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In this Issue:



Foreword from the Chairman

CEPI-CTS hits its 40th year!

Implementing new tests

Precision data for ISO 8254-3, 20° Gloss

CEPI-CTS Statistics, ISO 5725, 13528 and 17043

Come meet us and share technical ideas!

Foreword

Welcome to the third issue of the CEPI-CTS Newsletter.

In 2016 the CEPI Comparative Testing Service will celebrate its 40th anniversary! Below you will find a short history of the world's best proficiency testing scheme.

In this issue we will also present how we choose and implement the new tests that are made available year after year, we will show an example of our collaboration with ISO/TC 6 and we will outline the (small) differences between the statistical tools we use and those suggested by ISO 5725, ISO 13528 and ISO 17043.

We greatly value your feed-back and suggestions to improve the Service: if you have questions, doubts or requests do not hesitate to contact your Distributing Laboratory or myself at the addresses listed on the left.

Fulvio Savagnone
CEPI-CTS Chairman

CEPI-CTS hits its 40th year!

It all started in the mid-Seventies, when 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 (WG) components and reports were almost the same. The real big difference was that samples were not identified with reference values and 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. Many happy returns!

Implementing new tests

We constantly aim to fulfil the needs of modern testing by introducing new properties. But how is this done?

The input comes either from members of the WG, or directly from Clients, for instance through the Customer Satisfaction Surveys.

After having assessed the relevance of the proposed new test and its feasibility in terms of sound test methods, availability of materials, economy of management, etc., the WG appoints a provisional Co-ordinating Lab (CL) who runs preliminary tests on selected batches of materials, subsequently proposing the number of levels and their indicative ranges.

Upon approval from the WG, the CL organises one or more rounds of experimental pre-tests within the circuit of Qualified Labs (QL), which are run just as the normal pre-tests with our severe statistical tools. If positive results are reached, in terms of good repeatability and reproducibility figures, only then the new test is made available to our Clients.

Currently experimental pre-tests are being run for Moisture content according to ISO 287, Surface strength using Dennison Waxes and Tissue softness using emtec TSA.

Precision data for ISO 8254-3, 20° Gloss

ISO 8254-3 “Paper and board – Measurement of specular gloss – Part 3: 20 degree gloss with a converging beam, TAPPI method” is currently under review. During ISO/TC6 meeting in April 2014 it has been decided that precision data should be updated and CEPI-CTS Executive Committee volunteered to organise these tests.

In March 2015, a round-robin test has been performed by 7 CEPI-CTS Qualified Laboratories on 3 photo papers according to ISO 8254-3. Repeatability and reproducibility have been calculated according to ISO/TR 24498.

Results are shown on the following tables:

Estimation of the repeatability

SAMPLE	Number of laboratories	Mean gloss, GU	Repeatability standard deviation s_r GU	Coefficient of variation CoV, r %	Repeatability limit r GU
level 1	7	19,0	0,85	4,5	2,4
level 2	7	32,9	2,35	7,1	6,5
level 3	7	79,0	1,10	1,4	3,0

Estimation of the reproducibility

SAMPLES	Number of laboratories	Mean gloss, GU	Reproducibility standard deviation s_R GU	Coefficient of variation CoV, R %	Reproducibility limit R GU
level 1	7	19,0	1,05	5,5	2,9
level 2	7	32,9	2,84	8,6	7,9
level 3	7	79,0	2,60	3,3	7,2

ISO will include our figures in the revised standard. Thanks to the liaison between CEPI-CTS and ISO/TC 6 our data are constantly made available: through this kind of collaboration the high level of our technical work will serve worldwide this and other ISO standards.

CEPI-CTS Statistics and ISO 5725, ISO 13528 and ISO 17043

All samples supplied through the CEPI Comparative Testing Service are provided with assigned reference values and action & warning limits which allow participating laboratories to assess their overall testing proficiency.

The reference values and associated limits are determined from a statistical analysis of pre-test results, generated by our Qualified Laboratories (QLs). The statistical analysis follows a defined procedure based on the trueness and precision experiment detailed in ISO 5725-2, which determines the CEPI-A-Mean (assigned reference value) and the CEPI-SD-Between (reproducibility standard deviation) for each test level.

The warning limits – which indicate the boundaries of satisfactory performance – are calculated as suggested in ISO 13528 and ISO 17043 as the CEPI-A-Mean \pm 2 times the SD-between. However, years of experience with testing paper based materials has lead the CEPI CTS to use action limits set at the A-Mean \pm 2.6 times the SD-between (compared to 3 times the SD-between as suggested in ISO 13528 and ISO 17043). The reason for the narrower action limits – used to identify unsatisfactory results – is due to the higher natural variance observed



within paper based material testing that can often cause high reproducibility standard deviations which in-turn lead to excessively wide limits.

Come meet us and share technical ideas!

Every year CEPI-CTS organises a Technical Meeting to discuss paper testing issues relevant to the Service and a Technical Workshop to have a hand-on experience on selected technical topics.

Both the Technical Meeting and the Workshop are open to public: they are therefore a unique occasion to discuss state-of-the-art technical matters with scientists and technicians from the most important European research institutes which manage a comparative testing system that has no equal in the world as regards scientific soundness, scope of availability of tests, efficiency, number of satisfied clients and last but not least, historical tradition.

In order to make your attendance even more fruitful, we will organise such meetings in correspondence with national or international fairs, conferences, etc., as for instance the MIAC fair in Lucca, ATIP congress in Grenoble, the Paper Physics Conference in Darmstadt or the Zellcheming Expo for chemistry/paper engineers in Frankfurt.

We will adequately publicise our next Technical Meeting and Workshop, don't miss this opportunity!

The next issue of the Newsletter will be out December 2016