SLOVENSKI STANDARD
SIST EN 10188:2024

01-september-2024

Jeklo in lito železo - Določevanje kroma - Plamenska atomska absorpcijska spektrometrična metoda (FAAS)

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

Chemische Analyse von Eisenwerkstoffen - Bestimmung von Chrom in Stahl und Eisen - Flammenatomabsorptionsspektrometrisches Verfahren (FAAS)

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

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ICS:

77.040.30	Kemijska analiza kovin	Chemical analysis of metals
77.080.01	Železne kovine na splošno	Ferrous metals in general

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SIST EN 10188:2024

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 10188

June 2024

ICS 77.040.30

Supersedes EN 10188:1989

English Version

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

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

Chemische Analyse von Eisenwerkstoffen - Bestimmung von Chrom in Stahl und Eisen - Flammenatomabsorptionsspektrometrisches Verfahren (FAAS)

This European Standard was approved by CEN on 29 April 2024.

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 10188:2024) has been prepared by Technical Committee CEN/TC 459/SC 2 “Methods of chemical analysis for iron and steel”, the secretariat of which is held by SIS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2024, and conflicting national standards shall be withdrawn at the latest by December 2024.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 10188:1989.

In comparison with the previous edition, the following technical modifications have been made:

— normative references: updated;

— Clause 3 Terms and definitions: added;

— subclauses 5.10 and 5.11: added;

— subclauses 6.1 and 6.2: added;

— in 6.3.3.3: definition of limit of detection added;

— subclause 6.3: reworded;

— Clause 7: updated;

— subclause 8.3.1: partially aligned with ISO 10138:1991;

— subclause 8.3.2: aligned with ISO 10138:1991;

— subclause 8.3.4: aligned with EN 10136:2019;

— Bibliography: added.

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SIST EN 10188:2024

1 Scope

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

The method is applicable to non-alloy and low-alloy steels and cast irons with chromium contents between 0,002 % (by mass) to 2,0 % (by mass).

The method can be adapted to lower or higher chromium contents by changing the test portion or the dilution factor, provided the criteria in 6.3.2 and 6.3.3 are still met.

The precision data of the present method are given in Annex A.

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)*

EN ISO 14284, *Steel and iron — Sampling and preparation of samples for the determination of chemical composition (ISO 14284)*

EN ISO 3696, *Water for analytical laboratory use — Specification and test methods (ISO 3696)*

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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

https://standards.iteh.ai/catalog/standards/sist/b3be0578-28ac-417f-a154-7bdcf580cfce/sist-en-10188-2024

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

4 Principle

Dissolution of a test portion with hydrochloric acid followed by oxidation with nitric acid. Filtration and ignition of the acid insoluble residue. Removal of silica with hydrofluoric acid. Fusion of the residue with potassium hydrogen sulphate, dissolution of the melt in acid and addition of the solution obtained to the reserved filtrate.

Nebulisation of the test solution into a nitrous oxide/acetylene flame of an atomic absorption spectrometer.

Spectrometric measurement of the atomic absorption of the 357,87 nm spectral line emitted by a chromium hollow-cathode lamp.

NOTE Other suitable radiation sources can also be used, provided the criteria in 6.3.2 and 6.3.3 are still met.