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

GB/T 18114.7-2010

Replacing GB/T 18114.7-2000

**Chemical analysis methods of rare earth concentrates - Part 7:
Determination of iron oxide content - Potassium dichromate
titration**

稀土精矿化学分析方法 第7部分：氧化铁量的测定 重铬酸钾滴定法

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Foreword

GB/T 18114 "Methods for chemical analysis of rare earth concentrates" is divided into 11 parts.

- Part 1. Determination of total rare earth oxide gravimetric method;
- Part 2. Determination of thorium oxide content;
- Part 3. Determination of calcium oxide content;
- Part 4. niobium oxide, zirconium oxide, titanium oxide content - Inductively coupled plasma atomic emission spectrometry;
- Part 5. aluminum oxide content - Inductively coupled plasma atomic emission spectrometry;
- Part 6. Determination of the amount of silica;
- Part 7. Determination of the amount of iron oxide dichromate method;
- Part 8. fifteen rare earth element oxide with components measured by inductively coupled plasma atomic emission spectrometry;
- Part 9. Determination of the amount of phosphorus pentoxide bismuth molybdenum blue spectrophotometric method;
- Part 10. Determination of moisture content - Gravimetric method;
- Part 11. Determination of the amount of fluorine EDTA titration. This is Part 7. This part is GB/T 18114.7-2000 "Methods for chemical analysis of monazite concentrates - Determination of iron oxide content," the amendment. This section compared with the GB/T 18114.7-2000, have the following main changes.
 - Measured by the range of 0.50% to 5.00 percent to 0.50% to 10.0%;

1 Scope

GB/T 18114.7-2010 is the Chinese national standard on chemical analysis methods of rare earth concentrates - part 7: determination of iron oxide content - potassium dichromate titration, 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 14 January 2011 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 November 2011. 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 18114 provisions of this part of the determination of iron oxide content of rare earth concentrates. This section applies to the determination of rare earth concentrates of iron oxide content, a measurement range of 0.50% to 10.0%.

2 Principle of the method

After the sample by alkali melting, flooding, filtered to remove most of the coexisting elements; the filtrate was acidified with hydrochloric acid, the first with a large amount of iron tin dichloride (III) reduction of iron (II), and then sodium tungstate as an indicator, with titanium trichloride remaining Fe (III) reduction, further reduction of tungstate to generate Tungsten blue, then a solution of potassium dichromate to the disappearance of the blue. Sulfuric acid mixed media, diphenylamine sulfonate as indicator with dichromate.

3 Reagents and materials

3.1 sodium hydroxide.

3.2 sodium peroxide.

3.3 potassium dichromate (reference).

3.4 titanium trichloride 150g/L ~ 200g/L (or commercially available).

3.5 hydrochloride (11).

3.6 NaOH wash (10g/L).

3.7 HCl wash (298).

3.8 tin dichloride solution. Weigh 5g tin dichloride, was added 10mL of hydrochloric acid (3.5), heated to dissolve, dilute to 100mL. The time is now equipped with.

3.9 sodium tungstate solution (250g/L).

3.10 titanium trichloride solution (2080), the time is now equipped with.

3.11 sulfuric acid, phosphoric acid mixed solution. constant stirring, 150mL to 700mL of water was slowly added sulfuric acid ($\rho=1.84\text{g/mL}$) and 150mL phosphate ($\rho=1.69\text{g/mL}$).

3.12 ferrous ammonium sulfate solution (approximately 0.1mol/L).

3.13 potassium dichromate standard titration solution. Weigh 0.4390g by 150 °C drying 1h baseline potassium dichromate (3.3) in the 100mL beaker The amount of water was added to dissolve the clear, transferred to 1000mL volumetric flask, dilute with water to volume, and mix. This solution of iron titration factor (F) is 0.5000g/L.

3.14 diphenylamine sulfonate solution (5g/L).

4 Sample

The sample size should be

4.1 to grind through the 0.074mm sieve.

4.2 The sample was 105 °C ~ 110 °C drying 2h, placed in a desiccator, cooled to room temperature. Step

5 Analysis

5.1 Sample Table 1. Weigh the sample (4), accurate to 0.0001g.