



SLOVENSKI STANDARD
SIST EN 10179:2024

01-september-2024

Jekla - Določevanje dušika (v sledih) v jeklih - Spektrofotometrična metoda

Steels - Determination of nitrogen (trace amounts) - Spectrophotometric method

Stähle - Bestimmung von Stickstoff (Spurengehalte) - Photometrisches Verfahren

Aciers - Détermination de l'azote (à l'état de traces) - Méthode spectrophotométrique

Ta slovenski standard je istoveten z: EN 10179:2024

ICS:

77.040.30 Kemijska analiza kovin Chemical analysis of metals
77.080.20 Jekla Steels

SIST EN 10179:2024

en,fr,de

EUROPEAN STANDARD

EN 10179

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2024

ICS 77.040.30

Supersedes EN 10179:1989

English Version

Steels - Determination of nitrogen (trace amounts) - Spectrophotometric method

Aciers - Détermination de l'azote (à l'état de traces) -
Méthode spectrophotométrique

Stähle - Bestimmung von Stickstoff (Spurengehalte) -
Photometrisches Verfahren

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

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Document Preview

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Contents	Page
European foreword	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
4 Principle	4
5 Reagents	4
6 Apparatus	7
7 Sampling	12
8 Procedure	12
8.1 Test portion	12
8.2 Blank test	12
8.3 Preparation of the steam distillation apparatus	12
8.4 Determination	13
8.4.1 Preparation of the test solution	13
8.4.2 Distillation	13
8.4.3 Development of the colour	13
8.4.4 Spectrophotometric measurements	14
8.5 Establishment of the calibration curve	14
8.5.1 Preparation of the calibration solutions	14
8.5.2 Spectrophotometric measurements	14
8.5.3 Plotting the calibration curve	15
9 Expression of results	15
10 Test report	15
Annex A (informative) Precision data	16
Bibliography	17

European foreword

This document (EN 10179:2024) 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of an identical text or by endorsement, at the latest by December 2024, and conflicting national standards shall be withdrawn at the latest by December 2024.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 10179:1989.

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

- normative references: updated;
- Clause 3; Terms and definitions: added;
- references 5.10, 5.11, 5.14, 5.17 and 5.18: added;
- Clause 10: updated;
- Bibliography: added.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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EN 10179:2024 (E)

1 Scope

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

The method is primarily intended for the determination of total nitrogen in very low contents in non-alloy steels.

It can be used, however, for any low nitrogen ferrous alloy that is soluble in hydrochloric acid provided that the acid-resistant form of silicon nitride is not present. These highly resistant nitrides have been found only in samples of silicon steels manufactured without aluminium addition and then only in sheet material.

The method is applicable to nitrogen contents from 0,000 5 % (by mass) to 0,005 % (by mass).

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)*

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 <https://www.electropedia.org/>

4 Principle

Dissolution of the test portion with hydrochloric acid and separation of the acid-insoluble residue by centrifugation.

Decomposition of the acid-insoluble residue by intense fuming with sulphuric acid and addition of the extract to the solution of the test portion containing the acid-soluble nitrogen.

Recovery of the total nitrogen as ammonia by steam distillation over sodium hydroxide.

Spectrophotometric measurement of the coloured complex produced by a reaction with indophenol blue.

5 Reagents

During the analysis use only reagents of recognized analytical grade and which are known to give a very low nitrogen blank. The same batch of each reagent shall be used for every test solution and blank determination in a given series of analysis.