

INTERNATIONAL  
STANDARD

ISO  
15971

First edition  
2008-12-15

---

**Natural gas — Measurement of  
properties — Calorific value and Wobbe  
index**

*Gaz naturel — Mesurage des propriétés — Pouvoir calorifique et indice de Wobbe*

ISO 15971:2008



Reference number  
ISO 15971:2008 (E)

© ISO 2008

**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.



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2008

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](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

**Contents**

Page

<b>Foreword</b>	iv
<b>Introduction</b>	v
<b>1 Scope</b>	1
<b>2 Normative references</b>	1
<b>3 Terms and definitions</b>	1
<b>3.1 Calorific value and Wobbe index</b>	1
<b>3.2 Water content of gas</b>	2
<b>3.3 Performance classification</b>	2
<b>3.4 Terms from metrology</b>	3
<b>4 Principles of measurement</b>	4
<b>4.1 Introduction</b>	4
<b>4.2 Direct combustion calorimetry</b>	5
<b>4.3 Indirect methods</b>	5
<b>4.4 Inferential methods</b>	6
<b>5 Performance assessment and acceptance tests</b>	7
<b>5.1 Performance assessment for instrument selection</b>	7
<b>5.2 Factory and site acceptance tests</b>	20
<b>6 Sampling and installation guidelines</b>	21
<b>6.1 Sampling</b>	21
<b>6.2 Installation guidelines</b>	22
<b>7 Calibration</b>	25
<b>7.1 Calibration procedures</b>	25
<b>7.2 Calibration gases</b>	26
<b>8 Verification</b>	27
<b>8.1 Verification procedures</b>	27
<b>8.2 Verification gases</b>	28
<b>9 Maintenance</b>	29
<b>9.1 Preventive maintenance</b>	29
<b>9.2 Corrective maintenance</b>	29
<b>10 Quality control</b>	29
<b>10.1 General</b>	29
<b>10.2 Environmental parameters and ancillary equipment</b>	31
<b>10.3 Instrumental factors</b>	32
<b>Annex A (normative) Symbols and units</b>	33
<b>Annex B (informative) Examples of type-approval and technical specifications</b>	34
<b>Annex C (informative) Class 0 mass-basis calorimetry</b>	36
<b>Annex D (informative) Direct combustion calorimetry</b>	40
<b>Annex E (informative) Stoichiometric combustion devices</b>	43
<b>Annex F (informative) Effect of non-alkane gases on stoichiometric combustion devices</b>	47
<b>Annex G (informative) Measurement of Wobbe index</b>	48
<b>Bibliography</b>	49