

InformationPaper

Proficiency testing and the Cepi Comparative Testing Service

The benefits of proficiency testing

Proficiency testing can provide a reliable means of verifying the accuracy of tests performed by paper manufacturers, printers and converters laboratories.

Laboratory testing plays a vital role in quality control and allows the efficiency of production processes to be optimised. However, errors which occur during laboratory testing can have serious implications for manufacturing and subsequent material processing.

There are a number of reasons why laboratories may incorrectly report results, these include:

- Sample handling errors
- Inadequate staff training
- Incorrect testing procedures
- Faulty test apparatus
- Errors in calculations
- Reporting errors

Errors in laboratory testing can lead to manufacturing 'down time', waste product and reduced production efficiency. Errors in testing can also cause materials to be rejected by customers forcing products to be discounted or orders to be remade. Perhaps the greatest risk is the cost of product losses associated with failure due to out-of-specification materials. Suppliers associated with inconsistent or unreliable materials also risk the cancellation of repeat orders.

These problems are less likely to occur if the laboratory has a robust quality system in place. Essential elements of a laboratory's quality system include external assessments of the routine testing procedures using proficiency testing schemes.

Proficiency testing is an effective tool in helping laboratories to ensure that tests are correctly performed and reported. To be effective, proficiency testing schemes need to be well run and provide samples which are representative of actual test materials. Proficiency schemes provide the following benefits:

- Monitoring and improvement of measurements
- Benchmarking against other laboratories
- Improved process control
- Demonstrate competency to customers and accreditation bodies
- Staff development and training
- Evaluate methods and instrumentation calibration
- Establishes the effectiveness and comparability of test methods
- Validates tolerances and uncertainty claims

The need for on-going confidence in laboratory performance is not only essential for laboratories and their customers but also for other interested parties, such as regulators, laboratory accreditation bodies (for example ISO 17025) and other external auditors.

Proficiency testing scheme procedures

Proficiency testing provides an effective insight into the accuracy of routine test results, but only if samples are treated in the same way as routine tests. This means that each stage of proficiency testing, from receipt of samples to conditioning, preparation, testing and reporting are handled by

the same technicians who would normally perform the routine tests. If the proficiency samples are not treated in the same way as normal testing, then nothing will be learnt about the accuracy of the routine tests, even if the proficiency results are outstanding.

Proficiency testing is no substitute for the other elements of a laboratory quality system. It is not a substitute for proper staff training, instrument calibration and environmental conditioning. Proficiency testing allows a problem to be identified, but it does not solve the problem.

When used properly, proficiency testing helps laboratories to report reproducible results and demonstrates the effectiveness of their quality system whilst providing a reliable independent assessment of their accuracy.

Laboratory testing plays a crucial role in ensuring efficient paper production and processing. The role that proficiency testing can play in monitoring the accuracy of these tests should not be underestimated.

The Cepi Comparative Testing Service for paper manufacturers, printers and converters

The Comparative Testing Service of Cepi (Cepi-CTS) is a proficiency testing scheme for the Paper Industry that can provide an unbiased external assessment of your laboratory accuracy.

It comprises a round-robin programme of more than 100 different test methods to measure paper properties typically used for process control and material specification (strength, stiffness, structural, surface, chemical, printability, optical and other properties). It is used by more than 400 paper testing laboratories in most European countries. On average about 15000 samples are distributed every year.

It is one of the many activities supported by Cepi and it is run by a Working Group whose members are nominated by the national Paper Industry Associations.

Key features of the service:

- A fully independent service that runs continuously since 1976;
- The only proficiency testing scheme for paper test methods that provides samples with assigned reference values and their associated acceptable ranges of results (Warning Limits and Action Limits) so that the client can immediately assess its performance;
- Run by a Working Group that includes the most important European Paper Research Institutes;
- Results processed in accordance with ISO/IEC 17043 and ISO 13528;
- Clients comprise not only paper industries but also its customers and suppliers, with the aim to harmonise their testing procedures so that they can obtain comparable results;
- Deliverables include a final report that for each level of each property shows the statistical distribution of all clients and an annual Newsletter. Annual technical meeting and workshop are organized in combination with the WG Plenary Meeting and preferably close to another Paper Industry event.
- Supported by calibration, training and consultancy services.

Cepi-CTS testing explained

The Cepi-CTS is a quantitative, simultaneous and continuous proficiency testing scheme that aims at assessing the performance of a participating laboratory against pre-established criteria by means of inter-laboratory comparisons. These criteria are obtained by consensus values from expert participants. According to ISO/IEC 17043 and ISO 13528, this means that:

- the objective is to quantify one or more measurands for each proficiency test item (samples);
- samples are distributed for concurrent testing by participating laboratories within a defined time period;
- samples are provided at regular intervals: the Cepi-CTS runs in fact twice per year.

- the performance of the participating laboratories is assessed against assigned values (Cepi Assigned Value or Cepi A-Value) and their associated acceptable ranges of results (Warning Limits and Action Limits) as determined by a preliminary inter-laboratory comparison (the so-called pre-test round) of a network of Qualified Laboratories (QLs).

Confidentiality of results is assured through the use of anonymous laboratory identification.

The members of the WG that runs the Cepi-CTS have one or more roles: in addition to the QLs mentioned above, the Co-ordinating Laboratories (CLs) prepare the samples, run the pre-test round, collect results, perform all statistical analysis and issue all report; the national Distributing Laboratories (DLs) make the CEPI-CTS available in their countries.

The range of available tests includes those typically used for process control and material specification. The samples are available in a representative range of test levels for each assessed property. The test substrates have been selected to meet a range of industrial needs, consequently, unprinted papers and boards, as well as printed papers, corrugated boards, tissue products and labels are used as sample materials.

If you wish to find out more about the Cepi-CTS please consult one of the DLs listed below.

Cepi-CTS history

In the mid-Seventies a number of comparative testing services run by the foremost European paper research institutes were unified under the umbrella of what was then CEPAC, “Confédération Européenne de l’Industrie des pâtes, papiers et cartons” and its Working Group “Étalonnage”, thanks to the illuminated vision of such scientists as Mr Ramaz (CTP, France), Mr Lemm (BAM, Germany), Mr Fuit (TNO, The Netherlands), Mr Attwood (PATRA, GB) and Mr Luciani (ENCC, Italy).

The name of the Service was then CEPAC Calibration Check Service; its functioning was not much different from today: Co-ordinating, Authorised (today they are called Distributing) and Qualified Labs were the Working Group components.

Reports were almost the same, the real big difference was that samples were not identified with reference values and their Warning and Action Limits. Such important deliverables were introduced in 1992, at the same time that CEPAC merged with EPI to form CEPI (Confederation of European Paper Industries): Swiss and Scandinavian Institutes joined the WG: EMPA and KCL, STFI and PFI brought new impulse to the Service.

CEPI-CTS as we know it today is the result of the work done uninterruptedly during all these years by many dedicated scientists and technicians and it bears the fruit of continual innovations.

CEPI-CTS Chairman

Dr Fulvio Savagnone

tel: + 39 333 98 23 809

f.savagnone@libero.it

Distributing Laboratories

BELGIUM: CELABOR SCR

Zoning de Petit-Rechain

Avenue du Parc 38

B-4650 Chaineux

tel: +32 87 322 454

cepi@celabor.be

FINLAND: KCL
PO Box 70
FIN-02151 Espoo
tel: +358 50 5630 598
minna.lehto@kcl.fi

FRANCE: CTP
CS 90251
F-38044 Grenoble Cedex 9
tel: +33 4 76 15 40 37
sylvie.moreau-tabiche@webCTP.com

GERMANY: PTS
Pirnaer Strasse 37
D-01809 Heidenau
tel: +49 3529 55 16 99
cepi-cts@ptspaper.de

HUNGARY: US-PKI
Bajcsy-Zs. u. 4.
H-9400 Sopron
tel: +36 99 518-298
koczan.zsafia@uni-sopron.hu

ITALY: INNOVHUB
Via Giuseppe Colombo 83
I-20133 Milano
tel: +39 02 851 53 613
daniele.bussini@mi.camcom.it

SWEDEN: The Packaging Greenhouse AB
c/o Envall, Fiolgatan 2, lgh 1701
SE-421 41 Västra Frölunda
tel: +46 0732 412 077
cepi-cts@tpg.se

THE NETHERLANDS: Stichting TOPOS
Kweekgrasstraat 22
NL-1313 BX Almere
tel: +31 6 820 592 03
wdegroot@topos-ts.org

UNITED KINGDOM: Smithers
Olympus House, Cleeve Road, Leatherhead
UK - KT22 7SA
tel: +44 1372 802 138
gcollis@smithers.com