This is a preview of "ISO 4701:2017". Click here to purchase the full version from the ANSI store.

Fourth edition 2017-11

# Iron ores and direct reduced iron — Determination of size distribution by sieving

Minerais de fer et minerais de fer préréduits — Détermination de la granulométrie par tamisage



#### ISO 4701:2017(E)

This is a preview of "ISO 4701:2017". Click here to purchase the full version from the ANSI store.



### COPYRIGHT PROTECTED DOCUMENT

© ISO 2017, 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 This is a preview of "ISO 4701:2017". Click here to purchase the full version from the ANSI store.

Cor	Lontents				
Fore	orewordv				
1	Scop	e	1		
2	Norr	native references	1		
_		ns and definitions			
3					
4	Principles and planning				
	4.1	General			
	4.2	Purpose of the analysis			
	4.3	Impact of ore and DRI properties 4.3.1 Effect of moisture content			
		4.3.2 Degradation of material			
		4.3.3 Magnetic ores			
	4.4	Nature of sample			
	4.5	Choice of sieving method			
	4.6	Maximum particle size permitted on a sieve			
	4.7	Specified loading of sieves			
	117	4.7.1 General			
		4.7.2 Batch sieving with a single sieve or nest of sieves			
		4.7.3 Loading of continuous sieving machines	6		
	4.8	Sieving time			
		4.8.1 General			
		4.8.2 End point ruling			
		4.8.3 Retention time for continuous sieving machines			
5	Ann	aratus			
3	5.1	Sieve media			
	3.1	5.1.1 Shape of aperture			
		5.1.2 Size of aperture			
		5.1.3 Construction of sieve media			
		5.1.4 Sieve frames for hand or mechanical nest sieving	7		
	5.2	Sieving machines			
	5.3	Accessories for wet sieving			
	5.4	Drying equipment			
	5.5	Equipment for the determination of mass			
_	• •				
6		ples			
	6.1 6.2	Derivation of size sample			
	0.2	Mass of test sample(s) for sieving			
		6.2.2 Minimum mass			
7		edures			
	7.1	Drying			
	7.2	Division			
	7.3	Preparation and maintenance of sieves for test or nest sieving			
	7.4	Sieving			
		7.4.1 General			
		7.4.2 Hand placing on individual sieves			
		7.4.3 Hand sieving in the -40 mm to +1 mm range			
		7.4.4 Hand sieving in the –1 mm range			
		7.4.5 Mechanical batch sleving			
		7.4.7 Continuous machine sieving			
	7.5	Determination of mass			
	, .5	7.5.1 General			
		7.5.2 Wet sieving — Determination of mass of solids-content in washings			

## ISO 4701:2017(E)

This is a preview of "ISO 4701:2017". Click here to purchase the full version from the ANSI store.

	7.6	Determination of sieving end point	15
		7.6.1 Dry sieving	
		7.6.2 Wet sieving	16
8	Verification		
	8.1	General	
	8.2	Checking of division	16
	8.3	Verification of sieve media	
	8.4	Verification of sieving machines	
	8.5	Verification of weighing devices	16
9	Results		
	9.1	Evaluation of results	
	9.2	Calculation and expression of results	
	9.3	Repeatability and acceptance of results	18
10	Test r	eport and working log	19
11	Precision		
	11.1	Overall precision, $eta_{ ext{SPM}}$	
	11.2	Precision of preparation and measurement, $eta_{ ext{PM}}$	19
Annex	<b>x A</b> (info	ormative) Steps for establishing operating conditions	21
Annex	<b>B</b> (nor	mative) Scheme of sample preparation and sieving procedure	22
Annex	<b>c</b> C (nor	mative) Maximum mass to be retained at completion of batch sieving	23
Annex	<b>v D</b> (info	ormative) Size apertures in R20 and R40/3 series	25
Annex	<b>E</b> (info	ormative) <b>Typical batch sieving apparatus</b>	26
Annex	<b>F</b> (info	rmative) Desirable features of mechanical sieving machines	27
Annex	<b>c G</b> (nor	mative) Procedure for determining the minimum mass of sample used for sign	ving30
Annex		mative) Flowsheet of the procedure for the acceptance of analytical values fo	
	test p	ortions	33
Annex	<b>x I</b> (info	rmative) Additional information	34
Annex	<b>y J</b> (nor	mative) Determination of the average particle size (APS)	36
Biblio	graphy	7	37

This is a preview of "ISO 4701:2017". 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.

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 <a href="www.iso.org/directives">www.iso.org/directives</a>).

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 <a href="https://www.iso.org/patents">www.iso.org/patents</a>).

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 voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: <a href="https://www.iso.org/iso/foreword.html">www.iso.org/iso/foreword.html</a>.

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

This fourth edition cancels and replaces the third edition (ISO 4701:2008), which has been technically revised. It also incorporates the amendment ISO 4701:2008/Cor.1:2010. The following changes have been made:

- in <u>Tables 3</u> and <u>6</u>, the specification size subtitles and mean values have been updated in accordance with ISO 4701:2008/Cor.1:2010;
- in <u>Table 3</u>, class > 340 and modified class from > 270 to 270 to 340 have been included;
- in  $\overline{7.4.3}$  c), the amplitude of hand sieving in the -40 mm to +1 mm range, from 120 mm to 95 mm has been changed;
- in <u>7.4.4</u>, the use of a smooth platform for hand sieving in the –1 mm range has been included;
- in 7.6.1.2, the time of sieving from 1 min to 10 s for the –40 mm to +1 mm range for the determination of sieving end point has been changed;
- Formula (G.1) has been corrected to harmonize the units.