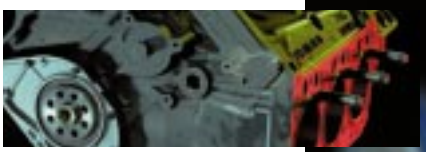
CEC

COORDINATING
EUROPEAN
COUNCIL



ISO17025 INTERPRETATION DOCUMENT FOR CEC TEST METHODS

Prepared by CEC European Accreditation Uniformity Project

COORDINATING
EUROPEAN COUNCIL
FOR THE DEVELOPMENT
OF PERFORMANCE TESTS
FOR TRANSPORTATION
FUELS, LUBRICANTS
AND OTHER FLUIDS

Contents

Information provided by EA

EA Advisory documents

EA Advisory Documents are third party publications identified by the committee in charge (mentioned below) as providing useful advice on matters relating to accreditation. These documents comprise publications that have been approved by third party organisations normally representing a broad stakeholder interest in accreditation and are not subjected to formal approval by EA. Since EA Advisory Documents are not subjected to formal approval by the EA General Assembly, they are subordinate to EA approved documents in any case where their contents are in conflict with EA approved documents.

EA Committee in charge

The version as of August 02, 2006 of this document has been approved by the EA Laboratory Committee at its meeting held in Paris, France on September 13, 2006.

Further information

For further information about this publication, you may contact the owner of the document:

Coordinating European Council CEC
Interlynk Administrative Services
P.O. Box 6475
Earl Shilton
Leics. LE9 9ZB
e-mail address: cecinfo@interlynk.co.uk

Introduction

The role of the Coodinating European Council (hereafter referred to as “CEC”) is to develop performance tests for transportation fuels, lubricants and other fluids.

The Management Board of the CEC acts on requests for test developments from industry groups, e.g. ACEA, ATIEL, ATC for lubricants tests, ACEA, CONCAWE, ATC for fuels tests. This is achieved through the implementation of working groups, the CEC Board is also responsible for monitoring, together with the secretariat, quality and safety standards for test methods.

Companies participating in CEC activities must aim to achieve quality management systems in accordance with the CEC Constitution Operating Guidelines, specifically Guideline 18.

Tests are conducted according to CEC Test Methods in many countries and given accreditation by many different organisations. To ensure the interpretation of key clauses within ISO17025 is maintained across both the laboratories and accrediting bodies this document has been prepared and published by CEC.

The document is recognised by the European co-operation for Accreditation (EA) and is included in their list of guidance documents which could be used during the assessment of laboratories seeking ISO17025 accreditation against CEC test methods.

Purchasing services and supplies *(ISO Clause 4.6)*

Reference materials e.g. fuels, oils and critical hardware are prescribed by the Test Method. Where these can only be obtained from a sole source provider nominated by the Coordinating European Council (CEC), it is not necessary for a laboratory to further evaluate these suppliers. Additionally laboratories are not permitted to perform any chemical analysis on reference fuels or lubricants over and above any analysis required by the Test Method. Laboratories must identify critical hardware and maintain records that provide evidence of identification of reference materials e.g. production batch number, delivery dates, etc.

Internal Auditors *(ISO clause 4.14.1)*

Auditors should have a technical background and be familiar with quality systems required by ISO 17025. They should posses the scientific skill and auditing skills necessary to understand and evaluate the process for compliance with Test Method and effectiveness of quality system implementation.

Personnel *(ISO clause 5.2.1)*

For engine/mechanical testing, relevant personnel may include:

- Engine builder
- Supervisor of the test laboratory's workshops
- Operator
- Calibration / instruments personnel
- Rater
- Components measurement personnel
- Photographer
- Data reduction / report personnel
- Engineer
- Laboratory technical management

Staff responsible for the evaluation of test parts should attend all of the appropriate rating workshops. Staff should understand English. No formal qualification is required, however, a mechanical background is desirable. Evidence of workshop participation shall be available to the auditors. The laboratory management shall assure itself of the satisfactory performance of the Raters at those workshops. This includes a review of the workshop data. In the case that a Rater is unable to attend the relevant workshop the Rater's competence must be verified by referee rating with a Rater, who has performed satisfactorily at the workshop. This should be performed at the same frequency as the rating workshops.

Test and calibration methods and method validation *(ISO clause 5.4)*

The status of industry standard methods can be established from the CEC website www.cectests.org

It is recognized that, when necessary, industry working groups can agree on immediate revision to a Test Method during a working group meeting. This agreement is recorded within the minutes of the meeting.

Laboratories must be able to demonstrate how this type of revision is recorded, documented, and implemented within the laboratories quality system.

The Customer must be clearly informed of any changes that might affect the test result, recently agreed within a CEC working group but not yet formally issued, or use of a previous procedure . This must also be recorded in the contract with the Customer and in the report provided at the conclusion of the test.

Validation of methods *(ISO clause 5.4.5.1)*

CEC test methods undergo a validation process through statistical analysis of data from round robin tests.

The laboratory does not need to provide any further evidence of validation of CEC test methods as long as the tests are conducted in full accordance with the objectives of the methods.

NOTE: The codification for CEC test methods is according to the following system:

i) the CEC initials.

ii) a letter indicating the field of application or the nature of the standard:

L indicates a Test Method for lubricants.
F indicates a Test Method for fuels.

iii) three digits indicating the chronological order of the procedure in one of the above fields of application;

iv) two figures indicating the year of approval by the Management Board.

For example CEC-L-093-04

Following CEC statistical analysis methods, test methods and test method updates, become valid on the publication date issued by the CEC Secretariat and therefore, the laboratory does not need to provide any further evidence of validation. A statement is issued with the test method which defines the precision of the test.

Estimation of uncertainty of measurement *(ISO Clause 5.4.6.2)*

The nature of engine/mechanical testing precludes rigorous, metrologically and statistically valid calculation of uncertainty of measurement for many tests, however, reasonable estimates of uncertainty of results for a particular test method can be generated by analysis of the results from reference tests. Where laboratories do not generate sufficient data from in-house reference tests then results from industry-wide reference test programmes such as CEC round robin tests or test monitoring programmes may be used.

Equipment *(ISO Clause 5.5)*

Clause 5.5.1

A test stand is composed of the supply systems (cooling, oil circuit, inlet, exhaust) and all measuring equipment used to run the test (brake, load cell, temperature and pressure measuring chains, fuel flow, smoke meter etc.) and is defined by its location.

Clause 5.5.2

All measuring equipment shall be confirmed at appropriate intervals established upon the basis of their stability, purpose and usage. Laboratories should hold documented evidence (normally historical calibration data) to substantiate their chosen interval. The intervals of calibration should not be lengthened unless the results of calibrations at preceding confirmations provide definite indication that such actions will not adversely affect confidence in the accuracy of the measurements made. The laboratory should carry out periodic reviews of their confirmation interval to confirm their suitability.

The maximum confirmation interval for test cell measuring equipment shall be 1 year, as long as the above conditions can be achieved.

The appropriate measurement systems for a particular test are detailed in section 4 and 5 of the CEC Test Method. This defines sensor locations, range and the measurement uncertainty for each measurement system. All elements in a system must be calibrated. This can be conducted by calibrating the system as a whole or each element separately. In either case the uncertainty of measurement must comply with section 4 of the CEC Test Method.

Clause 5.5.5 g)

Where a laboratory has a documented calibration schedule for its measuring equipment, this satisfies the requirement for a documented maintenance plan for that equipment.

Clause 5.5.10

When the CEC Test Method contains an Accreditation Questionnaire, the laboratory must use this document when setting up or modifying a test installation. This document must also be used as part of its internal audit procedure (4.14 Internal Audits). Evidence of these checks must be documented.

Clause 5.6.2.1.2

Where there is no recognised national or international standard for measuring equipment, section 5 of the CEC Test Method should be consulted.

Assuring the quality of test and calibration results *(ISO Clause 5.9)*

Clause 5.9.1 a)

The frequency of test stand referencing and reference materials used are defined in CEC Test Methods, Section 11.

A reference result can only apply to the test stand on which it was obtained.

Clause 5.9.1 b)

Following CEC Protocols, accredited laboratories are due to participate in round robin testing or test monitoring programmes as agreed by working groups.

CEC Test Method, Section 11 Acceptance Criteria, is used to assess reference and round robin results. In cases where acceptance criteria are not available engineering judgement is used to assess the acceptability of the reference test.

The laboratory must take necessary actions if the result is not acceptable (4.11.2 Cause Analysis).

References

- CEC Bye-Laws
- CEC Test Methods
- ISO/IEC 17025:**2005** General requirements for the competence of testing and calibration laboratories.

Acknowledgments

The CEC would like to acknowledge the following organisations for allowing their staff the time and effort to develop this document:

APL
BP
COFRAC
Esso
Euron
I.S.P.
Mobil
Shell
UKAS
BASF
Chevron Oronite
DASMIN - DAR
Ethyl
I.F.P
Lubrizol
Ricardo
Southwest Research Institute