



SLOVENSKI STANDARD
SIST ISO 15968:2016

01-maj-2016

Nadomešča:
SIST ISO 15968:2002

Neposredno reducirano železo - Ugotavljanje gostote in absorpcije vode v vroče briketiranem železu

Direct reduced iron - Determination of apparent density and water absorption of hot briquetted iron (HBI)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Minerais de fer préréduits - Détermination de la masse volumique apparente et de l'absorption d'eau du fer briqueté à chaud

<https://standards.iteh.ai/catalog/standards/sist/afe7c855-f9a3-433f-85ea-be3b3d05060c/sist-iso-15968-2016>

Ta slovenski standard je istoveten z: ISO 15968:2016

ICS:

73.060.10 Železove rude Iron ores

SIST ISO 15968:2016 **en**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ISO 15968:2016](#)

<https://standards.iteh.ai/catalog/standards/sist/afe7c855-f9a3-433f-85ea-be3b3d05060c/sist-iso-15968-2016>

INTERNATIONAL
STANDARD

ISO
15968

Second edition
2016-02-01

**Direct reduced iron — Determination
of apparent density and water
absorption of hot briquetted iron (HBI)**

*Minerais de fer pré-réduits — Détermination de la masse volumique
apparente et de l'absorption d'eau du fer briqueté à chaud*

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ISO 15968:2016](https://standards.iteh.ai/catalog/standards/sist/afe7c855-f9a3-433f-85ea-be3b3d05060c/sist-iso-15968-2016)

<https://standards.iteh.ai/catalog/standards/sist/afe7c855-f9a3-433f-85ea-be3b3d05060c/sist-iso-15968-2016>



Reference number
ISO 15968:2016(E)

© ISO 2016

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST ISO 15968:2016

<https://standards.iteh.ai/catalog/standards/sist/afe7c855-f9a3-433f-85ea-be3b3d05060c/sist-iso-15968-2016>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword.....	iv
Introduction.....	v
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Principle.....	1
5 Sample, sample preparation and preparation of test portions.....	1
5.1 Sampling and sample preparation.....	1
5.2 Preparation of test portions.....	1
6 Apparatus.....	2
6.1 General.....	2
7 Procedure.....	3
7.1 Number of determinations for the test.....	3
7.2 Density determination.....	3
8 Expression of results.....	3
8.1 Calculation of the apparent density (ρ_a).....	3
8.2 Calculation of the water absorption (a).....	4
8.3 Repeatability and acceptance of test results.....	4
9 Test report.....	4
7 Verification.....	5
Annex A (normative) Flowsheet of the procedure for the acceptance of test results.....	7

ITeH STANDARD PREVIEW
 (standards.iteh.ai)
 SIST ISO 15968:2016
<https://standards.iteh.ai/catalog/standards/sist/afe7c855-f9a3-433f-85ea-be3b3d05060c/sist-iso-15968-2016>

ISO 15968:2016(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.

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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 102, *Iron ore and direct reduced iron*, Subcommittee SC 3, *Physical testing*.

This second edition cancels and replaces the first edition (ISO 15968:2000), which has been technically revised with the following changes:

- to homogenize its structure and wording with other physical test standards;
- to contemplate the outcomes of the studies on mass definition.

Introduction

This test method has been developed to determine the apparent density and water absorption of direct reduced iron in the form of hot briquetted iron (HBI).

Results of this test have to be considered in conjunction with other tests used to evaluate the quality of products from direct reduction processes.

This International Standard can be used to provide test results as part of a production quality control system, as a basis of a contract or as part of a research project.

The apparent density measured in this test can be used to certify that the HBI meets the apparent density requirements of the International Maritime Organization (IMO) Code of Safe Practice for Solid Bulk Cargoes.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST ISO 15968:2016](https://standards.iteh.ai/catalog/standards/sist/afe7c855-f9a3-433f-85ea-be3b3d05060c/sist-iso-15968-2016)

<https://standards.iteh.ai/catalog/standards/sist/afe7c855-f9a3-433f-85ea-be3b3d05060c/sist-iso-15968-2016>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ISO 15968:2016](#)

<https://standards.iteh.ai/catalog/standards/sist/afe7c855-f9a3-433f-85ea-be3b3d05060c/sist-iso-15968-2016>

Direct reduced iron — Determination of apparent density and water absorption of hot briquetted iron (HBI)

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

1 Scope

This International Standard specifies a method of determining the apparent density and water absorption of direct reduced iron by immersion in water.

This International Standard is applicable to hot briquetted iron (HBI).

2 Normative references

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

ISO 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

ISO 3310-2, *Test sieves — Technical requirements and testing — Part 2: Test sieves of perforated metal plate*

ISO 10835, *Direct reduced iron and hot briquetted iron — Sampling and sample preparation*

ISO 11323, *Iron ore and direct reduced iron — Vocabulary*

3 Terms and definitions

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

4 Principle

Dried briquettes are weighed in air, soaked in water, surface-dried and weighed again: first in air and then in water. The apparent density and water absorption are determined by water absorption method.

5 Sample, sample preparation and preparation of test portions

5.1 Sampling and sample preparation

Sampling of a lot of HBI and sample preparation shall be in accordance with ISO 10835.

A test sample of a sufficient quantity to provide at least 100 briquettes shall be obtained.

Sieve the test sample by hand on a 40 mm test sieve to discard any -40 mm material.

5.2 Preparation of test portions

Spread the test sample on a smooth and flat plate to form a single layer of briquettes, in the shape of a rectangle.