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

GB/T 18114.1-2010

Replacing GB/T 18114.1-2000

**Chemical analysis methods of rare earth concentrates - Part 1:
Determination of total rare earth oxide contents - Gravimetry**

稀土精矿化学分析方法 第1部分：稀土氧化物总量的测定 重量法

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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 1. This part is the "determination of total rare solitary stone analysis methods and chemical concentrates of thorium oxide" For 18114.1-2000 GB/T 's Amendments. Section compared with the GB/T 18114.1-2000 The main changes are as follows:
 - The determination of rare earth elements and thorium oxide for the determination of the total amount of the adjustment of the total rare earths;
 - The ignition temperature from 750 °C \u200b\u200badjusted to 950 °C;

1 Scope

GB/T 18114.1-2010 is the Chinese national standard on chemical analysis methods of rare earth concentrates - part 1: determination of total rare earth oxide contents - gravimetry, 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 in the provisions of this part of the determination of total rare earth oxides of rare earth concentrates. This section applies to the determination of total rare earth oxides of rare earth concentrates. Measurement range. 20.00% - 80.00%.

2 Principle of the method

Sample with sodium hydroxide - fusion with sodium peroxide decomposition, separation of silicon and aluminum. The precipitate was dissolved with hydrochloric acid, hydrofluoric acid separation of iron, manganese, titanium, niobium, tantalum, Nickel. In addition to silicon perchlorate smoke, ammonia precipitation of calcium and magnesium. In pH1.8 ~

2.0 oxalate precipitate rare earths and thorium, burning to constant weight. Determine Precipitate thorium oxide content, combined amount is deducted from the amount of the total rare earth oxide thorium oxide.

3 Reagents and materials

3.1 sodium hydroxide.

3.2 sodium peroxide.

3.3 ammonium chloride.

3.4 Hydrofluoric acid ($\rho=1.13\text{g/mL}$).

3.5 perchloric acid ($\rho=1.67\text{g/mL}$).

3.6 Hydrogen peroxide (30%). Nitrate 3.7 ($\rho=1.42\text{g/mL}$).

3.8 Aqueous ammonia (11).

3.9 hydrochloride (11).

3.10 hydrochloric acid lotion. 100mL water containing 4mL hydrochloric acid (3.9).

3.11 Sodium hydroxide wash (20g/L).

3.12 hydrochloric acid - hydrofluoric acid lotion (296).

3.13 Chloride - ammonia lotion. 100mL water containing 2g of ammonium chloride and 2mL ammonia.

3.14 oxalic acid solution (100g/L).

3.15 cresol red ethanol solution (2g/L). said 0.2g methyl red dissolved in 100mL ethanol solution (11).