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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 18882.3-2019

Chemical analysis methods for mixed rare earth oxide of ion-absorption rare earth ore - Part 3: Determination of silicon dioxide content

离子型稀土矿混合稀土氧化物化学分析方法 第3部分：二氧化硅含量的测定

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Foreword

GB/T 18882 "Ion-type rare earth ore mixed rare earth oxide chemical analysis method" is divided into three parts.

--- Part 1. Determination of the composition of fifteen rare earth element oxides;

--- Part 2. Determination of the amount of aluminum oxide;

--- Part 3. Determination of silica content. This part is the third part of GB/T 18882. This part is drafted in accordance with the rules given in GB/T 1.1-2009. This part is proposed and managed by the National Rare Earth Standardization Technical Committee (SAC/TC229). This section drafted by: Zhangzhou Nonferrous Metallurgy Research Institute, Jidong Rare Earth Group Co., Ltd., Jixian Red Gold Rare Earth Co., Ltd., Guangdong Zhujiang Rare Earth Co., Ltd., Jiangxi Golden Century New Materials Co., Ltd., Fujian Changting Jinlong Rare Earth Co., Ltd., Dingnan Dahua New Materials Resources Co., Ltd., Baotou Rare Earth Research Institute, Hunan Rare Earth Metal Materials Research Institute, National Tungsten and Rare Earth Products Quality Supervision and Inspection Center, Jiangxi Polytechnic University, China Nonferrous Guilin Mineral Geology Research Institute Co., Ltd., National Standard (Beijing) Inspection and Certification Co., Ltd., Guangdong Industrial Analysis Testing center. The main drafters of this section. Xie Lingjun, Li Ying, Liu Hong, Zhang Wenxing, Wen Bin, Liang Bin, Wang Dan, Yuan Jiao, Yang Feng, Xie Wei, Chen Tao, Liang Zhijie, Liu Fuyu, Qi Qifan, Liu Rongli, Sun Linjing, Wu Weiming, Zhou Zhiping, Hu Wei, Bao Yelin, Yao Nanhong, Yang Danying, Liu Zhuying, Long Xudong, Li Jingyan, Song Liping, Zhang Yanping, Yi Shi, Liu Helian, Xie Hui, Xiong Xiaoyan. Ion-type rare earth ore mixed rare earth oxide chemical analysis method Part 3. Determination of silica content

1 Scope

GB/T 18882.3-2019 is the Chinese national standard on chemical analysis methods for mixed rare earth oxide of ion-absorption rare earth ore - part 3: determination of silicon dioxide content, 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 August 2019 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 July 2020. 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.

This part of GB/T 18882 specifies the determination method of silica content in ionic rare earth ore mixed rare earth oxides. This section applies to the determination of silica content in ionic rare earth ore mixed rare earth oxides. There are two methods in total. Method 1 is divided into Photometric method, method 2 is the gravimetric method. Determination range of method 1 (mass fraction). 0.10% to 2.00%; measurement range of method 2 (quality Score). 1.00%~5.00%. When the measurement ranges of the two methods overlap, the method 1 is used as the arbitration method.

2 Method 1. Spectrophotometry

2.1 Principle The sample is melt-decomposed with a sodium carbonate-boric acid mixed reagent. In a sulfuric acid medium, silicon and ammonium molybdate form a silicon molybdenum heteropoly acid, and a grass-sulfur mixed acid is used. Elimination of phosphorus, arsenic heteropoly acid interference, ascorbic acid reduction silicon molybdenum heteropoly acid is low-cost silicon molybdenum blue heteropoly acid. At a wavelength of 650 nm at the spectrophotometer The absorbance is measured.

2.2 Reagents or materials Unless otherwise stated, the reagents used in this section are analytically pure reagents that meet national or industry standards. The water used is secondary water.

2.2.1 Anhydrous sodium carbonate.

2.2.2 Boric acid.

2.2.3 Sodium carbonate-boric acid mixed reagent. anhydrous sodium carbonate (2.2.1) and boric acid (2.2.2) are mixed uniformly at a mass ratio of 3.1.

2.2.4 Oxalic acid.

2.2.5 Hydrochloric acid (rho=1.19g/mL), excellent grade pure.

2.2.6 Sulfuric acid (rho=1.84g/mL), excellent grade.

2.2.7 Ammonia water, excellent grade pure.

2.2.8 Hydrochloric acid (1 1).

2.2.9 Sulfuric acid (1 1).

2.2.10 Sulfuric acid (1 35).

2.2.11 p-Nitrophenol solution (1g/L).

2.2.12 Ammonia (1 2).

2.2.14 Oxalic acid-sulfuric acid mixed acid. Weigh

2.0 g of oxalic acid (2.2.4) in 100 mL of sulfuric acid (2.2.9).

2.2.15 Ascorbic acid solution (100g/L), ready for use.

2.2.16 Standard storage solution of silica. Weigh 0.4000g of silica [w(SiO2) >99.9%, and cool it to room at 120°C for 2h. Warm], placed in a platinum crucible containing 5 g of anhydrous sodium carbonate (2.2.1), mixed, and then covered with 1 g of anhydrous sodium carbonate (2.2.1), placed Melt at 900 ° C ~ 950 ° C for 30 min, slightly cold, rinse the outside with water and place it in a 300 mL Teflon beaker. 80 mL of hot water was leached, washed, cooled, placed in a.200 mL volumetric flask, diluted with water to the mark, and stored in a polyethylene bottle. This solution 1 mL of liquid contained 2 mg of silica. GB/T 18882.3-2019 Chemical analysis methods for mixed rare earth oxide of ion-adsorption rare earth ore - Part 3. Determination of silicon dioxide content ICS

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