
**Steel and iron — Determination of arsenic
content — Spectrophotometric method**

*Aciers et fontes — Dosage de l'arsenic — Méthode
spectrophotométrique*

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Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Principle	1
4 Reagents	2
5 Apparatus	3
6 Sampling	3
7 Procedure	4
7.1 Test portion sampling.....	4
7.2 Blank test	5
7.3 Determination	5
7.4 Establishment of the calibration graph	6
8 Expression of results	7
8.1 Method of calculation	7
8.2 Precision	7
9 Test report	8
Annex A (informative) Additional information on international cooperative tests	9
Annex B (informative) Graphical representation of precision data	10
Bibliography	11

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.

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The main task of technical committees is to prepare International Standards. 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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ISO 17058 was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 1, *Methods of determination of chemical composition*.

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Steel and iron — Determination of arsenic content — Spectrophotometric method

1 Scope

This International Standard specifies a method for the determination of the arsenic content in steel and iron using a spectrophotometric method after distillation.

The method is applicable to an arsenic content between 0,000 5 % (mass fraction) and 0,10 % (mass fraction).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 385-1:1984, *Laboratory glassware — Burettes — Part 1: General requirements*

ISO 648:1977, *Laboratory glassware — One-mark pipettes*

ISO 1042:1998, *Laboratory glassware — One-mark volumetric flasks*

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

ISO 14284:1996, *Steel and iron — Sampling and preparation of samples for the determination of chemical composition*

3 Principle

Dissolution of a test portion in a hydrochloric acid and nitric acid mixture.

Prolonged heating with sulfuric acid until white fumes are given off.

Reduction of arsenic in the presence of hydrazine sulfate and potassium bromide, then separation by distillation as the trivalent chloride, absorbed in the nitric acid solution, in which the As(III) is oxidized back to the pentavalent state As(V).

Formation of the molybdenum blue complex between ammonium molybdate and arsenic which is reduced by hydrazine sulfate.

Spectrophotometric measurement at a wavelength of approximately 840 nm.