SLOVENSKI STANDARD
SIST EN ISO 9556:2002

01-september-2002

Jeklo in ģelezo - Doloļ evanje celotnega ogljika - Infrardeļ a absorpcijska metoda po seģigu v indukcijski peļ i (ISO 9556:1989)

Steel and iron - Determination of total carbon content - Infrared absorption method after combustion in an induction furnace (ISO 9556:1989)

Stahl und Eisen - Bestimmung des Gesamtkohlenstoffgehalts - Verfahren mit Infrarotabsorption nach Verbrennung im Induktionsofen (ISO 9556:1989)

Aciers et fontes - Dosage du carbone total - Méthode par absorption dans l'infrarouge apres combustion dans un four a induction (ISO 9556:1989)

Ta slovenski standard je istoveten z: **EN ISO 9556:2001**

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77.040.30	Kemijska analiza kovin	Chemical analysis of metals

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EUROPEAN STANDARD

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English version

Steel and iron - Determination of total carbon content - Infrared absorption method after combustion in an induction furnace (ISO 9556:1989)

Aciers et fontes - Dosage du carbone total - Méthode par absorption dans l'infrarouge après combustion dans un four à induction (ISO 9556:1989)

Stahl und Eisen - Bestimmung des Gesamtkohlenstoffgehalts - Verfahren mit Infrarotabsorption nach Verbrennung im Induktionsofen (ISO 9556:1989)

This European Standard was approved by CEN on 11 May 2001.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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Foreword

The text of the International Standard from Technical Committee ISO/TC 17 "Steel" of the International Organization for Standardization (ISO) has been taken over as a European Standard by Technical Committee ECISS/TC 20 "Methods of chemical analysis of ferrous products", 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 2001, and conflicting national standards shall be withdrawn at the latest by December 2001.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 9556:1989 has been approved by CEN as a European Standard without any modification.

NOTE Normative references to International Standards are listed in annex ZA (normative).

Annex ZA
(normative)

Normative references to international publications with their relevant European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of -any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE Where an International Publication has been modified by common modifications, indicated by (mod.), the relevant EN/HD applies.

Publication	Year	Title	EN	Year
ISO 377	1997	Steel and steel products - Location and preparation of samples and test pieces for mechanical testing	EN ISO 377	1997

INTERNATIONAL STANDARD

ISO 9556

First edition
1989-07-15

Corrected and reprinted
1989-11-15

Steel and iron — Determination of total carbon content — Infrared absorption method after combustion in an induction furnace

Aciers et fontes — Dosage du carbone total — Méthode par absorption dans l'infrarouge après combustion dans un four à induction

Reference number
ISO 9556 : 1989 (E)

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 9556 was prepared by Technical Committee ISO/TC 17, *Steel*.

Annexes A, B and C of this International Standard are for information only.

Steel and iron — Determination of total carbon content — Infrared absorption method after combustion in an induction furnace

1 Scope

This International Standard specifies an infrared absorption method after combustion in an induction furnace for the determination of the total carbon content in steel and iron.

The method is applicable to carbon contents between 0,003 % (m/m) and 4,5 % (m/m).

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 377 : 1985, *Wrought steel — Selection and preparation of samples and test pieces.*

ISO 385-1 : 1984, *Laboratory glassware — Burettes — Part 1: General requirements.*

ISO 648 : 1977, *Laboratory glassware — One-mark pipettes.*

ISO 1042 : 1983, *Laboratory glassware — One-mark volumetric flasks.*

ISO 5725 : 1986, *Precision of test methods — Determination of repeatability and reproducibility for a standard test method by inter-laboratory tests.*

3 Principle

Combustion of a test portion with accelerator at a high temperature in a high-frequency induction furnace in a current of pure oxygen. Transformation of carbon into carbon dioxide and/or carbon monoxide.

Measurement by infrared absorption of the carbon dioxide and/or carbon monoxide carried by a current of oxygen.

4 Reagents

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

4.1 Water, free from carbon dioxide.

Boil water for 30 min, cool to room temperature and bubble with oxygen (4.2) for 15 min. Prepare just before use.

4.2 Oxygen, 99,5 % (m/m) minimum.

An oxidation catalyst [copper(II) oxide or platinum] tube heated to a temperature above 450 °C must be used prior to a purifying unit (see annex C), when the presence of organic contaminants is suspected in the oxygen.

4.3 Pure iron, of known low carbon content less than 0,001 0 % (m/m).

4.4 Suitable solvent, appropriate for washing greasy or dirty test samples, for example, acetone.

4.5 Magnesium perchlorate [$Mg(ClO_4)_2$], particle size: from 0,7 mm to 1,2 mm.

4.6 Barium carbonate

Dry barium carbonate (minimum assay: 99,5 %) at 105 °C to 110 °C for 3 h and cool in a desiccator before use.

4.7 Sodium carbonate

Dry anhydrous sodium carbonate (minimum assay: 99,9 %) at 285 °C for 2 h and cool in a desiccator before use.

4.8 Accelerator: copper, tungsten-tin mixture or tungsten of known low carbon content less than 0,001 0 % (m/m).

4.9 Sucrose, standard solution, corresponding to 25 g of C per litre.

Weigh, to the nearest 1 mg, 14,843 g of sucrose ($C_{12}H_{22}O_{11}$) (analytical standards grade) previously dried at 100 °C to 105 °C for 2,5 h and cooled in a desiccator.