



**SLOVENSKI STANDARD**  
**SIST EN ISO 10700:1998**  
**01-avgust-1998**

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**Jeklo in železo - Določanje mangana - Metoda s plamensko atomsko spektrometrijo (ISO 10700:1994)**

Steel and iron - Determination of manganese content - Flame atomic spectrometric method (ISO 10700:1994)

Stahl und Eisen - Bestimmung von Mangan -  
Flammenatomabsorptionsspektrometrisches Verfahren (ISO 10700:1994)

Aciers et fontes - Dosage du manganèse - Méthode par spectrométrie d'absorption atomique dans la flamme (ISO 10700:1994)

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**Ta slovenski standard je istoveten z: EN ISO 10700:1995**

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**ICS:**

77.080.01      Železne kovine na splošno      Ferrous metals in general

**SIST EN ISO 10700:1998**

**en**

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EUROPEAN STANDARD

EN ISO 10700

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 1995

ICS 77.080

Descriptors: steels, iron, chemical analysis, determination of content, manganese, atomic absorption spectrometric method

English version

**Steel and iron - Determination of manganese  
content - Flame atomic absorption spectrometric  
method (ISO 10700:1994)**

Aciers et fontes - Dosage du manganèse -  
Méthode par spectrométrie d'absorption atomique  
dans la flamme (ISO 10700:1994)

Stahl und Eisen - Bestimmung von Mangan -  
Flammenatomabsorptionsspektrometrisches  
Verfahren (ISO 10700:1994)

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This European Standard was approved by CEN on 1995-08-06. 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.

The European Standards exist 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

## Foreword

The text of the International Standard from ISO/TC 17 "Steel" of the International Organization for Standardization (ISO) has been taken over as a European Standard by the Technical Committee ECISS/TC 20 "Methods of chemical analysis".

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 March 1996, and conflicting national standards shall be withdrawn at the latest by March 1996.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, 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 10700:1994 has been approved by CEN as a European Standard without any modification.

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

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**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).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN</u>	<u>Year</u>
ISO 3696	1987	Water for analytical laboratory use - Specification and test methods	EN ISO 3696	1995

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INTERNATIONAL  
STANDARD

**ISO**  
**10700**

First edition  
1994-05-15

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**Steel and iron — Determination of  
manganese content — Flame atomic  
absorption spectrometric method**

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*Aciers et fontes — Dosage du manganèse — Méthode par spectrométrie  
d'absorption atomique dans la flamme*

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Reference number  
ISO 10700:1994(E)

**ISO 10700:1994(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 voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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International Standard ISO 10700 was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 1, *Methods of determination of chemical composition*.

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Annex A forms an integral part of this International Standard. Annexes B and C are for information only.

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# Steel and iron — Determination of manganese content — Flame atomic absorption spectrometric method

## 1 Scope

This International Standard specifies a flame atomic absorption spectrometric method for the determination of the manganese content in steel and iron.

The method is applicable to manganese contents between 0,002 % (*m/m*) and 2,0 % (*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 indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 377-2:1989, *Selection and preparation of samples and test pieces of wrought steels — Part 2: Samples for the determination of the chemical composition*.

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 3696:1987, *Water for analytical laboratory use — Specification and test methods*.

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

## 3 Principle

Dissolution of a test portion in hydrochloric and nitric acids followed by evaporation with perchloric acid until white fumes appear.

Spraying of the solution into an air-acetylene flame.

Spectrometric measurement of the atomic absorption of the 279,5 nm spectral line emitted by a manganese hollow cathode lamp.

## 4 Reagents

During the analysis, unless otherwise stated, use only reagents of recognized analytical grade and only grade 2 water as specified in ISO 3696.

**4.1 Pure iron**, free from manganese or with a known low manganese content.

**4.2 Hydrochloric acid**,  $\rho$  about 1,19 g/ml.

**4.3 Hydrofluoric acid**,  $\rho$  about 1,15 g/ml.

**4.4 Nitric acid**,  $\rho$  about 1,40 g/ml.

**4.5 Perchloric acid**,  $\rho$  about 1,54 g/ml (see note 1).

NOTE 1 Perchloric acid ( $\rho$  about 1,67 g/ml) may also be used. 100 ml of perchloric acid ( $\rho$  about 1,54 g/ml) is equivalent to 79 ml of perchloric acid ( $\rho$  about 1,67 g/ml).