INTERNATIONAL STANDARD

ISO 2598-1

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Iron ores — Determination of silicon content —

Part 1:
Gravimetric methods

Minerais de fer — Dosage du silicium —
Partie 1: Méthodes gravimétriques

Reference number
ISO 2598-1:1992(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.

International Standard ISO 2598-1 was prepared by Technical Committee ISO/TC 102, *Iron ores*, Sub-Committee SC 2, *Chemical analysis*.

This part of ISO 2598 cancels and replaces ISO 2598:1980, of which it constitutes a technical revision.

ISO 2598 consists of the following parts, under the general title *Iron ores — Determination of silicon content*:

— *Part 1: Gravimetric methods*

— *Part 2: Reduced molybdosilicate spectrophotometric method*

Annex A forms an integral part of this part of ISO 2598. Annexes B and C are for information only.

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Iron ores — Determination of silicon content —

Part 1:
Gravimetric methods

1 Scope

This part of ISO 2598 specifies two gravimetric methods for the determination of the silicon content of iron ores.

These methods are applicable, with certain limitations, to silicon contents between 1 % (*m/m*) and 15 % (*m/m*) in natural iron ores, iron ore concentrates and agglomerates, including sinter products.

Method 1 is not applicable to iron ores having a content of reducing agents greater than 2 % (*m/m*), for instance pyrite, or to ores having a fluorine content greater than 0,1 % (*m/m*). It is recommended for lower grade ores having a high content of amphoteric elements.

Method 2 can be used for ores having a fluorine content greater than 0,1 % (*m/m*). It is recommended for high grade ores having a low content of gangue.

NOTE 1 For ores having a silicon content less than 5 % (*m/m*), the method specified in ISO 2598-2: —[1], *Iron ores — Determination of silicon content — Part 2: Reduced molybdosilicate spectrophotometric method*, is preferable.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 2598. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 2598 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 648:1977, *Laboratory glassware — One-mark pipettes.*

ISO 1042:1983, *Laboratory glassware — One-mark volumetric flasks.*

ISO 2596:1984, *Iron ores — Determination of hygroscopic moisture in analytical samples — Gravimetric and Karl Fischer methods.*

ISO 3081:1986, *Iron ores — Increment sampling — Manual method.*

ISO 3082:1987, *Iron ores — Increment sampling and sample preparation — Mechanical method.*

ISO 3083:1986, *Iron ores — Preparation of samples — Manual method.*

ISO 7764:1985, *Iron ores — Preparation of predried test samples for chemical analysis.*

3 Principle

Decomposition of the test portion, by either method 1 or method 2.

Method 1: Decomposition by sintering with sodium peroxide, followed by treatment with hydrochloric and perchloric acids, or

Method 2: Decomposition by treatment with hydrochloric, nitric and perchloric acids (with inclusion of boric acid, if necessary) and evaporation to fumes of perchloric acid. Filtration of silica together with any residue, fusion with sodium carbonate and dissolution in hydrochloric and perchloric acids.

1) To be published. (At present published as ISO 4686:1980.)