SLOVENSKI STANDARD
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Jeklene in železove litine - Določevanje niklja - Plamenska atomska absorpcijska spektrometrična metoda (FAAS)

Steels and cast irons - Determination of nickel content - Flame atomic absorption spectrometric method (FAAS)

Stahl und Eisen Stahl und Eisen - Bestimmung des Nickelanteils - Flammenatomabsorptionsspektrometrisches Verfahren (FAAS)

Aciers et fontes - Détermination de la teneur en nickel - Méthode par spectrométrie d'absorption atomique dans la flamme (SAAF)

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English Version

Steels and cast irons - Determination of nickel content - Flame atomic absorption spectrometric method (FAAS)

Aciers et fontes - Détermination de la teneur en nickel - Méthode par spectrométrie d'absorption atomique dans la flamme (SAAF)

Stahl und Eisen Stahl und Eisen - Bestimmung des Nickelanteils - Flammenatomabsorptionsspektrometrisches Verfahren (FAAS)

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 10136:2018) has been prepared by Technical Committee ECISS/TC 102 “Methods of chemical analysis for iron and steel”, the secretariat of which is held by SIS.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 10136:1989.

1 Scope

This document specifies a flame atomic absorption spectrometric method (FAAS) for the determination of nickel content in steels and cast irons.

The method is applicable to nickel contents between 0,004 % and 2,0 %.

The method can be adapted to lower or higher nickel contents by changing the test portion or the dilution process, provided the criteria in 6.2.2 and 6.2.3 are still met.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 648, *Laboratory glassware - Single-volume pipettes (ISO 648)*

EN ISO 1042, *Laboratory glassware - One-mark volumetric flasks (ISO 1042)*

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:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

4 Principle

Dissolution of a test portion in a mixture of appropriate acids and fuming with perchloric acid.

Nebulisation of the test solution into an air/acetylene flame of an atomic absorption spectrometer.

Spectrometric measurement of the atomic absorption of the 232,0 nm or 352,5 nm spectral line emitted by a nickel hollow-cathode lamp.

NOTE Other suitable radiation sources can also be used, provided the criteria in 6.2.2 and 6.2.3 are still met.

5 Reagents

During the analysis, use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

The following concentrations and amounts can be modified, provided the changes are taken into account in 8.3 and Clause 9.

5.1 Pure iron, with nickel content < 0,000 5 %.

5.2 Hydrochloric-nitric acids mixture.

Mix three volumes of hydrochloric acid (ρ_{20} = 1,19 g/ml, approximately), one volume of nitric acid (ρ_{20} = 1,40 g/ml, approximately) and two volumes of water.

This mixture shall be prepared immediately before use.