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Replacing GB/T 18114.11-2010

Chemical analysis methods for rare earth concentrates - Part 11: Determination of fluorine content

稀土精矿化学分析方法 第11部分：氟含量的测定

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Table of Contents

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is Part 11 of GB/T 18114 Chemical Analysis Methods for Rare Earth Concentrates. GB/T 18114 has been published for the following part.

- Part 1: Gravimetric method for determination of the total amount of rare earth oxides;

- Part 2: Determination of thorium oxide content;

- Part 3: Determination of calcium oxide content;

- Part 4: Determination of niobium oxide, zirconium oxide and titanium oxide content - Inductively coupled plasma optical emission spectrometry;

- Part 5: Determination of aluminum oxide content - Inductively coupled plasma optical emission spectrometry;

- Part 6: Determination of silicon dioxide content;

- Part 7: Determination of iron oxide content - Potassium dichromate titration method;

- Part 8: Determination of rare earth oxide content and proportion;

- Part 9: Determination of phosphorus pentoxide content;

- Part 10.Determination of moisture by gravimetric method;

- Part 11.Determination of fluorine content.

This document replaces GB/T 18114.11-2010 "Chemical analysis methods for rare earth concentrates Part 11.Determination of fluorine content EDTA drop Compared with GB/T 18114.11-2010, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

a) The scope of application of the document has been changed (see Chapter 1, Chapter 1 of the 2010 edition);

b) The distillation temperature has been changed (see 4.1, Chapter 2 of the 2010 edition);

c) The indicator for pH adjustment of the distillate in the EDTA titration method (Method 1) has been changed (see 4.2.9, 3.8 of the 2010 edition);

d) The preparation and calibration method of EDTA standard titration solution has been changed (see 4.2.12, 2010 edition). 3.11);

e) The preparation and calibration methods of lanthanum chloride standard solution have been changed (see 4.2.13, 3.12 of the 2010 edition);

f) The distillation apparatus diagram has been modified (see 4.3, Chapter 4 of the 2010 edition);

g) The weighing amount of the sample for EDTA titration (Method 1) has been changed (see 4.5.1, 6.1 of the 2010 edition);

h) The amount of perchloric acid used in the EDTA titration method (Method 1) has been changed (see 4.5.3.1, 6.3.1 of the 2010 edition);

i) The volume of lanthanum standard solution added has been changed (see 4.5.3.1, Table 1 of 6.3.1 of the 2010 edition);

j) Change the "allowable difference" of precision to "reproducibility" (see 4.7.3, 8.2 of the 2010 edition);

k) Added the determination requirements for the alizarin spectrophotometric method (Method 2) and the fluoride ion selective electrode method (Method 3) (see Chapters 5 and 6).

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was proposed and coordinated by the National Rare Earth Standardization Technical Committee (SAC/TC229).

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This document was first published in 2010 and this is the first revision.

Introduction

Rare earth concentrate refers to the product of rare earth ore after beneficiation and enrichment, with rare earth content reaching the smelting requirements.

Including bastnaesite concentrate, monazite concentrate, bastnaesite-monazite mixed concentrate, bastnaesite lanthanum concentrate, etc.

It has excellent optical, electromagnetic and other physical properties, and can be combined with other materials to form a variety of new raw materials with different properties, which can greatly improve its The chemical composition is an important evaluation index of rare earth concentrate products. Develop a scientific and accurate chemical composition analysis method.

The method standard is to clarify the scope of application, standardize the reagents and materials, test equipment and steps, and give precise results through repeated tests and verification.

The data collected can enhance the consistency and comparability of data between different laboratories, and provide a rigorous and standardized method for the quality inspection of rare earth concentrate products.

Technical means are conducive to promoting the production and trade of rare earth concentrate products.

This series of standards GB/T 18114 "Chemical analysis methods for rare earth concentrates" focuses on the total amount of rare earth oxides in rare earth concentrates, 15 rare earth elements, The detection of the proportion of earth element oxides and coexisting non-rare earth elements consists of 11 parts in total.

- Part 1: Gravimetric determination of the total amount of rare earth oxides. The purpose is to establish a gravimetric method for the determination of rare earth oxides in rare earth concentrates. Method of substance content.

- Part 2: Determination of thorium oxide content. The purpose is to establish a plasma emission spectrometry and plasma mass spectrometry method for the determination of thorium oxide content in rare earth concentrates.

Method for determining the thorium oxide content in water.

- Part 3: Determination of calcium oxide content. The purpose is to establish flame atomic absorption spectrometry, EDTA titration, inductively coupled Method for determining calcium oxide content in rare earth concentrates by plasma atomic emission spectrometry.

- Part 4: Determination of niobium oxide, zirconium oxide and titanium oxide content - Inductively coupled plasma optical emission spectrometry.

Method for determining niobium oxide, zirconium oxide and titanium oxide in rare earth concentrates by inductively coupled plasma optical emission spectrometry.

- Part 5: Determination of aluminum oxide content - Inductively coupled plasma optical emission spectrometry. The purpose is to establish an inductively coupled plasma Method for determination of alumina content in rare earth concentrates by volume emission spectrometry.

- Part 6: Determination of silicon dioxide content. The purpose is to establish molybdenum blue spectrophotometry and inductively coupled plasma optical emission spectrometry Method for determining silicon dioxide content in rare earth concentrates.

- Part 7: Determination of iron oxide content Potassium dichromate titration method. The purpose is to establish a potassium dichromate titration method for the determination of rare earth concentrates Method for determining the iron oxide content in a medium.

- Part 8: Determination of rare earth oxide content and proportion. The purpose is to establish an inductively coupled plasma optical emission spectrometry method for the determination of The present invention relates to a method for determining the content of rare earth oxides in rare earth concentrate by distribution content of rare earth oxides in rare earth concentrate and X-ray fluorescence spectrometry.

- Part 9: Determination of phosphorus pentoxide content. The purpose is to establish a bismuth molybdenum blue spectrophotometric method and inductively coupled plasma Method for determining phosphorus pentoxide content in rare earth concentrates by emission spectrometry.

- Part 10.Determination of moisture by gravimetric method. The purpose is to establish a gravimetric method for the determination of moisture content in rare earth concentrates.

- Part 11.Determination of fluoride content. The purpose is to establish EDTA titration method, alizarin spectrophotometry and fluoride ion selective electrode Method for determining the fluorine content in rare earth concentrates.

All standard methods specified in this document have been tested and verified by multiple laboratories, and the "allowable difference" clause has been modified to the "reproducibility" clause.

The standard provides repeatability and reproducibility limits covering at least high, medium and low fluorine contents, making the precision requirements of the method more perfect.