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Steel and cast iron - Determination of total silicon contents - Reduced molybdosilicate spectrophotometric method - Part 1: Silicon contents between 0,05 % and 1,0 % (ISO 4829-1:2018)

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Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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EUROPEAN STANDARD

NORME EUROPÉENNE

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English Version

Steel and cast iron - Determination of total silicon contents - Reduced molybdosilicate spectrophotometric method - Part 1: Silicon contents between 0,05 % and 1,0 % (ISO 4829-1:2018)

Aciers et fontes - Détermination du silicium total - Méthode spectrophotométrique au silicomolybdate réduit - Partie 1: Teneurs en silicium comprises entre 0,05 % et 1,0 % (ISO 4829-1:2018)

Stahl- und Gusseisen - Bestimmung des Gesamtsiliciumanteils - Spektrophotometrische Methode mit reduziertem Molybdatosilicat - Teil 1: Siliciumanteile zwischen 0,05 % und 1,0 % (ISO 4829-1:2018)

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European foreword

This document (EN ISO 4829-1:2018) 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of an identical text or by endorsement, at the latest by November 2018, and conflicting national standards shall be withdrawn at the latest by November 2018.

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 24829-1:1990.

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Endorsement notice

The text of ISO 4829-1:2018 has been approved by CEN as EN ISO 4829-1:2018 without any modification.

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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.

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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For an explanation on 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 the following URL: 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 4829-1:1986), which has been technically revised.

A list of all the parts in the ISO 4829 series can be found on the ISO website.

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Steel and cast iron — Determination of total silicon contents — Reduced molybdosilicate spectrophotometric method —

Part 1: Silicon contents between 0,05 % and 1,0 %

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1 Scope

This document specifies a spectrophotometric method for the determination of total silicon in steel and cast iron using reduced molybdosilicate.

The method is applicable to the determination of silicon mass fraction between 0,05 % and 1,0 %.

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:

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

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

4 Principle

Dissolution of a test portion in an acid mixture appropriate to the alloy composition.

Fusion of the acid-insoluble residue with sodium peroxide. Formation of the oxidized molybdosilicate (yellow) complex in weak acid solution.

Selective reduction of the molybdosilicate complex to a blue complex with ascorbic acid, after increasing the sulphuric acid concentration and adding oxalic acid to prevent the interference of phosphorus, arsenic and vanadium.

Spectrophotometric measurement of the reduced blue complex at a wavelength of about 810 nm.

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