

## Technical Bulletin July

### When is the best time to carry out de-masking after coating?

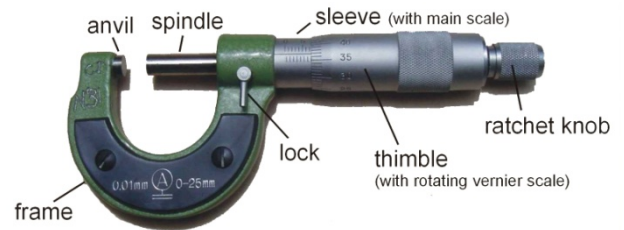
There is an optimum time after coating where the coating is firm enough to handle but soft enough to tear easily when removing the masking products. We have found in our coating service that after approx 2 hours and no longer than overnight is fine. However, this timescale can decrease if the coating is thick, since it is more prone to tearing.

### How do I repair a tear in the coating when I remove the masking material from the PCB?

When removing the masking material like tape or liquid latex, the coating can lift off the PCB. This is due to a combination of factors including length of time after coating, thickness of the coating and the adhesion between the coating and the PCB.

If the coating does lift, then it can generally be easily repaired by touching it back down with a brush and then re-coating with a thinned version of the coating (perhaps 10% extra thinners) or actual thinners so the coating re-melts and adheres to the surface.

If you don't touch it back down you are possibly exposing the PCB to water ingress via the un-adhered coating so it certainly is worth considering!



### How do I measure the coating thickness on a PCB?

The cheapest method is using a calibrated micrometer screw gauge that can measure down to +/- 10µm. First measure a point on the board or test coupon, apply the coating, cure and measure the test coupon again at the same point. The difference gives you the coating thickness.

A couple of pitfalls to avoid are ensuring the coating is cured hard enough since if it is soft it could compact and give a false reading. Also, do not measure one point. Take an average of at least 3 or 4 points since this will give a better result statistically.

Test coupons are the ideal method for measuring the coating thickness, whether is it spraying or dipping, and can be kept as a physical record of the performance.

The more expensive but arguably more reliable and definitely easier method is the use of an electronic thickness gauge. These gauges use the magnetic and eddy current principles in order to measure the thickness of any coating on a ferrous or non-ferrous metal.

SCH Technologies use and can supply the Positector 6000 pictured below. This thickness gauge is quick and accurate and has a whole host of useful features such as no-calibration start-up, solvent resistance (ideal for being around conformal coatings) and complies with all the relevant standards to ensure that the results it produces are up to scratch.

The only downside of this piece of equipment is its need for a metallic substrate for testing. This means that if there are no metal test points on the boards you are processing then you will need to incorporate some test coupons into the process to get a reliable result. However, it measures to +/- 1µm so it is much more accurate.



## How can I get a repeatable Thickness?

Measuring your coating thickness is one thing, making it a reliable and repeatable thickness is something else all together.

There are three main ways of coating where a repeatable thickness can be obtained, however a fair degree of training and skill is needed to achieve this.

Firstly and most easily are the selective coating robots. By their very nature they do exactly the same thing every single time and as a result you get virtually the same results every time (as long as your coating thickness stays the same and the robot is well maintained). The striping problem remains however which means where the stripes overlap there will be a thicker coat so measure with care!

Secondly is the dipping method. With a dip machine such as SCH Technologies DS101 a very accurate and repeatable thickness can be achieved. This is because every stage of the process is perfectly controlled from dipping and dwell times to withdrawal speed. Obviously masking is very important when dipping and SCH can provide the training to get your operators up to speed.

Finally we have hand spraying. With a good quality spray gun, booth and skilled operator a very reliable thickness can be achieved. Also with hand spraying (unlike robotic spraying) you get an attractive, uniform finish which many customers find desirable. If your operators can't achieve these standards give us a call and we can arrange training with them and maximise your quality.