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

*Aciers et fontes — Prélèvement et préparation des échantillons pour
la détermination de la composition chimique*



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Contents

Page

Foreword	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Requirements for sampling and sample preparation	3
4.1 General	3
4.2 Sample	4
4.2.1 Quality	4
4.2.2 Size	5
4.2.3 Identification	5
4.2.4 Sample conservation	5
4.2.5 Sample for arbitration	5
4.3 Sampling	6
4.3.1 Sample from a melt	6
4.3.2 Sample from a product	6
4.4 Preparation of a sample	6
4.4.1 Preliminary preparation of a sample	6
4.4.2 Test sample in the form of chips	6
4.4.3 Test sample in the form of fragments	7
4.4.4 Test sample in the form of a solid block	7
4.4.5 Preparation of a test sample by remelting	9
4.5 Safety precautions	9
4.5.1 Personal protection	9
4.5.2 Machinery	9
4.5.3 Hazardous materials	9
5 Liquid iron for steelmaking and pig-iron production	9
5.1 General	9
5.2 Spoon sampling	10
5.2.1 Methods	10
5.2.2 Maintenance of equipment	11
5.3 Probe sampling	11
5.3.1 General	11
5.3.2 Methods	12
5.4 Preparation of a test sample	12
5.4.1 Preliminary preparation	12
5.4.2 Test sample for a chemical method	12
5.4.3 Test sample for a thermal method	12
5.4.4 Test sample for a physical method	12
6 Liquid iron for cast iron production	13
6.1 General	13
6.2 Spoon sampling	13
6.2.1 General	13
6.2.2 Methods	13
6.2.3 Chilled sample	14
6.2.4 Non-chilled sample	14
6.2.5 Maintenance of equipment	14
6.3 Probe sampling	15
6.4 Preparation of a test sample	15
6.4.1 Preliminary preparation	15
6.4.2 Test sample for chemical methods	15
6.4.3 Test sample for thermal methods	16
6.4.4 Test sample for physical methods	16

6.5	Sampling and sample preparation for the determination of oxygen and nitrogen.....	16
6.5.1	General.....	16
6.5.2	Method.....	16
6.5.3	Preparation of the test portion.....	16
7	Liquid steel for steel production.....	17
7.1	General.....	17
7.2	Spoon sampling.....	17
7.2.1	Methods.....	17
7.2.2	Maintenance of equipment.....	17
7.3	Probe sampling.....	18
7.3.1	General.....	18
7.3.2	Methods.....	18
7.4	Preparation of a test sample.....	18
7.4.1	Preliminary preparation.....	18
7.4.2	Test sample for chemical methods.....	18
7.4.3	Test sample for thermal methods.....	19
7.4.4	Test sample for physical methods.....	19
7.5	Sampling and sample preparation for the determination of nitrogen and oxygen.....	19
7.5.1	Methods of sampling.....	19
7.5.2	Preparation of the test portion.....	20
7.6	Sampling and sample preparation for the determination of hydrogen.....	20
7.6.1	General.....	20
7.6.2	Methods of sampling.....	21
7.6.3	Preparation of the test portion.....	21
8	Pig-irons.....	21
8.1	General.....	21
8.2	Increment sampling.....	21
8.2.1	Number of increments.....	21
8.2.2	Methods.....	22
8.2.3	Consignment of mixed pig-irons.....	22
8.3	Preparation of a test sample.....	22
8.3.1	General.....	22
8.3.2	Test sample for chemical methods.....	23
8.3.3	Test sample for thermal methods.....	23
8.3.4	Test sample for physical methods.....	24
9	Cast iron products.....	24
9.1	General.....	24
9.2	Sampling and sample preparation.....	24
9.2.1	General.....	24
9.2.2	Test sample for chemical methods.....	25
9.2.3	Sample in the form of a solid block for analysis by thermal methods.....	26
9.2.4	Test sample for physical methods.....	26
10	Steel products.....	26
10.1	General.....	26
10.2	Selection of a laboratory sample or a test sample from a cast product.....	27
10.3	Selection of a laboratory sample or a test sample from a wrought product.....	27
10.3.1	General.....	27
10.3.2	Sections.....	27
10.3.3	Plates or slabs.....	27
10.3.4	Light sections, bars, rods, sheets, strips and wires.....	27
10.3.5	Tubes and pipes.....	29
10.4	Preparation of a test sample.....	29
10.4.1	General.....	29
10.4.2	Test sample in the form of chips.....	29
10.4.3	Test sample in the form of a solid block.....	29
10.5	Sampling of leaded steel.....	30

10.6	Sampling and sample preparation for the determination of oxygen	30
10.6.1	General	30
10.6.2	Methods of sampling	30
10.6.3	Preparation of a test portion	31
10.7	Sampling and sample preparation for the determination of hydrogen	31
10.7.1	General	31
10.7.2	Methods of sampling	31
10.7.3	Preparation of a test portion	32
Annex A	(informative) Sampling probes for use with liquid iron and steel	33
Annex B	(informative) Sampling probes for use with liquid steel for the determination of hydrogen	41
Bibliography	44

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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This document was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 1, *Methods of determination of chemical composition*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 459/SC 2, *Methods of chemical analysis for iron and steel*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 14284:1996), which has been technically revised. The main changes are as follows:

- figures updated;
- [Clause 3](#) updated;
- text updated;
- new sampling probes added;
- units changed to SI units.

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.

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

1 Scope

This document specifies methods for sampling and sample preparation for the determination of the chemical composition of pig irons, cast irons and steels.

Methods are specified for both liquid and solid metal.

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 terminology 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/>

3.1

chemical method

method for the determination of chemical composition in which the *test sample* (3.16) or the *test portion* (3.17) is submitted to chemical reactions

3.2

physical method of analysis

physical method

method for the determination of chemical composition in which the determination is carried out without submitting the *test sample* (3.16) to chemical reactions

EXAMPLE Optical emission spectrometric (OES) method or X-ray fluorescence spectrometric (XRF) method.

3.3

thermal method of analysis

thermal method

method for the determination of chemical composition in which the *test sample* (3.16) is submitted to a process of heating, combustion or fusion

3.4

melt

liquid metal from which a *sample* (3.25) is taken

3.5

spoon sampling

method in which a *sample* (3.25) is taken from the *melt* (3.4), or during the pouring of the melt, using a long-handled spoon and poured into a small mould

3.6

spoon sample

sample (3.25) obtained from *spoon sampling* (3.5)