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

GB/T 38216.5-2024

**Steel slag-Determination of manganese oxide content-The
flame atomic absorption spectrometric method**

钢渣 氧化锰含量的测定 火焰原子吸收光谱法

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Table of Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms and definitions

4 Principle

5 Reagents

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 5 of GB/T 38216 "Steel Slag": GB/T 38216 has published the following parts:

- Part 1: Determination of chromium oxide content-Diphenylcarbazide spectrophotometric method;
- Part 2: Determination of fluorine and chlorine content: Ion chromatography;
- Part 3: Determination of free calcium oxide content by EDTA titration and thermogravimetric analysis;
- Part 4: Determination of total iron content - Titanium trichloride-potassium dichromate titration method;
- Part 5: Determination of manganese oxide content: Flame atomic absorption spectrometry;

Some 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 by the China Iron and Steel Association:

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Introduction

Steel slag is a by-product of the steelmaking process, containing iron (TFe), iron oxide, calcium oxide, magnesium oxide, sulfur trioxide, total carbon, It contains silicon oxide, aluminum oxide, phosphorus pentoxide, zinc oxide, chromium oxide and other ingredients, as well as anions such as fluorine and chlorine:

The steel slag can be returned to the steel industry as raw material; the steel slag after stabilization treatment is a good green material and can replace some natural materials:

In the comprehensive utilization standard system of metallurgical solid waste resources, the determination method of chemical composition of steel slag is a very important part:

GB/T 38216 Steel Slag serves the treatment, processing, trade and application of steel slag, and provides a high-quality standard for the steel industry:

It provides technical support for green development and is planned to consist of five parts:

- GB/T 38216:1 Determination of chromium oxide content in steel slag - Diphenylcarbazide spectrophotometric method:

The determination of chromium oxide content in steel slag is an important transformation product of chromium compounds: The accurate determination of chromium content in steel slag is of great significance to the quality of steel:

The harmless treatment of slag and resource recycling are of great significance, especially for the needs of green manufacturing:

- GB/T 38216:2 Determination of fluorine and chlorine content in steel slag - Ion chromatography: The purpose is to accurately determine the fluorine content, Chlorine content can better meet the application of upstream and downstream industries:

- GB/T 38216:3 Determination of free calcium oxide content in steel slag - EDTA titration and thermogravimetric analysis:

Determination of free calcium oxide content in slag: Steel slag is used as a raw material substitute for building materials, roads, construction and other industries:

The f-CaO content has been strictly limited, and the scientific and accurate determination of the free calcium oxide content is beneficial to the resource utilization of steel slag:

- GB/T 38216:4 Determination of total iron content in steel slag - Titanium trichloride-potassium dichromate titration method:

Determine the total iron content in steel slag, ensure the quality and stability of steel slag, promote the application of steel slag in steel, building materials, roads and other industries, and improve Utilization of high-quality metallurgical slag promotes the reuse of secondary resources:

- GB/T 38216:5 Determination of manganese oxide content in steel slag by flame atomic absorption spectrometry:

The determination of manganese oxide and the manganese oxide content in steel slag play an important role in the performance evaluation and subsequent treatment and utilization of steel slag:

Determination of manganese oxide content in steel slag Flame Atomic Absorption Spectrometry

1 Scope

This document describes a method for the determination of manganese oxide content in steel slag by flame atomic absorption spectrometry:

This document is applicable to the determination of manganese oxide content in steel slag:
Determination range (mass fraction): 0:10%~13:00%:

2 Normative references

GB/T 2007
GB/T 2007
GB/T 6379
GB/T 6379
GB/T 6682
GB/T 7728
GB/T 8170
GB/T 12806

GB/T 12807

GB/T 12808

3 Terms and definitions

There are no terms or definitions that require definition in this document:

4 Principle

The sample was placed in a polytetrafluoroethylene beaker and decomposed with hydrochloric acid, nitric acid, and hydrofluoric acid: The perchloric acid smoke drove away all fluorine and silicon:

In the experiment, the test solution was sprayed into the air-acetylene flame and the absorbance was measured at 279.5 nm:

5 Reagents

Unless otherwise specified, only approved analytical reagents and distilled water in accordance with GB/T 6682 or water of equivalent purity were used in the analysis: of water:

5:1 Sodium carbonate (Na_2CO_3), anhydrous powder: