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Ferronickels — Determination of sulfur content — Infrared absorption method after induction furnace combustion

Ferronickels — Détermination de la teneur en soufre — Méthode par absorption dans l'infrarouge après combustion dans un four à induction

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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This document was prepared by Technical Committee ISO/TC 155, *Nickel and nickel alloys*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/SS M14, *Nickel*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 7526:1985), which has been technically revised. The main changes compared with the previous edition are as follows:

— the scope has been limited to ferronickels only;

— the former Clauses 5 and 7 have been technically revised;

— the former Annexes A and C have been deleted;

— the precision data have been updated.

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Ferronickels — Determination of sulfur content — Infrared absorption method after induction furnace combustion

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1 Scope

This document specifies an infrared absorption method after combustion in an induction furnace for the determination of the sulfur content in ferronickels in the range of 0,002 % to 0,12 %.

The method is applicable to normal production operations. It uses commercially available equipment, which is calibrated using steel and/or ferronickel certified reference materials (CRMs).

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Principle

Combustion of a test portion in a high-frequency induction furnace at high temperature in a current of pure oxygen, and in the presence of accelerators and fluxes.

Transformation of sulfur into sulfur dioxide.

Measurement by infrared absorption of the sulfur dioxide carried by the current of oxygen.

5 Reagents

During the analysis, use only reagents of recognized analytical grade.

5.1 Oxygen, high purity (mass fraction minimum 99,5 %).

An oxidation catalyst [copper(II) oxide or platinum] tube heated at 600 °C, followed by appropriate carbon dioxide and water absorbents, shall be used when the presence of organic contaminants is suspected in the oxygen.

5.2 Inert ceramic (attapulgus clay), impregnated with sodium hydroxide and having particle sizes from 0,7 mm to 1,2 mm for the absorption of carbon dioxide.

5.3 Magnesium perchlorate [$Mg(ClO_4)_2$], having particle size from 0,7 mm to 1,2 mm for the absorption of moisture.

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