

Curiosity pays off

Joel Bialek – Elcometer USA, reports on a Midwestern company who's curiosity enabled them to match their competitors.

When a Midwestern powder coating company wanted to reduce costs and improve productivity they contacted Elcometer. Hearing that their competitor was using the Elcometer 550 uncured powder thickness gauge they decided to find out why.



Joel Bialek, of the industrial coatings inspection division at Elcometer paid them a visit. The Elcometer 550 is designed to save money on raw material costs, reduce waste, and eliminate rework.

Utilizing a novel non-contact measuring technique, the Elcometer 550 predicts the final cured thickness of an uncured coating powder. It can be used on the powder coating line immediately next to a spray booth. Hand held and fully portable, the Elcometer 550 is powered by an interchangeable, rechargeable battery and sealed against dust ingress. With the benefit of knowing the final cured thickness prior to the curing process, powder can be applied more accurately, saving both time and money.

Impressed with the results, the company ordered several Elcometer 550 uncured powder thickness gauges for its facilities.

Toy story

Markus Biess – Elcometer Germany reports on why Bernd Kugler, Technical Department, Schleich Toys, Germany came to Elcometer for help.

Schleich animal figurines are a true reflection of nature on a smaller scale. The Schleich philosophy as a manufacturer of toys is to carry a special responsibility towards parents and children, and aim to constantly live up to the image of developer and supplier of top quality products with an educational aspect.



The commitment to quality leads to constant testing of their toys and ensuring they are safe for children to play with. Bernd Kugler wanted the ability to test the adhesion of the paint on their

figurines, ensuring they complied to standards and that the coating performed as well as it looked.

After visiting us in our German office, he decided the best choice would be the Elcometer 107 Cross Hatch Cutter. This adhesion tester provides an instant assessment of the quality of the bond to the substrate. Due to its construction, it is ideal for thin, thick or tough coatings on flat or curved surfaces. The versatility of the Elcometer 107, meant it was the perfect tool for testing the whole range of toys manufactured by Schleich. Whether you choose sharks or Smurfs, crocodiles or cats, all Schleich toys meet the stringent quality checks with the help of the Elcometer 107 Cross Hatch Cutter.

Grease is the word

Ronald Mayer – Managing Director of Mc Clean Küchenabluftservice GmbH, discusses an unconventional use for Elcometer Wet Film Combs.

Wet film combs are normally used for measuring the wet film thickness of a coating and are especially useful for systems where the dry film thickness can only be measured destructively.

Ronald Mayer from Mc Clean in Germany has found an ingenious use for the combs. Since 1990, Mc Clean have specialised in the cleaning of large-scale air extraction and air conditioning systems in catering establishments. Grease, dirt and other suspended particles deposit themselves in the extraction and air conditioning systems leading to risk of fire, irreparable mechanical damage, smell nuisance and general uncleanliness. In catering, this is unavoidable, but the VDI2052 standard states that twice a year deposits must be controlled and if necessary cleaned.



Mc Clean staff use the Elcometer 112 wet film combs on their inspection visits to establishments such as Burger King, to quickly assess if cleaning is required.

Ronald Mayer said "The system works very well. The Elcometer 112 Wet Film Combs are so simple to use and provide an accurate and instant measurement. My staff can then advise our customers if their system needs cleaning. This prolongs the life of our customer's extraction and air conditioning systems and ensures they comply to health and safety legislation."

product of the month

The Elcometer 134 CSN Test Kit – Chlorides, Sulphates & Nitrates.

Structures located near the sea, or in countries where freezing conditions occur are prone to salt contamination issues. Sea air, or salty water from de-icing programs, can be absorbed by concrete. When the moisture evaporates, the salt remains in the concrete – potentially increasing the risk of corrosion of the steel rebar.

Designed to accurately measure surface chloride, sulphate and nitrate ions in minutes, the Elcometer 134 'CSN Salts' offers trouble free testing in the field. All components are pre-measured and pre-dosed for complete accuracy and all results are recorded in parts per million (ppm) so no complicated calculations are required.



If you would like further information on the Elcometer 134 CSN Test Kits, or any of our other products, please visit our website www.elcometer.com or contact BAMR – sales@bamr.co.za.

New long range probes and long lead probes for the Elcometer 456

Elcometer are pleased to announce the introduction of two new long range probes for the Elcometer 456 coating thickness gauges.

The N6 and F6 probes have expanded the already extensive range of probes for the Elcometer 456.

The N6 probe is designed to measure coatings up to a thickness of 30mm / 1.2" on non-ferrous substrates. The N6 can be used in conjunction with the following standards: ISO2360, BS EN ISO 2808 and DIN 1400-00.

The F6 probe is capable of measuring a coating thickness up to 25mm / 1" or up to 50mm / 2" on ferrous substrates. The F6 can be used in conjunction with the following standards: ISO 2178, BS EN ISO 2808, PR EN ISO 19840 and ASTM B499.



F6 Probe

Also newly available are the F1 Standard and F1 Right Angle probes with a choice of cable length. This now includes 5 meter and 15 meter cable options. These probes are designed for accurately measuring coatings on ferrous substrates.

The unique amine blush test

Epoxy coatings consist of two components, an epoxy resin and an epoxy curing agent that react with each other forming a hard, inert material. Many of the epoxy curing agents are amine based.

Amine blush occurs when the coating cures in a low ambient temperature or a high humidity. Amine blush produces a surface oiliness or a waxy layer on the surface of the coating, sometimes this layer is visible. However, many times, amine blush is present, but it cannot be seen. The contractor applying the epoxy coating has two options, they can either wash each surface between coats to ensure removal of potential amine blush, or risk a coating adhesion failure. When only painting small areas, this does not seem like such a problem, but when painting vast areas, such as ship's hulls or concrete floors, the time and cost of washing or a coating failure is immense.

The Elcometer 139 ABC Amine Blush Check kit provides a definitive result as to whether amine blush is present or not. This easy to use test kit involves 3 simple steps:



- Spray the ABC solution onto a test filter pad and apply to the surface.
- Check for colour change if amine is present.
- After test, flush with clean, fresh water.

The immediate result allows an instant decision whether to wash the surface before the next coat or if this is not necessary.

Each Elcometer 139 kit, suitable for 75+ tests, is supplied with ABC solution, test filter pads, protective gloves and sealable sample bags.

Updates for the Elcometer 1720 Washability Tester

The Elcometer 1720 Washability tester has been updated to align with new testing standards.

On the front panel, a new digital programmer for number of cycles and a new Total Cycle counter have been added. Also the former ASTM/DIN label has been replaced with ASTM/ISO label.



Elcometer 1720 Washability front panel

This is due to a recommendation from DIN Deutsches Institut für Normung to replace the DIN 53778 brush with the ISO 11998 Abrasive Pad.

The reason behind the recommended change is the DIN5377 brush is made from wild boar hair. Being a natural product, it does not offer a consistent abrasive surface.

In order to give a repeatable test with a DIN brush, it was necessary to mix heavy winter hairs with light summer hairs, which proves very difficult and costly to do. Facing this difficulty, DIN advised the replacement of this natural, and therefore variable product, with a manufactured product, the ISO 11998 Abrasive Pad (3M Scotch Brite). This will then produce the constant abrasion force necessary to meet strict specification criteria.



ISO 11998 Abrasive Pad

X-Rite® Master v7.5 out now

Significant enhancements and issues addressed in this latest release include:

- Added database name to the Control Panel.
- Added a "Recent Projects" list.
- Resolved an issue in saving to the Archive Directory when deleting samples across multiple standards.
- Modified Custom Reports to show DIN 6175-2 values.
- Corrected an error in the Custom Formula feature, previously it was reporting 99.99.
- Adjusted Projects so when uploading the Tags are aligned properly.
- Resolved error with manual correction within the Formula Correction screen.
- Web Edition 7.5 includes:
 - Corrected an error that occurred when transferring data containing Trials in MIF format.
 - Corrected an error that occurred when transferring data in XTF format.
- Modified the "Assign Report Buttons" feature so that a normal user can assign reports properly.

Stand alone and web edition customers using v7.0 or higher can download v7.5 from www.xrite.com. All registered Colour Master users will be informed by e-mail. Customers running current versions of Colour Master will be able to download v7.5 free of charge, those using older versions will receive an upgrade price.

Hurricane Katrina is causing long term problems

Hurricane Katrina brought devastation to New Orleans and the surrounding areas, with a death toll of over 1200 people and thousands more trying to piece back together their lives. Many structures have suffered too.



Numerous areas were seriously affected by the salt water flooding. When the water dries off, huge amounts of salt will promote corrosion. Obvious structures such as bridges will be cleaned. Concrete structures will also have been affected. Large amounts of salts will promote corrosion of the rebars, which may cause widespread structural problems.

All too often in such devastation, once the destroyed and damaged buildings have been repaired, those that appear to have been unaffected may also need attention.

Concrete floors – measure moisture with accuracy

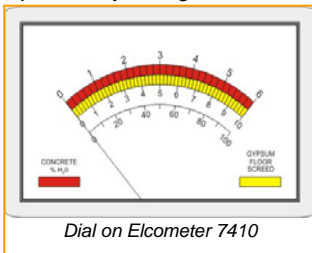
Excessive moisture in, or permeating from, concrete after the application of a coating or covering, can cause failures. These include condensation, blistering, delamination, movement and general deterioration.

It is therefore highly important that prior to applying a coating or a sheet material, that the concrete surface is checked regularly to monitor the moisture content of the concrete.



Blistered floor coating

The new Elcometer 7410 Concrete Moisture Meter is an accurate and easy to use non-destructive gauge. Specifically designed and calibrated for use on concrete, there are no complicated conversion calculations or confusion over which scale to read, making your job quicker and easier. Simply switch on the gauge, press against the surface and take a reading from the dial.



Dial on Elcometer 7410

The dial is graduated from 0% to 6% for concrete moisture readings. The bottom scales are used to obtain comparative or qualitative moisture readings for gypsum and other floor screeds.

Measuring to a depth of 125mm / 5", the Elcometer 7410 Concrete Moisture Meter enables you to accurately see if the concrete has acceptable moisture levels to apply a coating or a floor covering.

contributions, comments or questions?
e-mail us: editor@elcometer.com

PDF for long life

The Portable Document Format (PDF) has become established as a way of storing and sharing information electronically. A new ISO standard will ensure that PDF files remain accessible for a long time into the future.

PDF is a digital format for representing documents and has a significant amount of compression (storing less empty space). It has become the standard for exchange and storage of data around the world. Such files can be created directly or from other formats including paper and microfiche. The content and appearance can be retrieved and rendered with a predictable result, independent of tools, systems or language.



To ensure such files remain usable across multiple generations of technology, there is now a new standard: ISO 19005, Document management – Electronic document file format for long-term preservation – Part 1.4 (PDF/A-1).

Archives and libraries around the world will now have a standard format they can share. In the world of commerce, the PDF is particularly valuable in displaying product information reliably; something that even the same word-processor cannot always do. This is why Elcometer uses PDF files in its webpages, ensuring customers can access relevant information easily and accurately.

Water-blast cleaning

A number of paint companies have worked towards establishing a visual standard for surfaces cleaned with a high-pressure water jet. This good work is now being combined into an international standard.



Look out for the emergence of this new standard:

'prEN ISO/FDIS 8501-4 Preparation of steel substrates before application of paints etc. – Visual assessment of surface cleanliness – Part 4. Initial surface conditions, preparation grades and flash rust grades re high-pressure water jetting.'

World Standards Day

Celebrated on 14th October, World Standards Day recognises the importance of standards in increasing efficiency, reducing barriers to trade, improving safety and providing consistent quality.

Each year has a theme and this year's theme was 'Standards for a Safer World', emphasising the role that standardisation has in contributing to a more secure world. From food safety to anti-locking brakes to fire protection systems, standards help make work, home and transport safer for everyone.

World Standards Day is also used to recognise the collaborative efforts of the experts worldwide that develop the voluntary best-practice documents published as Standards.

Viscosity - part 3

In the final part of the viscosity feature, we consider some applications.

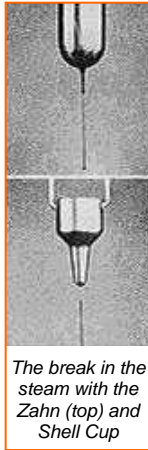
The simplest use of a viscosity gauge is to compare liquids that should be consistent. An example was given in a previous edition of [elconews](#) e-zine of syrup for soft drinks. This will generally be the same each time it is tested unless something has changed. A dip cup such as the Elcometer 2210 Zahn Cup No.2 and a stopwatch can determine how long it takes the syrup to drain from the cup. Specifically, how long it takes before the stream breaks for the first time.

The choice of cup size depends on the kinematic viscosity of the liquid. A good choice is when the time to drain it is about half a minute. For example, if a No.2 Cup takes too long, change to a No.3 Cup.

CONTROL OF INK

Various factors affect the 'dot size' of printing, one of which is viscosity of the ink. If the dot is too big, the viscosity is too high and should be reduced by adding some solvent. If it is too low, some clear matt ink can be added to thicken it. A test of the final mix with a dip cup is a reference when more ink with such viscosity is needed.

For inks, the Zahn Cup is not sensitive enough; the Elcometer 2310 Shell Cup is about 5 times better. The break in the stream is more obvious because of its long snout and recessed hole (see picture).



The break in the stream with the Zahn (top) and Shell Cup

GLUE

In the packaging business, adhesive is often applied continuously in a similar way to printing. The viscosity can be monitored with a cup, but in this case, the problem is with glue clinging to the sides and the stream refusing to break. This is overcome with the Elcometer 2215 Lory Cup, which has a needle inside. The time for the level to drop until the needle is exposed is measured instead.

CONSISTENCY OF PAINT

Although a batch of paint will be more or less uniform, there may be variations from batch to batch. Adjustment made before canning will protect the user from this. When the paint is brushed on and levels out, it will spread over the surface consistently from tin to tin. A test under standard conditions will confirm the viscosity and so the consistency. The Elcometer 2200 Digital Viscometer measures the viscosity of a small tin of the paint in centipoises (cP, mPa.s) or its consistency in the logarithmic Krebs Units. Many specifications quote the required viscosity in Krebs Units (KU).



Elcometer 2200 Digital Viscometer

VISCOSITY OVER A RANGE OF TEMPERATURES

Although viscosity normally decreases with temperature, many modern paints are formulated to retain theirs over a broad range of temperatures. This is confirmed in the laboratory by measuring at various temperatures with a Cone and Plate Viscometer. In particular, the Elcometer 2205/6 has a heated plate whose temperature can be set accurately from 10 to 75°C and kept constant during the measurement. This viscometer provides a high rate of shear, so is suitable for testing sprayable paints as well as brushable ones.



Elcometer 2205 Cone and Plate Viscometer

LOW VISCOSITY PAINTS

Paint products that exhibit low viscosity, such as varnishes and lacquers, are tested with efflux cups. The liquid under test flows through an orifice at the bottom of the cup under gravity and at a specified temperature. The Ford Motor Co. developed such a cup (Elcometer 2350) to measure automotive coatings. The cup is held in a special stand and filled completely. After any bubbles have risen to the surface, the paint is allowed to flow out freely and the time is measured in seconds. There were four variants of the cup before the present International Standard (ISO 2431) cup, so it is important to select the right one. For shop-floor use, the Frikmar version (Elcometer 2434) of these cups has a handle on the side.



Elcometer 2434 Frikmar Viscosity Cup

CALIBRATION

Viscosity cups and instruments must be cleaned after every test. This means their surfaces and orifices eventually become scratched, affecting the results. So, from time to time a test must be performed using an oil of known viscosity. Certified calibration oils are available, graded in kinematic viscosity at 100°F though their values at other temperatures are also provided on the calibration certificate.

Remember, kinematic viscosity is when the liquid is sheared by gravity. Although its value might be recalculated from centipoises (cP) to centistokes (cSt), the same oil cannot be used for testing rotational viscometers. Under higher rates of shear, oils behave differently, so one specifically for this use must be obtained.

If you have any questions about viscosity testing, please contact us.

Next month in elconews e-zine our product group focus will be concentrating on the subject of colour.