

An Introduction to Washability & Abrasion Testing With the Elcometer 1720

After using a product for a certain amount of time; it can naturally fade, peel, lose colour or even wear out. This is common for everyday materials from the soles of the shoes that you wear to the cover of your favourite drinks bottle and even to the cover of your favourite book.

In fact; almost everything around you will go through a durability cycle, some may be longer, whereas others may be shorter.

The ability to resist wear is a crucial requirement for many manufacturers, in order to guarantee a long lifespan and good quality for their product.

For example, you wouldn't want the pattern on your cup to fade after just a few washes, or the logo on your drinks can to rub off during transit.

This ability to resist wear is typically split into two categories: abrasion resistance and washability resistance. Abrasion resistance is a product's ability to resist wear caused by a defined material rubbing its surface. Whereas washability resistance is a product's ability to resist wear caused by being washing - using either a wet or dry scrubbing action.

To ensure a product will withstand its desired lifespan, abrasion and washability tests are often carried out on either the product itself, or a sample of the material, or a coating used on the product. Such tests will provide a valuable insight into the performance of the product, ensuring it's able to resist the predominant friction forces that it will be subjected to in its lifetime.

Now, let's use a cup for an example; we want to make sure that its coating can withstand being washed using a sponge and washing up liquid. Now we could test this ourselves by washing the cup, in the sink and inspecting it's coating afterwards.

But it's not enough to test the coating after a single wash – what's the cup going to look like after it's been washed and used for two years... or even longer? Wouldn't it be great if we could compress the lifespan of a product into a much shorter duration within a controlled and monitored environment, in a manner that's consistent, repeatable and reproducible, and not possible by hand?

This is where the Elcometer 1720 Abrasion and Washability Tester comes in.

Robust, reliable and extremely versatile – the Elcometer 1720 Abrasion and Washability Tester has been expertly engineered for testing the washability, brushability and resistance of almost any material, using a wide range of tools and customisable cycles.

Made from anodised aluminium, its durable and robust design allows for complete stability when testing, ensuring total consistency and reproducibility, even at the fastest of stroke speeds.

Available with either two or four lanes, allowing you to test the multiple, flat or curved samples up to 13mm (0.51") thick simultaneously, each station is separated by a water-tight gasket frame enabling wet and dry testing to be carried out at the same time. Making the Elcometer 1720 ideal for testing a coating's or material's resistance to water, when combined at the cleaning agents.

Completely user adaptable to suit each unique application – quickly and easily adjust the speed of the cycle, length of each stroke and the number of cycles per test using the multilingual digital display and large, easy to use buttons.

Speed cycles can be adjusted from 10 all the way up to 65 cycles per minute or, with a simple press of this button, in the top left corner, it will set to the ISO Standard of 37 cycles per minute; the stroke length can be as high as 300mm, or as low as 10mm - allowing for you to test smaller samples even faster; the cycle counter can also be set to a defined number, ranging from 1 all the way up to 32,760, meaning that longer tests, perhaps overnight, can be conducted and compared.

Working with Standards has never been easier - the Elcometer 1720 Abrasion and Washability Tester has the ability to carry out tests according to over 40 different standards from international standards bodies, these include, but are not limited to, ASTM, DIN, EN and ISO.

The standards you work towards are typically defined by the tool of choice. Perhaps you want to test the resistance of an items label while its shipping, as friction is a vital variable to take into account. The most suitable tool for this application would be the universal tool which allows you to attach the material of your choice. Maybe you would like to test the resistance of paint from being rubbed off a wall. For this, you would want to use the ASTM Standard Sponge tool.

Our wide range of Abrasive tools have the ability to conduct tests on a plethora, of flat or curved samples, while abiding to tried and tested standards.

So, how does it work?

The securing tray is removed. Then, using the provided tools, you can adjust the stroke length to your desired length. The tray is then placed back onto the tester, and the material being tested is secured. The carriage is pulled down, and the speed is inputted.

The selected tool or tools are placed into the carriage. For wet tests, simply add your desired liquid, or detergent into the container. Ensure the liquid intake tube is pushed to the bottom of the container, then attach the other end of the intake tube to the blue connector, at the side of the tester. Attach drain pipes to the remaining connectors, also on the side of the tester, placing the other ends into a container, suitable for liquid waste. Then purge the air from the liquid delivery pipes, using the provided screwdriver, waiting till there are no more air bubbles left in the pipes.

Adjust the liquid flow rate by opening and adjusting all of the flow control valves, working from back to front, until the required drip rate is achieved. Finally, the start button is pressed. Once the cycle is completed, the material being tested is removed and inspected for abrasion.

Results are typically categorised as a pass or a fail, by checking at regular intervals, specified number of strokes before the material fails is recorded.

Results can be determined visually by checking for signs of abrasion such as scratch marks or faded coatings but properties such as weight, gloss and coating thickness can also be measured for more quantitative, comparable results.

So, whether you're worried about the logo on your labels rubbing off, on the assembly line or during transit, or the non-stick coatings on your frying pans wearing prematurely. The Elcometer 1720 Abrasion and Washability Tester can test it all with its wide range of tools, and easy to customise options.

To find out more about the Elcometer 1720 Abrasion and Washability Tester, simply visit elcometer.com, or click on one of the links on-screen to watch another video in the abrasion and washability series.

And please, do not forget to subscribe to the Elcometer Channel, to be notified of any new videos.