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Foreword

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

In this issue we will introduce The Packaging Greenhouse AB, the new Swedish Distributing Laboratory, which takes over from the former one, Innventia-RISE.

We will show how we intend to tackle environmental issues by implementing tests relevant to this important matter. Then we will present the results of a study we conducted to explain significant differences found when testing ECT on pre-cut samples and samples cut by the testing lab, Qualified or Client.

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.

With this in mind, we kindly ask you to find a very little time to answer our **Customer Satisfaction Survey** that will be launched next year. We run the Survey every three or four years so as not to be too invasive...

Fulvio Savagnone
CEPI-CTS Chairman

The new Swedish Distributing Laboratory

As of 2018 the CEPI Comparative Testing Service will be available in Sweden and Norway through The Packaging Greenhouse AB (TPG), our new Distributing Laboratory (DL), which takes over this role from Innventia-RISE.

Your contact in TPG will be Anders Österberg, see the list on the left for further details.

The Packaging Greenhouse AB is a young and very active company mainly focused on consultancy, education and training. In such framework TPG is already running an interlaboratory scheme for packaging tests.

TPG is based in Karlstadt, which is an area notable for forest industries. It has a staff of 12 and an annual turnover of about 1M €.

Tests relevant to environmental issues, state of the art *(S. Moreau-Tabiche, W. de Groot)*

In its Plan of Action for 2017 CEPI-CTS decided to tackle environmental issues (deinkability, recyclability, etc.), where possible in connection with CEPI strategic goals, by implementing tests relevant to such topics. Deinkability and recyclability are specific and important properties of paper and boards, in particular after printing and finishing. There are currently no CEN or ISO standards dedicated to these matters, but a number of Working Groups are developing standards on several topics. Once standards will be published, they could be implemented within CEPI-CTS.

For example, ISO/TC6/WG14 is developing 2 standards: one on a deinkability test for printed paper products, led by Germany and based on method Ingede 11; and another one on a discolouration test for dye-inks coloured and printed paper products, led by France.

Under the scope of ISO/TC6/JWG12, experts from paper and the printing industries are cooperating to develop a management or declaration tool for the print media supply chain, intended to encourage efficient resource use. Furthermore, a method for the determination of humidity of Paper for Recycling is currently being introduced into ISO 638, which is under revision within ISO/TC6/WG13.

At European level, CEN/TC172/WG2 is developing test standards in order to apply EN 643 "Paper and board - European list of standard grades of paper and board for recycling": sampling of Paper for Recycling and composition of bales.

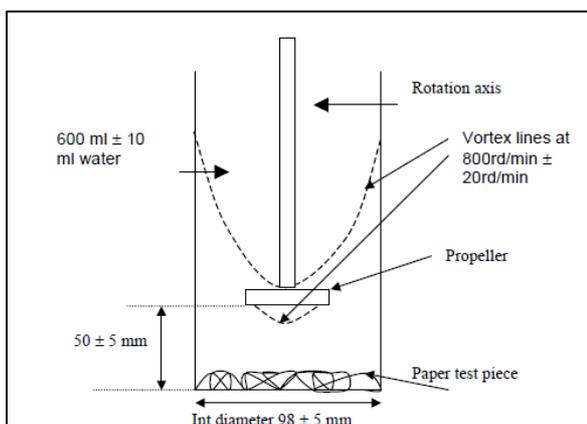
Other aspects of environmental issues, like migration and content of unwanted or forbidden materials are covered by a number of ISO TC6, ISO TC130 and CEN TC172 standards: e.g. under ISO/TC6/SC2/WG27 a new standard for disintegration of tissue paper is under development, see next paragraph.

Future test in the pipeline: disintegration of tissue products *(L. Leroy)*

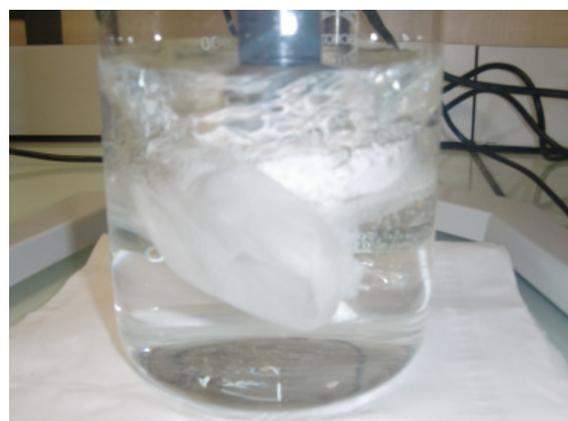
Disintegration of tissue products in water is an important characteristic for several applications, including the requirement of fast and total disintegration in water for so-called flushable products. Toilet paper is not the only product concerned but it is one of a wider range of products such as for example flushable hand-towels and flushable toilet paper cores.

ISO/TC6/SC2/WG27 is currently developing a test method to assess the disintegration time of tissue products when submitted to agitation in water. Based on the French standard NF Q34-020, the test relies on a simple laboratory equipment for the determination of the time necessary to achieve disintegration to a certain extend in terms of size of disintegrated pieces.

Preliminary inter-laboratory tests are currently being performed within the ISO Working Group to specify the sieve size and the rinsing procedure. By the end of 2018, the final draft of the standard should be issued and the test will be implemented in the CEPI-CTS.



Main dimensional characteristics for the test equipment



Sample submitted to the test

The importance of correct sample cutting when measuring ECT (*M. Fortier*)

Edge Crush Resistance (ECT) of corrugated board is determined according to ISO 3037:2013.

To obtain correct results many requirements have to be complied with. Among these, the sample cutting is of paramount importance. The standard requires the corrugated board specimen be properly cut: samples must be neatly cut, their sides straight, parallel and perpendicular to the cardboard surface; flutes must not be distorted, the cut edges must not be fluffy or contain visible loose fibers. A circular saw or a Billerud-type cutting device with single bevel blades is recommended; blades must be changed after 50 uses.

CEPI-CTS samples for ECT are offered both as pre-cut by Celabor, the CEPI-CTS Coordinating Laboratory (CL), to the dimensions prescribed by the standard (100 mm perpendicularly to the flutes by 25 mm parallel to the flutes) or as corrugated cardboard slabs to be cut by the testing laboratory.

Monitoring for some years the ECT results obtained by both the CEPI-CTS Qualified Laboratories (QL's) and the CTS clients has shown significant differences between measures made on pre-cut samples and lab-cut ones, see the tables below.

Qualified laboratories

Pre-cut samples results

Rounds	Material	Number QL's	Mean	S.D. (between)	Coefficient of variation
			kN/m	kN/m	%
2016-1	Pre-cut sample Level 1	11	7,98	0,292	3,7
	Pre-cut sample Level 2	12	10,5	0,370	3,5
2016-2	Pre-cut sample Level 1	12	7,83	0,346	4,4
	Pre-cut sample Level 2	12	10,2	0,400	3,9
2017-1	Pre-cut sample Level 1	13	7,95	0,342	4,3
	Pre-cut sample Level 2	13	10,2	0,410	4,0

Lab-cut samples results

Rounds	Material	Number QL's	Mean	S.D. (between)	Coefficient of variation
			kN/m	kN/m	%
2016-1	Lab-cut sample Level 1	12	7,11	0,537	7,6
	Lab-cut sample Level 2	11	9,57	0,662	6,9
2016-2	Lab-cut sample Level 1	11	7,19	0,649	9,0
	Lab-cut sample Level 2	12	9,52	0,782	8,2
2017-1	Lab-cut sample Level 1	10	7,3	0,389	5,3
	Lab-cut sample Level 2	12	9,64	0,648	6,7

Clients

Pre-cut samples results

Rounds	Material	Number clients	Mean	S.D. (between)	Coefficient of variation
			kN/m	kN/m	%
2016-1	Pre-cut sample Level 1	23	8,00	0,319	4,0
	Pre-cut sample Level 2	18	10,5	0,420	4,0
2016-2	Pre-cut sample Level 1	23	8,08	0,478	5,9
	Pre-cut sample Level 2	18	10,6	0,460	4,3
2017-1	Pre-cut sample Level 1	12	8,2	0,342	4,2
	Pre-cut sample Level 2	7	10,1	0,290	2,9

Lab-cut samples results

Rounds	Material	Number clients	Mean	S.D. (between)	Coefficient of variation
			kN/m	kN/m	%
2016-1	Lab-cut sample Level 1	38	7,67	0,777	10,1
	Lab-cut sample Level 2	31	10,14	0,966	9,5
2016-2	Lab-cut sample Level 1	36	7,98	0,779	9,8
	Lab-cut sample Level 2	29	10,29	0,911	8,9
2017-1	Lab-cut sample Level 1	29	7,89	0,677	8,6
	Lab-cut sample Level 2	24	10,24	0,834	8,1

In general, for both QL's and clients pre-cut results are higher and have smaller coefficient of variation than lab-cut results. The smaller CoV is to be expected, as pre-cut samples are prepared by the CL, which is ISO 17025 accredited. Lab-cut samples are obviously subjected to more sources of variation.

Then, we note that clients obtained results slightly higher than QL's, for both lab-cut and pre-cut samples.

Finally, important differences are noticed between clients and QL's when testing lab-cut samples. On the other hand, results can be considered as equivalent when pre-cut samples are tested.

In conclusion, the major contribution to the variation of the ECT results seems to be the quality of the cut. Other factors may affect the results, such as the humidity content of the corrugated cardboard at the relative humidity and temperature conditions at which the ECT are performed. The positioning of the test specimen between the press plates also plays an important role.

Come meet us and share technical ideas!

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

Both the Technical Meeting and the Workshop are open to the 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 with regards to scientific soundness, scope of availability of tests, efficiency, number of satisfied clients and last but not least, historical tradition.

To make your attendance even more fruitful, we will strive to organise such meetings in correspondence with national or international fairs, conferences and so on.

The 2017 CEPI-CTS Technical Meeting was for instance held in correspondence with the ATIP congress in Grenoble: hot issues such as environment and recycling were discussed and future implementation of new tests in the CEPI-CTS was presented.

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 2018