
**Direct reduced iron and hot briquetted
iron — Sampling and sample preparation**

*Minerais de fer pré-réduits et fer briqueté à chaud — Échantillonnage et
préparation des échantillons*



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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 10835 was prepared by Technical Committee ISO/TC 102, *Iron ore and direct reduced iron*, Subcommittee SC 1, *Sampling*.

This second edition cancels and replaces the first edition (ISO 10835:1995), which has been technically revised.

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Direct reduced iron and hot briquetted iron — Sampling and sample preparation

WARNING — This International Standard may involve hazardous materials, operations and equipment, and does not purport to address all of the safety issues associated with its use. It is the responsibility of the user of this standard to establish appropriate health and safety practices and determine the applicability of regulatory limitations prior to use.

1 Scope

This International Standard gives

- a) the underlying theory,
- b) the basic principles for sampling and preparation of samples, and
- c) the basic requirements for the design, installation and operation of sampling systems,

for mechanical sampling, manual sampling and preparation of samples taken from a lot under transfer, to determine the chemical composition, moisture content and physical properties of the lot.

The methods specified in this International Standard are applicable to both the loading and discharging of direct reduced iron (DRI) and hot briquetted iron (HBI), by means of belt conveyors and other ore handling equipment to which a mechanical sampler may be installed or where stopped-belt sampling may safely be conducted. In this International Standard, DRI includes both reduced pellets and reduced lump ores.

CAUTION — Direct reduced iron (DRI) and, in some cases, hot briquetted iron (HBI), for example, with low density or high fines content, may react with water and air to produce hydrogen and heat. The heat produced may cause ignition. Therefore, due consideration shall be given to the safety of operators by respecting applicable regulations or international codes.

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 565:1990, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*

ISO 3084:1998, *Iron ores — Experimental methods for evaluation of quality variation*

ISO 3085:2002, *Iron ores — Experimental methods for checking the precision of sampling, sample preparation and measurement*

ISO 3086:1998, *Iron ores — Experimental methods for checking the bias of sampling*

ISO 3087:1998, *Iron ores — Determination of moisture content of a lot*

ISO 3534-1:2006, *Statistics — Vocabulary and symbols — Part 1: General statistical terms and terms used in probability*

ISO 4701:1999, *Iron ores — Determination of size distribution by sieving*

ISO 11323:2002, *Iron ores and direct reduced iron — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11323 and the following apply.

- 3.1 lot**
discrete and defined quantity of DRI or HBI for which quality characteristics are to be assessed
- 3.2 increment**
quantity of DRI or HBI collected in a single operation of a sampling device
- 3.3 sample**
relatively small quantity of DRI or HBI, taken from a lot so as to be representative in respect of the quality characteristics to be assessed
- 3.4 partial sample**
sample consisting of less than the complete number of increments needed for a gross sample
- 3.5 gross sample**
sample comprising all increments, entirely representative of all quality characteristics of a lot
- 3.6 test sample**
sample prepared to meet all specific conditions for a test
- 3.7 test portion**
part of a test sample that is actually and entirely subjected to the specific test
- 3.8 stratified sampling**
sampling of a lot carried out by taking increments from systematically specified positions and in appropriate proportions from identified parts called strata
- NOTE Examples of strata, based on time, mass or space, include production periods (e.g. 5 min), production masses (e.g. 1 000 t), holds in vessels, wagons in a train, or containers.
- 3.9 systematic sampling**
selection of increments at regular intervals from a lot
- 3.10 mass-basis sampling**
sampling carried out so that increments are taken at equal mass intervals, increments being, as near as possible, of uniform mass