

Comparative tests performed at regular intervals are an important monitoring tool for a certified quality assurance system and for in-house purposes (e.g. in connection with good manufacturing practice (GMP)). They enable the quality supervisors and management to put the results obtained by the laboratory performing the tests in a wider framework and to communicate assurance and confidence in the test results and in the products tested. In particular, round robin tests with international participation are becoming increasingly important with the ongoing globalisation.

Textile laboratories in finishing and making-up plants, institutes, universities, dyestuff and auxiliaries manufacturers, machinery and apparatus manufacturers or department store chains test textile products with the instruments and equipment at their disposal. Whether these tests are carried out on intermediate or finished products is of secondary importance. Each testing laboratory can through its work therefore have direct or indirect influence on textile quality, especially to prevent damage claims and complaints. It

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is therefore important to ensure that the test results obtained are accurate and informative, in order to prevent incorrect conclusions.

In addition to the testing process as such, which is laid down in the test specification and standards, a whole series of factors which are hard to define and relatively difficult to grasp play a crucial role in the testing system as a whole, consisting of the material being tested, the test specification, testing equipment and



Further arguments for participating in round robin tests are :

- Supporting in-house quality assurance systems
- Building confidence in in-house results
- Obtaining external information for defining measurement uncertainty
- Creating a basis for accuracy
- Establishing where one stands, in-house and externally
- Building confidence in contacts with third parties (customers, suppliers)
- Systematic production control

The Swiss Textile Testing Institute TESTEX organises round robin tests for more than 25 years. At the moment, they offer you the possibility to participate in four different round robin tests, namely Garnrundtest

Round Robin Test

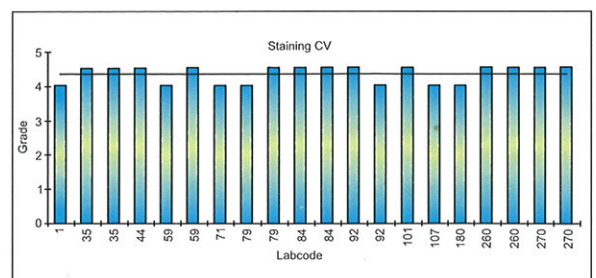
personnel. Making these factors comparable is a major objective of round robin tests. In this respect round robin tests help to bring to light systematic sources of error in the testing system and can give rise to necessary corrective action, e.g.

- Calibration/maintenance of testing equipment
- Training of the laboratory personnel
- Adjustment of influencing factors relevant to testing (e.g. climate).

If the objective of making test results from different testing laboratories comparable and thus of mutual recognition is achieved, substantial cost savings can be made, since the repetition of tests which have already been performed can usually be dispensed with. This can be of crucial importance for the economic success of internationally widespread industries such as the textile and clothing sectors. In this case regularly performed round robin tests create the necessary confidence in the information and accuracy of test results between the parties involved.

(yarn), Rundtest Colour Fastness and Rundtest Fabric Properties. Details about these round robin tests are provided.

The test results are recorded centrally, quoting a laboratory code number, and thus evaluated neutrally in a report. In addition to the statistical evaluation, the report also includes a graphic presentation to provide participants with a rapid review of where their own test results stand compared to the total of all results. Experience has shown that deviations of half a grade respectively with a deviation of $\pm 1.5s$ are usually within the tolerance range. Values with a bigger deviation are marked with an x. It is advisable for the relevant laboratories to check the whole testing procedure in detail to identify the cause



of the deviation. This shows how the evaluation of the round robin tests can be used as an internal quality control instrument.

At the end of the year, every laboratory receives a participation confirmation paper in form of a certificate. Participation forms for all round robin tests can be downloaded from www.testex.com

Garnruntest

Since 1983, Testex organises this round robin test. In 2010, over 70 members were registered for this round robin test. More than 65% of the participants are located in Europe whereas 26% are located in Asia. This test takes place two times a year, in March and September and the participation costs CHF 500 per year.

The following parameters can be tested :

- Yarn count
- Yarn twist
- Tenacity CRE 20 sec, CRE 500 mm/min, CRE 5000 mm/min
- Tenacity Uster Tensojet
- Lea-Test
- Evenness
- Optical evenness
- Yarn hairiness count
- Hairiness-Index
- Yarn friction

Testing material

yarn on cops or cones (mostly cotton).

Rundtest colour fastness

This round robin test was brought into being in 2000. Over 100 production laboratories, institutes, universities, and dyestuffs manufacturers from 34 nations worldwide take part. This test takes place three times a year, in February, June and October, and it costs CHF 690.

The following parameters can be tested :

- Fastness to washing, ISO 105-C06/C2S and ISO 105-C08
- Fastness to perspiration, ISO 105-E04
- Fastness to water, ISO 105-E01
- Fastness to rubbing, ISO 105-X12

- Fastness to dry cleaning, ISO 105-D01
- Fastness to light, ISO 105-B02
- Paper pattern for visual assessment and/or using a colour measurement system.

Testing material

6 samples of woven or knitted fabrics (already cut) or yarn

2 samples of paper pattern for assessment only.

Rundtest fabric properties

Over 70 participants from all over the world take part in this round robin test which was established in 2005. The majority (58%) of the participants are institutes or do R&D, 24% are factory labs or manufacturers and 13% of the



participants are governmental organisation or universities. This round robin test takes place once a year (in April) and it costs CHF 480.

The following parameters can be tested :

- Weight and construction of fabric
- Tensile properties - strip method, ISO 13934-1
- Tensile properties - Grab method, ISO 13934-2
- Tear force, Elmendorf method, ISO 13937-1
- Tear force, trouser-shape method, ISO 13937-2
- Tear force, wing-shape method, ISO 13937-3
- Bursting strength, ISO 13938-2
- Seam slippage strength, ISO 13936-1 und ISO 13936-2
- Abrasion resistance Martindale, ISO 12947-2
- Pilling propensity - Martindale, ISO 12945-2

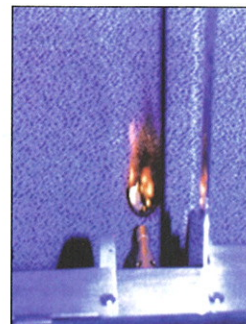
- Pilling propensity - Pilling box, ISO 12945-1
- Dimensional change at washing, ISO 5077/6330

Testing material

Fabrics (woven and knitted).

Rundtest function

Within the last few years, the knowledge and testing possibilities for physiological properties for textiles have increased distinctly. Also the measurable requirements of the material used for personal protective clothing, so called PPE, have increased. That inspired Testex to launch a new round robin test in 2010, called Function.



The 25 members that have participated for the first time are almost exclusively testing institutes. This round robin test takes place once a year (in August) and it costs CHF 350.

Tested are the following parameters :

- Resistance to water penetration, EN 20811 (ISO 811)
- Water-vapour resistance EN 31092 (ISO 11092)
- Thermal resistance EN 31092 (ISO 11092)
- Permeability to air ISO 9237
- Colour measurement background material EN 471:2003+A1
- Electrostatic properties : surface resistivity & charge decay, EN 1149-1 and EN 1149-3
- Burning behaviour - Measurement of flame spread ISO 6941

To ensure the most realistic scenario, a wide range of testing material qualities is necessary. Each material is chosen by its best applicability based on practical experience and usage on the market.

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