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Ferrotitanium-Determination of titanium content-Diantipyrylmethane spectrophotometric method

钛铁 钛含量的测定 二安替吡啉甲烷分光光度法

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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 12 of GB/T 4701: GB/T 4701 has been published in the following parts:

- Determination of ferrotitanium content by ammonium ferric sulfate titration method;

- Determination of ferrotitanium silicon content-Sulfuric acid dehydration gravimetric method;

- Determination of titanium, iron and copper content by copper reagent photometry and flame atomic absorption spectrometry;

- Determination of titanium, iron and manganese content by arsenite-nitrite titration and periodate photometry;

- Determination of titanium, iron and aluminum content-EDTA titration method;

- Determination of phosphorus content in titanium iron-bismuth phosphide-molybdenum blue spectrophotometry and molybdenum blue spectrophotometry;

- Determination of carbon content in ferrotitanium-infrared absorption method;

- Determination of sulfur content in ferrotitanium by infrared absorption method and combustion neutralization titration method;

- Determination of titanium content by diantipyrine methane spectrophotometry;

- Determination of titanium, iron, silicon, manganese, phosphorus, chromium, aluminum, magnesium, copper, vanadium and nickel content by inductively coupled plasma atomic

emission spectrometry:

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 by the China Iron and Steel Association:

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Introduction

Since there are many elements involved in the titanium iron detection process, the applicable scope and application methods of the elements are different:

The convenience and accuracy of ferrotitanium testing standards: We have established national standards to support ferrotitanium testing based on the analysis methods of different elements in ferrotitanium:

GB/T 4701 series of titanium iron analysis methods is the basic standard for titanium iron detection in China, and is intended to consist of the following parts:

- Part 1: Determination of titanium content in ferrotitanium - ammonium ferric sulfate titration method: The purpose is to measure the titanium content in ferrotitanium using sulfuric acid Ammonium iron titration method:

- Part 2: Determination of silicon content in ferrotitanium - Sulfuric acid dehydration gravimetric method: The purpose is to measure the silicon content in ferrotitanium using sulfuric acid Dehydrated weight method:

- Part 3: Determination of copper content of ferrotitanium by copper reagent photometry and flame atomic absorption spectrometry:

The copper content in the samples was determined by copper reagent photometry and flame atomic absorption spectrometry:

- Part 4: Determination of titanium, iron and manganese content - Arsenite-nitrite titration and periodate photometry:

The manganese content in ferrotitanium was measured by arsenite-nitrite titration and

periodate photometry:

- Part 6: Determination of aluminum content in ferrotitanium - EDTA titration method: The purpose is to measure the aluminum content in ferrotitanium using EDTA titration method:

- Part 7: Determination of phosphorus content in titanium iron - Bismuth phosphide molybdenum blue spectrophotometric method and molybdenum blue spectrophotometric method:

The phosphorus content in iron was determined by bismuth phosphomolybdenum blue spectrophotometry and molybdenum blue spectrophotometry:

- Part 8: Determination of carbon content in ferrotitanium - Infrared absorption method: The purpose is to measure the carbon content in ferrotitanium using infrared Absorption method:

- Part 10: Determination of sulfur content in ferrotitanium - Infrared absorption method and combustion neutralization titration method: The purpose is to measure the sulfur content in ferrotitanium:

The content was determined by infrared absorption method and combustion neutralization titration method:

- Part 12: Determination of titanium content in ferrotitanium - diantipyrine methane spectrophotometric method:

The diantipyrin methane spectrophotometric method was used:

- Part 13: Determination of titanium, iron, silicon, manganese, phosphorus, chromium, aluminum, magnesium, copper, vanadium and nickel contents by inductively coupled plasma atomic emission spectrometry The purpose is to measure the content of silicon, manganese, phosphorus, chromium, aluminum, magnesium, copper, vanadium and nickel in titanium iron by inductively coupled plasma:

Electron emission spectroscopy:

Determination of titanium content in titanium-iron-diantipyrinyl methane Spectrophotometry Warning: Personnel using this document should have formal laboratory work experience: This document does not address all possible safety issues:

It is the responsibility of the operator to take appropriate safety and health measures and ensure that the conditions stipulated by relevant national laws and regulations are met:

1 Scope

This document describes a method for the spectrophotometric determination of titanium content using diantipyrinyl methane:

This document is applicable to the determination of titanium content in ferrotitanium:

Determination range (mass fraction): 10:0%~50:0%:

2 Normative references

GB/T 4010

GB/T 6379

GB/T 6682

GB/T 7729

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 decomposed with sulfuric acid and ammonium persulfate: A portion of the test solution was taken and reduced with ascorbic acid in a hydrochloric acid medium to reduce the iron and titanium ions and diantipyrine:

The yellow complex was generated by phenoxymethane, and the absorbance was measured at 435 nm to calculate the mass fraction of titanium:

5 Reagents

Unless otherwise specified, only approved analytical reagents and grade 3 or above distilled water in accordance with GB/T 6682 or other distilled water with similar purity shall be used in the analysis: Water of comparable purity: 5:1 Ammonium persulfate: