

This document is a preview generated by EVS

Steels - Determination of total silicon contents -
Reduced molybdsilicate spectrophotometric method -
Part 2: Silicon contents between 0,01 % and 0,05 % (ISO
4829-2:2016)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 4829-2:2016 sisaldab Euroopa standardi EN ISO 4829-2:2016 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 4829-2:2016 consists of the English text of the European standard EN ISO 4829-2:2016.
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.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 16.03.2016.	Date of Availability of the European standard is 16.03.2016.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 77.080.01

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:

Aru 10, 10317 Tallinn, Eesti; koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Aru 10, 10317 Tallinn, Estonia; homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

Steels - Determination of total silicon contents - Reduced molybdosilicate spectrophotometric method - Part 2: Silicon contents between 0,01 % and 0,05 % (ISO 4829-2:2016)

Aciers - Détermination du silicium total - Méthode spectrophotométrique au silicomolybdate réduit - Partie 2: Teneurs en silicium comprises entre 0,01 % et 0,05 % (ISO 4829-2:2016)

Stahl - Bestimmung des Gesamtsiliciumanteils - Spektrophotometrische Methode mit reduziertem Molybdatosilicat - Teil 2: Siliciumanteile zwischen 0,01 % und 0,05 % (ISO 4829-2:2016)

This European Standard was approved by CEN on 21 November 2015.

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 CEN-CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

This document (EN ISO 4829-2:2016) 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 September 2016, and conflicting national standards shall be withdrawn at the latest by September 2016.

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

This document supersedes EN 24829-2:1990.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 4829-2:2016 has been approved by CEN as EN ISO 4829-2:2016 without any modification.

Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Principle	1
4 Reagents	1
5 Apparatus	3
6 Sampling	4
7 Procedure	4
7.1 Test portion.....	4
7.2 Blank test.....	4
7.3 Determination.....	4
7.3.1 Dissolution of the test portion.....	4
7.3.2 Treatment of insoluble residue.....	4
7.3.3 Preparation of the test solution.....	4
7.3.4 Development of the colour.....	5
7.3.5 Spectrophotometric measurements.....	5
7.4 Establishment of the calibration curve.....	6
7.4.1 Preparation of the calibration solutions.....	6
7.4.2 Spectrophotometric measurements.....	6
7.4.3 Plotting of the calibration curve.....	6
8 Expression of results	6
8.1 Method of calculation.....	6
8.2 Precision.....	7
9 Test report	7
Annex A (informative) Additional information on the interlaboratory test	9
Bibliography	10

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#).

The committee responsible for this document is ISO/TC 17, *Steel*, Subcommittee SC 1, *Methods of determination of chemical composition*.

This second edition cancels and replaces the first edition (ISO 4829-2:1988), which has been technically revised.

ISO 4829 consists of the following parts, under the general title *Steels — Determination of total silicon contents — Reduced molybdosilicate spectrophotometric method*:

- *Part 1: Silicon contents between 0,05 % and 1,0 %*
- *Part 2: Silicon contents between 0,01 % and 0,05 %*

Steels — Determination of total silicon contents — Reduced molybdsilicate spectrophotometric method —

Part 2: Silicon contents between 0,01 % and 0,05 %

1 Scope

This part of ISO 4829 specifies a spectrophotometric method for the determination of total silicon in steels using reduced molybdsilicate.

The method is applicable to silicon contents between 0,01 % and 0,05 % (mass fraction) in steels.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 Principle

Dissolution of a test portion in a hydrochloric/nitric acids mixture.

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

Selective reduction of the molybdsilicate 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.

4 Reagents

During the analysis, unless otherwise specified, use only reagents of recognized analytical grade and only grade 2 water as specified in ISO 3696. Water demineralized by ion-exchange shall not be used as it may contain significant amounts of colloidal silica.

Reagents supplied in glass bottles, once opened, might absorb moisture and become reactive to glassware. Alkaline reagents, e.g. sodium carbonate and sodium peroxide, are particularly susceptible. To avoid the risk of significant contamination arising from this source, it is recommended that only freshly opened bottles of all reagents be used for the preparation of reagent solutions.