

INTERNATIONAL STANDARD

ISO
14284

First edition
1996-07-01

Steel and iron — Sampling and preparation of samples for the determination of chemical composition

*Fontes et aciers — Prélèvement et préparation des échantillons pour
la détermination de la composition chimique*



Reference number
ISO 14284:1996(E)

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International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

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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.

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.

International Standard ISO 14284 was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 1, *Methods of determination of chemical composition*.

It cancels and replaces ISO 377-2:1989, of which it constitutes a technical revision.

Annexes A and B of this International Standard are for information only.

Steel and iron — Sampling and preparation of samples for the determination of chemical composition

1 Scope

This International Standard specifies methods for sampling and sample preparation for the determination of the chemical composition of pig iron, cast iron and steel. Methods are specified for use with both liquid and solid metal.

2 Normative references

The following standards contain provisions which, through reference in 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:—¹⁾, *Steel and steel products — Location of samples and test pieces for mechanical testing*.

ISO 9147:1987, *Pig-irons — Definition and classification*.

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 chemical method of analysis: Method for the determination of chemical composition in which the sample is submitted to chemical reaction.

3.2 physical method of analysis: Method for the determination of chemical composition in which the determination of composition is carried out without submitting the sample to chemical reaction, for example an optical emission spectrometric method, an X-ray fluorescence spectrometric method.

3.3 thermal method of analysis: Method for the determination of chemical composition in which the sample is submitted to a process of heating, combustion or fusion.

3.4 melt: Liquid metal from which a sample is removed.

3.5 spoon sampling: Method in which the sample is taken from the melt, or during the pouring of the melt, using a long-handled spoon, and cast into a small mould.

3.6 spoon sample: Sample taken from the melt using a spoon and cast into a small mould.

3.7 probe sampling: Method in which the sample is taken from the melt using a commercially available sampling probe inserted into the melt.

3.8 immersion sampling: Method of probe sampling in which the probe is immersed in the melt where the sample chamber in the probe fills by ferrostatic pressure or gravity.

3.9 suction sampling: Method of probe sampling in which the probe is immersed in the melt where the sample chamber in the probe fills by aspiration.

¹⁾ To be published. (Revision of ISO 377-1:1989)