

INTERNATIONAL ISO
This is a preview of "ISO 2596:2006". Click here to purchase the full version from the ANSI store.

Fifth edition
2006-05-01

Iron ores — Determination of hygroscopic moisture in analytical samples — Gravimetric, Karl Fischer and mass-loss methods

*Minerais de fer — Détermination de l'humidité hygroscopique dans les
échantillons pour analyse — Méthodes gravimétrique, selon Karl
Fischer et par perte de masse*



Reference number
ISO 2596:2006(E)

© ISO 2006

This is a preview of "ISO 2596:2006". [Click here to purchase the full version from the ANSI store.](#)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

© ISO 2006

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

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

Published in Switzerland

This is a preview of "ISO 2596:2006". [Click here to purchase the full version from the ANSI store.](#)

Contents

Page

Foreword.....	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Method 1 — Gravimetric method	2
3.1 Principle	2
3.2 Reagents	2
3.3 Apparatus	3
3.4 Sampling and samples	4
3.4.1 Laboratory sample	4
3.4.2 Preparation of test sample	4
3.5 Procedure	4
3.5.1 Apparatus conditioning	4
3.5.2 System checks	5
3.5.3 Blank test	5
3.5.4 Check test	5
3.5.5 Determination	6
3.6 Expression of results	6
3.6.1 Calculation of hygroscopic moisture content	6
3.6.2 Hygroscopic moisture correction of analytical test portion mass	7
4 Method 2 — Karl Fischer volumetric method	7
4.1 Principle	7
4.2 Reagents	7
4.3 Apparatus	8
4.4 Sampling and samples	9
4.4.1 Laboratory sample	9
4.4.2 Preparation of test sample	10
4.5 Procedure	10
4.5.1 Conditioning of drying tube	10
4.5.2 Preparation of titration unit	10
4.5.3 Titration	10
4.5.4 Blank test	11
4.5.5 Check test	11
4.5.6 Determination	11
4.6 Expression of results	12
4.6.1 Calculation of hygroscopic moisture content	12
4.6.2 Hygroscopic moisture correction of analytical test portion mass	12
5 Method 3 — Karl Fischer coulometric method	13
5.1 Principle	13
5.2 Reagents	13
5.3 Apparatus	14
5.4 Sampling and samples	15
5.4.1 Laboratory sample	15
5.4.2 Preparation of test sample	15
5.5 Procedure	15
5.5.1 Preparation of titration unit	15
5.5.2 Conditioning of drying tube	15
5.5.3 Blank test	16
5.5.4 Check test	16

This is a preview of "ISO 2596:2006". [Click here to purchase the full version from the ANSI store.](#)

5.5.5	Determination	17
5.6	Expression of results.....	17
5.6.1	Calculation of hygroscopic moisture content.....	17
5.6.2	Hygroscopic moisture correction of analytical test-portion mass	18
6	Method 4 — Mass-loss method	18
6.1	Principle	18
6.2	Reagents	18
6.3	Apparatus.....	19
6.4	Sampling and samples	20
6.4.1	Laboratory sample	20
6.4.2	Preparation of test sample	20
6.5	Procedure.....	20
6.5.1	Apparatus conditioning	20
6.5.2	Check test	21
6.5.3	Determination	21
6.6	Expression of results.....	22
6.6.1	Calculation of hygroscopic moisture content.....	22
6.6.2	Hygroscopic moisture correction of analytical test portion mass	22
Annex A (informative)	Gravimetric and Karl Fischer apparatus	23
Annex B (informative)	Drying tube.....	24
Annex C (informative)	Titanium absorption tube	26
Annex D (informative)	Volumetric titration cell	27
Annex E (informative)	Coulometric titration cell	28
Annex F (informative)	Modified weighing chamber apparatus	29
Annex G (informative)	Modified weighing chamber.....	30
Annex H (informative)	Parcher equipment.....	31
Bibliography	32

This is a preview of "ISO 2596:2006". [Click here to purchase the full version from the ANSI store.](#)

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 2596 was prepared by Technical Committee ISO/TC 102, *Iron ore and direct reduced iron*, Subcommittee SC 2, *Chemical analysis*.

This fifth edition cancels and replaces the fourth edition (ISO 2596:1994), which has been technically revised.

This is a preview of "ISO 2596:2006". [Click here to purchase the full version from the ANSI store.](#)

Introduction

In the analysis of iron ores, the reporting limit of the analytical value of each constituent on a dry sample basis can be achieved by using predried samples. However, with certain ore types, where the constituent being determined is above a certain concentration level as specified in the scope, this technique can produce erroneous results. In these cases, for the calculation of analytical values of the other constituents in the ore to a dry sample basis, a direct determination of the hygroscopic moisture content becomes necessary.