

ICS 73.080

CCS D 51



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

GB/T 35996-2018

**Rapid determination of eight elements in phosphate rock and
concentrate - X-ray fluorescence spectrometry**

磷矿石和磷精矿中八种元素含量的快速测定 X射线荧光光谱法

Issued on: March 15, 2018

Implemented on: October 1, 2018

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

1 Scope
2 Normative references
3 Principle
3.00 Na ₂ O 0.050~1.00
5.00 Al ₂ O ₃ 0.50~
7.00 SiO ₂ 3.00~
16.00 Fe ₂ O ₃ 0.50~

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard is proposed by China Petroleum and Chemical Industry Federation. This standard is under the jurisdiction of the Chemical Industry Standardization Technical Committee. This standard is mainly drafted by: Yunnan Phosphor Chemical Group Co., Ltd., China Blue Lianhai Design & Research Institute, Qifu (Group) Co., Ltd., Lake Peking University Sankou Chemical Co., Ltd., Lianyungang Entry-Exit Inspection and Quarantine Bureau. Drafters of this standard. Li Yaoji, Zhang Xiaomei, Feng Xiaojun, Zhang Hui, Yang Hong, Ling Huchang Jin, Jiang Zhensheng, Wang Heng. Phosphorus ore and phosphorus concentrate in eight elements Rapid determination of X-ray fluorescence spectrometry Warnings - Persons using this standard should have practical experience in regular laboratory work. This standard does not suggest all possible safety issues. question. It is the user's responsibility to take appropriate safety and health measures and to ensure compliance with the conditions set by the relevant national laws and regulations.

1 Scope

China's national method for the rapid determination of phosphorus, magnesium, iron, aluminium, silicon, calcium, potassium and sodium in phosphate rock and concentrate by X-ray fluorescence spectrometry. Phosphate rock is the raw material of the fertiliser industry, and it is bought and processed on its assay. The classical wet chemical determination of that assay is accurate and takes hours per element; XRF gives all eight in minutes from a pressed pellet or a fused bead, which is what makes process control possible at all. The eight are chosen for what they mean downstream. Phosphorus is the product. Magnesium, iron and aluminium are the impurities that consume acid and foul the filters in wet process phosphoric acid production, and the ratio of them to phosphorus decides whether an ore is worth beneficiating. Silicon and calcium describe the gangue,

and the alkalis matter for the fertiliser that results.

This standard specifies the determination of eight elements of phosphorus, magnesium, iron, aluminum, silicon, calcium, potassium and sodium in phosphate ore concentrates by X-ray fluorescence spectrometry. content. This standard applies to the determination of phosphorus, magnesium, iron, aluminum, silicon, calcium, potassium and sodium in the phosphate ore concentrates. Determination of each element The range (expressed as oxide) is shown in Table 1. Table

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 version (including all amendments) applies to this document.

GB/T 1868 Phosphate rock and phosphate concentrate sampling and sample preparation method

GB/T 1875 Determination of ignition loss in phosphate rock and phosphate concentrates

GB/T 8170 Representation and Determination of Numerical Rounding Rules and Limit Values General principles of JY/T 016 wavelength dispersive X-ray fluorescence spectrometry

3 Principle

The sample was melted at 1050°C with a mixed flux of lithium tetraborate and lithium metaborate to prepare a glass fuse, which was measured by X-ray fluorescence spectrometry. The fluorescence X-ray intensity of each element to be measured. According to the quantitative relationship between the fluorescence X-ray intensity of the test element and the content of the test element,

7.00 SiO₂ 3.00~

40.00 CaO 19.00~