WET FILM THICKNESS FOR WATER BASED VARNISH: IMPROVING FILM FINISH QUALITY AND PERFORMANCE

There are several factors that influence the quality and performance of water-based vanishes, including: Surface preparation... Finishing products... Application equipment: Brush, roller, spray Environment (temperature & relative humidity Wet film thickness. 30 microns. Temperature. 20C is the ideal application temperature Humidity. 50% Knowledge and technique. An important part of knowledge and technique is knowing and applying the optimal thickness of finish to each coat, and the total thickness of all coats combined.

What Exactly is Wet Film Thickness? Simply stated, it's the thickness of a coating, measured right after application and prior to any drying taking place.

Why is Film Thickness Important? Polyvine design their products to meet specific objectives, and because each product has its own variety and percentages of materials in its mixture (as well as how they are brought together) each behaves and performs in a unique way. Consequently, each product will have its own application guidance, which includes the specified thickness for each coat. They will also specify the total thickness to meet their performance targets for that finish. Depending on the type of resin and chemistry used in the formula, Polyvine specify a wet film thickness of 30 microns. Finishes flow out best at a specific thickness. A coat that is too thin won't level out properly and will have a rough texture to it.

Conversely, if it's too thick, it won't dry correctly, will entrap air bubbles, and it may run. In the case of water-based wood coatings, it may exhibit a blueish or whiteish haze. For these reasons, it is important that the optimal level of thickness is applied for each coat, over the entire area.

Measuring Wet Film Thickness

To measure wet film thickness, you can use a wet film gage, or "comb" as it's often referred to. Find the edge of the gauge with the range you're measuring (1-6 mils for most wood finishes). Right after applying a coat of varnish, place that edge of your gauge perpendicular to and touching the substrate. This can be done either on a test panel, or in an inconspicuous area of your piece. Hold it in position and wait a few seconds until the teeth are wet. Then, remove the gauge from the film and look at the teeth. The wet film thickness lies between the largest value that is "coated" (wet) and the smallest value that is "uncoated" (dry).
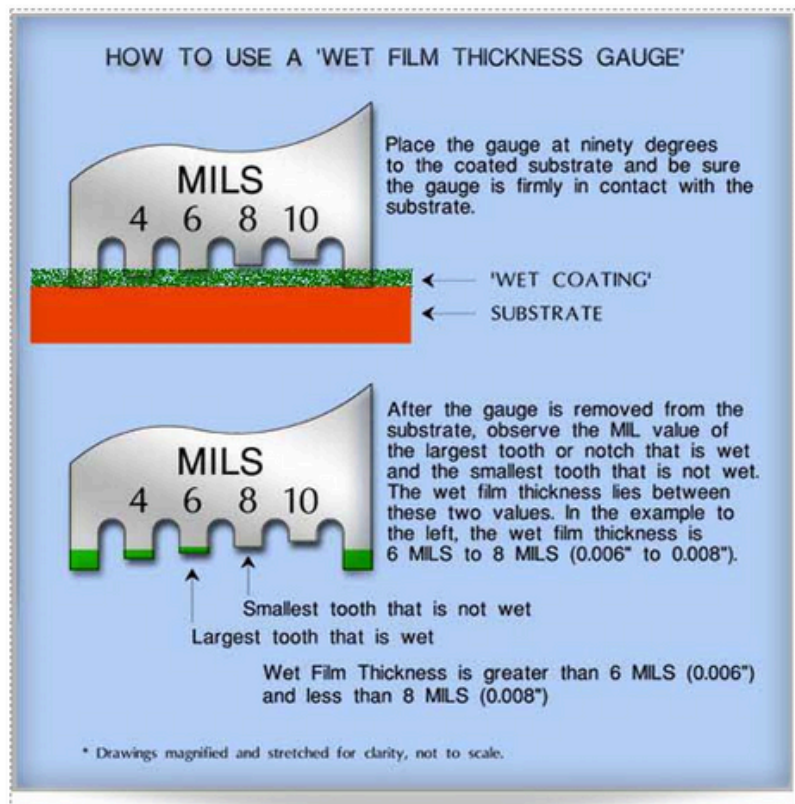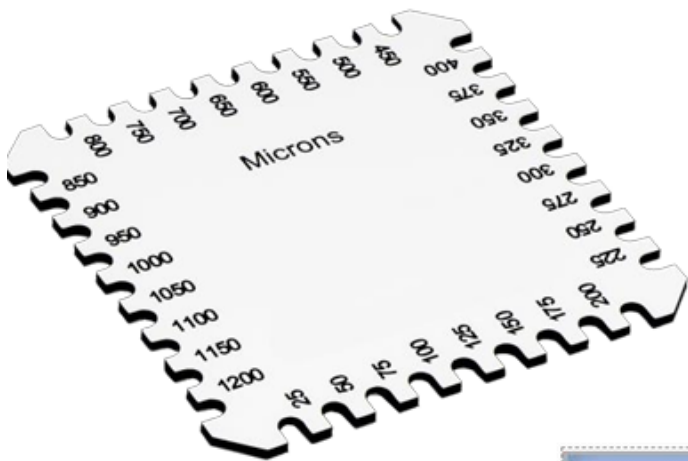
A wet film thickness gauge, or "comb," after touching freshly applied green paint. The arrow points to the estimated wet film thickness, which is the point between the largest coated value and the smallest uncoated value. When measuring clear finishes: it can be difficult to see any difference between wet and dry teeth, so, after touching the gauge to your work or test panel, scrape the gauge an inch or two along the surface and see which notches make a trough in the finish. You can remove the gauge marks by lightly brushing a second, thin wet coat over the gauge test marks, melting the coats together. To maintain its accuracy, be sure to clean off your gauge with the appropriate solvent (use tap water for water-based products) as soon as you are finished taking a reading. Comb-type flatness gauges of the sort shown are only accurate when the part of the substrate is very flat and when the gauge itself is kept clean.

by Peter Wells, Polyvine Technical Director.