SLOVENSKI STANDARD
SIST EN ISO 4945:2019

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Nadomešča:
SIST EN ISO 4945:2010

Jeklo - Določevanje dušika - Spektrometrična metoda (ISO 4945:2018)

Steel - Determination of nitrogen - Spectrophotometric method (ISO 4945:2018)

Stahl - Bestimmung des Stickstoffgehalts - Spektralphotometrisches Verfahren (ISO 4945:2018)

Acier - Détermination de l'azote - Méthode spectrophotométrique (ISO 4945:2018)

Ta slovenski standard je istoveten z: EN ISO 4945:2018

ICS:

77.040.30	Kemijska analiza kovin	Chemical analysis of metals
77.080.20	Jekla	Steels

SIST EN ISO 4945:2019 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 4945

November 2018

ICS 77.080.20

Supersedes EN ISO 4945:2009

English Version

Steel - Determination of nitrogen - Spectrophotometric method (ISO 4945:2018)

Acier - Détermination de l'azote - Méthode spectrophotométrique (ISO 4945:2018)

Stahl - Bestimmung des Stickstoffgehalts - Spektralphotometrisches Verfahren (ISO 4945:2018)

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

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

Ref. No. EN ISO 4945:2018 E

Contents

Page

European foreword

This document (EN ISO 4945:2018) has been prepared by Technical Committee ISO/TC 17 "Steel" in collaboration with Technical Committee ECISS/TC 102 “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of an identical text or by endorsement, at the latest by May 2019, and conflicting national standards shall be withdrawn at the latest by May 2019.

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.

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Endorsement notice

The text of ISO 4945:2018 has been approved by CEN as EN ISO 4945:2018 without any modification.

INTERNATIONAL STANDARD

ISO 4945

Second edition
2018-10

Steel — Determination of nitrogen — Spectrophotometric method

Acier — Détermination de l'azote — Méthode spectrophotométrique

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Contents

Page

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www. iso. org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www. iso .org/iso/foreword. html.

This document was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 1, *Methods of determination of chemical composition*.

This second edition cancels and replaces the first edition (ISO 4945:1977), which has been technically revised. The following changes have been made:

— the scope and applicable range has been expanded as a result of the interlaboratory test;

— addition of copper(II) sulfate pentahydrate for the treatment of the insoluble residue.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Steel — Determination of nitrogen — Spectrophotometric method

1 Scope

This document specifies a spectrophotometric method for the determination of nitrogen in steel.

The method is applicable to the determination of nitrogen mass fraction between 0,000 6 % and 0,050 % in low alloy steels and between 0,010 % and 0,050 % in high alloy steels.

The method does not apply to samples containing silicon nitrides or having silicon contents higher than 0,6 %.

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.

ISO 648, *Laboratory glassware — Single-volume pipettes*

ISO 1042, *Laboratory glassware — One-mark volumetric flasks*

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

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

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

Dissolution of a test portion in hydrochloric acid.

Fuming of the acid-insoluble residue in sulphuric acid with potassium sulfate and copper(II) sulfate.

Distillation of the solution made alkaline with sodium hydroxide, and collection of ammonia in a receiver containing diluted sulphuric acid.

Formation of a blue-coloured complex between the ammonium ions and phenol in the presence of sodium hypochlorite and disodium pentacyanonitrosylferrate(III) (sodium nitroprusside).

Spectrophotometric measurement of the complex at a wavelength of about 640 nm.