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Steel and iron — Review of available methods of analysis

Aciers et fontes — Vue d'ensemble des méthodes d'analyse disponibles

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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 of 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 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 fourth edition cancels and replaces the third edition (ISO/TR 9769:1991), which has been technically revised to update all the standard methods for the determination of chemical composition of steel and iron.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Steel and iron — Review of available methods of analysis

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1 Scope

This document gives guidelines for the determination of the chemical composition of steel and iron by reference to published International Standards, including their range of application and principles of the methods.

Graphical representation of the precision data precision data for the methods is given in Annex A.

The list of International Standards is summarized in Annex B.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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 http://www.electropedia.org/

3.1
routine method
method calibrated against reference materials, certified reference materials or against standard solutions commercially available that is widely used for control purposes (day-to-day analysis)

4 International Standards for determining the chemical composition of steel and iron, their range of application and principles of the methods

4.1 Mono-elemental methods

4.1.1 Aluminium, Al

Document: ISO 9658:1990, *Steel — Determination of aluminium content — Flame atomic absorption spectrometric method*.

Range of application:

— determination of acid-soluble and/or total aluminium contents between a mass fraction of 0,005 % and a mass fraction of 0,20 % in non-alloyed steel.

Principle of the method:

a) dissolution of a test portion in dilute hydrochloric and nitric acids;

b) fusion of the acid-insoluble material with a mixture of orthoboric acid and potassium carbonate;

c) spraying of the solution into a dinitrogen monoxide-acetylene flame;

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