



Handläggande organ	Fastställd	Utgåva	Sida
SVENSK MATERIAL- & MEKANSTANDARD, SMS	2000-06-09	1	1 (1+10)

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Chemical analysis of ferrous materials – Determination of oxygen in steel and iron – Part 1: Sampling and preparation of steel samples for oxygen determination

The European Standard EN 10276-1:2000 has the status of a Swedish Standard. This document contains the official English version of EN 10276-1:2000.

Swedish Standards corresponding to documents referred to in this Standard are listed in "Catalogue of Swedish Standards", issued by SIS. The Catalogue lists, with reference number and year of Swedish approval, International and European Standards approved as Swedish Standards as well as other Swedish Standards.

Kemisk analys av järn och stål – Bestämning av syre – Del 1: Provtagning och provberedning för syrebestämning

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ICS 77.040.30

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Prisgrupp N

Tryckt i juli 2000

EUROPEAN STANDARD

EN 10276-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2000

ICS 77.040.30

English version

**Chemical analysis of ferrous materials - Determination of oxygen
in steel and iron - Part 1: Sampling and preparation of steel
samples for oxygen determination**

Analyse chimique des matériaux sidérurgiques - Dosage de
l'oxygène dans les aciers et les fontes - Partie 1:
Echantillonnage et préparation des échantillons en acier
pour dosage de l'oxygène

Chemische Analyse von Eisenmetallen - Bestimmung des
Sauerstoffgehalts von Stahl und Eisen - Teil 1: Herstellung
und Vorbereitung der Stahlproben für die Sauerstoff-
Bestimmung

This European Standard was approved by CEN on 22 April 2000.

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 Central Secretariat 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 Central Secretariat 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.



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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This European Standard has been prepared 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 November 2000, and conflicting national standards shall be withdrawn at the latest by November 2000.

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.

1 Scope

This European Standard specifies two methods for the preparation of steel samples for oxygen determination. Both methods are suitable for preparing samples for the determination of oxygen content, especially for oxygen contents < 0,0050 %. This standard is applicable to steels having a hardness of < 400 HBW 10/3000.

2 Normative Reference

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).

ISO 14284 Steel and iron - Sampling and preparation of samples for the determination of chemical composition

3 Principle

Samples for oxygen determination are machined to a suitable shape and size within the restrictions imposed by the instrument used. In order to ensure that the surface has the minimum possible oxygen content, samples for analysis are prepared either by punching (method A) or by turning (method B).

4 Reagents

4.1 Organic oxygen free hydro carbon solvent e.g. n-hexane; (boiling-point range: 68 °C to 69 °C)

4.2 Argon or nitrogen

5 Apparatus

5.1 Methods A and B

5.1.1 Mechanical steel saw

5.1.2 Tweezers

5.1.3 Receptacles for storing the test samples e.g. glass tubes about 2,5 cm long and about 1 cm in diameter with stoppers/caps.

5.2 Method A:

5.2.1 Punch: suitable for punching out samples in the manner described in 7.1.4.

Purging by argon or nitrogen ensures minimum possible contact of the samples with atmospheric oxygen. This is illustrated in figure 1.

5.2.2 Flat bed finisher for finishing the steel sample.

5.2.3 Electrical hand drill and rotary file, with rotation speed exceeding 30 000 rev/min.

5.3 Method B:

5.3.1 Lathe for turning steel samples at speeds of 250 rev/min to 1 200 rev/min.

5.3.2 Hand saw: the saw blade shall be free from grease or paint.