This is a free page sample. Access the full version online.

National Standards Authority of Ireland

IRISH STANDARD

I.S. CWA 15261-2:2005

ICS 77.040.10

National Standards
Authority of Ireland
Glasnevin, Dublin 9
Ireland

Tel: +353 1 807 3800
Fax: +353 1 807 3838
http://www.nsai.ie

Sales
http://www.standards.ie

MEASUREMENT UNCERTAINTIES IN MECHANICAL TESTS ON METALLIC MATERIALS - PART 2: THE EVALUATION OF UNCERTAINTIES IN TENSILE TESTING

This Irish Standard was published under the authority of the National Standards Authority of Ireland and comes into effect on:
June 22, 2005

NO COPYING WITHOUT NSAI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

© NSAI 2005

Price Code N

Údarás um Chaighdeáin Náisiúnta na hÉireann

This is a free page sample. Access the full version online.

This is a free page sample. Access the full version online.

CEN WORKSHOP AGREEMENT

CWA 15261-2

April 2005

ICS 77.040.10

English version

Measurement uncertainties in mechanical tests on metallic materials - Part 2: The evaluation of uncertainties in tensile testing

This CEN Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties, the constitution of which is indicated in the foreword of this Workshop Agreement.

The formal process followed by the Workshop in the development of this Workshop Agreement has been endorsed by the National Members of CEN but neither the National Members of CEN nor the CEN Management Centre can be held accountable for the technical content of this CEN Workshop Agreement or possible conflicts with standards or legislation.

This CEN Workshop Agreement can in no way be held as being an official standard developed by CEN and its Members.

This CEN Workshop Agreement is publicly available as a reference document from the CEN Members National Standard Bodies.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

© 2005 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No.:CWA 15261-2:2005 D/E/F

This is a free page sample. Access the full version online.

Contents

Page

Foreword 3
Significance and Use 4
Introduction 5
1 Scope 6
2 Terms, definitions and symbols 6
3 Procedure for the evaluation of uncertainty 10
4 Reporting of results 16
Annex A (informative) Mathematical formulae for calculating uncertainties in tensile testing 17
Annex B (informative) Worked example for calculating uncertainty in the determination of proof strength at ambient temperature 30
Annex C (informative) Inter-laboratory scatter 38
Bibliography 43

This is a free page sample. Access the full version online.

Foreword

This CEN Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties on 24 May 2004, the constitution of which was supported by CEN following the public call for participation made on 31 January 2003.

A list of the individuals and organizations that supported the technical consensus represented by this CEN Workshop Agreement is available to purchasers of the Agreement from the CEN Management Centre. These organizations were drawn from a number of economic sectors including academia, accreditation authorities, aerospace, automotive, material producers, material testing laboratories, national standards institutions and power generation.

The formal process followed by the Workshop in the development of this CEN Workshop Agreement has been endorsed by the National Members of CEN but neither the National Members of CEN nor the CEN Management Centre can be held accountable for the technical content of the CEN Workshop Agreement or possible conflict with standards or legislation.

This CEN Workshop Agreement can in no way be held as being an official standard developed by CEN and its members.

The final review/endorsement round for this CWA was started on 25 November 2004 and was successfully closed on 14 January 2005. The final text of this CWA was submitted to CEN for publication in March 2005.

This CEN Workshop Agreement is publicly available as a reference document from the National Members of CEN: AENOR, AFNOR, BSI, CSNI, CYS, DIN, DS, ELOT, EVS, IBN/BIN, IPQ, LST, LVS, MSA, MSZT, NEN, NSAI, NSF, ON, PKN, SEE, SFS, SIS, SIST, SNV, STRI, SUTN, UNI.

Comments or suggestions from the users of the CEN Workshop Agreement are welcome and should be addressed to the CEN Management Centre.

This is a free page sample. Access the full version online.

Significance and Use

Uncertainty is a parameter that characterises the interval about the measurement or test result within which the measurand can reasonably be assumed to lie. It quantifies the precision of the test result and it reflects the limitations of the test procedure, test system, and the level of controlling the parameters influencing the test.

Every new or revised European Standard must address measurement uncertainty[1]. Each standard should include a process for uncertainty evaluation and/or values of precision (i.e. repeatability and reproducibility).

Each Part of this Agreement can be used as a stand-alone document. It can also be used in conjunction with the relevant test standard subject to the decisions of technical committee responsible for the test standard on how it should be used.

Unless stated otherwise in the test standard, the procedures described in this Agreement are normally required to satisfy one or more of the following:

1 Specific customer demands. [In such cases the following should be agreed *prior* to performing the test programme: (i) the test or tests for which uncertainties are to be evaluated, (ii) permissible deviations, if any, from the procedures in this Agreement, and (iii) an estimate of any additional work and cost required for performing the uncertainty analyses and who pays this cost.]

2 Demonstrate the ability to perform the analyses to an accreditation authority

3 In cases of dispute concerning the precision of a test result

4 For the test laboratory to understand which aspects of the test procedure have the greatest effects on the results so that they may be improved or closely monitored

The analyses are not normally required for release tests if the uncertainties have already been taken account of in setting the specification values.

For a meaningful estimate of uncertainty, care should be taken in ensuring that, at least, all primary sources of uncertainty are included and their effects are properly quantified in the analyses. Care should also be taken in reporting and interpreting the results of the calculations.

[1] Resolution BT 21/2003 of CEN Technical Board, which is based on "Uncertainty of Measurement: Recommendations Report", CEN BT WG 122, June 2002.

SAI GLOBAL

This is a free preview. Purchase the entire publication at the link below:

Product Page

Looking for additional Standards? Visit Intertek Inform Infostore

Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation