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

GB/T 37167-2018

**Particles - Separation and measurement of trace magnetic
materials in inorganic powders**

颗粒 无机粉体中微量和痕量磁性物质分离与测定

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard is proposed and managed by the National Technical Committee for Particle Characterization and Separation and Screen Standardization (SAC/TC168). This standard was drafted. Peking University First Technology Industrial Co., Ltd., Qinghai Taifeng Pioneer Lithium Energy Technology Industry Co., Ltd., Chinese Academy of Sciences Process Engineering Research Institute, Beijing Physical and Chemical Analysis and Testing Center, China Machine Productivity Promotion Center, Peking University. The main drafters of this standard. Zhou Henghui, Jiang Xiaorui, Wang Haiyan, Plateau, Li Zhaojun, Zhou Mingqiang, Liu Weili, Yu Fang, Zhou Suhong.

The presence of trace and trace amounts of magnetic substances in inorganic powders can damage production equipment, affect safety production, and even cause serious safety hazards. Threats to personal and property safety. Therefore, it is imperative to standardize methods for measuring magnetic impurities. The magnetic impurities separated from the sample are magnetic, giving points Analysis of its composition brings certain difficulties. In this standard, hydrochloric acid is used to digest magnetic impurities, and then determined by inductively coupled plasma atomic emission spectrometry (ICP). The content of metal elements in magnetic impurities. Trace and trace magnetic properties in granular inorganic powders Substance separation and determination

1 Scope

China's national method for separating and measuring trace magnetic material in inorganic powders. It specifies the terms and definitions, the principle, the instruments and reagents, the separation and extraction of the magnetic impurities and their determination. The impurity in question is almost always iron, and almost always introduced by the equipment:

a powder that has been crushed, milled, screened and conveyed has been in contact with steel at every stage, and each contact leaves metal behind. In most applications a few parts per million of iron is of no consequence. In several it is fatal. Iron in electronic ceramics changes their dielectric behaviour; in battery materials it plants the nucleation sites for the dendrites that short a cell; in glass and pigments it colours the product; in catalysts it poisons the active sites. Measuring it means first separating it magnetically from the bulk, which is what makes this a method standard rather than an analytical one.

This standard specifies the determination of trace and trace magnetics in inorganic powders by inductively coupled plasma atomic emission spectrometry (ICP-AES). The method of impurities. This standard is applicable to trace and trace magnetic impurities in inorganic powders with particle diameters of not more than 60µm, and measurement of magnetic impurities in other materials. Can refer to this standard.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article. Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 622 chemical reagent hydrochloric acid

GB/T 626 chemical reagent nitric acid

GB/T 6682 Analytical laboratory water specifications and test methods

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Magnetic magneticproperty Can attract the properties of iron, cobalt, nickel and other substances.

Note. Generally, magnetic properties are only found in transition metals (Fe, Co, Ni) and heavy rare earth metals such as Gd, Tb, Dy, etc., and some metal oxides and metal alloys are also Will have strong magnetic properties (such as CrO₂, certain metal compounds of Zn, MnCr, etc.).

3.2 Magnetic material A substance that generates magnetism by a magnetic field.

3.3 Magnetic impurity magneticimpurity An impure magnetic substance contained in an inorganic powder.

4 Principle

Magnetic substances exhibit a strong magnetization under the action of an external magnetic field. Usually, magnetic properties are only present in transition metals (Fe, Co,

Ni) and heavy Soil metals such as Gd, Tb, Dy, etc., and some metal oxides, metal alloys also have strong magnetism (such as some metals of CrO₂, Zn) Compound, MnCr, etc.). Heavy rare earth metals are generally low in nature and are negligible in testing, so Cr is defined in this method. The sum of the six elements of Mn, Fe, Co, Ni, and Zn is the content of magnetic substances in the material. In fact, under the action of the external magnetic field of the permanent magnet bar, A trace amount of a trace amount of a magnetic substance in the inorganic powder is magnetized to separate the magnetic substance from the inorganic powder. Digestion of magnetic particles by hydrochloric acid,