

DRY FILM THICKNESS WHY IS IT IMPORTANT

There are usually two numbers on manufacturers Product Information Sheet that most often referred to. They are the % Solids by Weight, and the % SOLIDS by VOLUME. The % Solids by Weight is a number that really is only used when mixing the formula; however it is usually higher than the Solids by Volume number so a lot of sales types will quote it to make their product more impressive...

The number that really has any meaning to you, the finisher, is the % SOLIDS by VOLUME. This is the number that can tell us how much finish is left on the wood **after** the solvent evaporates. This is called the Dry Film Thickness. It is recommended that when you add up the thicknesses of all of the coats of finish on a piece that you achieve a total Dry Mil Thickness of 3-4 Mils. It is recommended that you do not exceed 5 Dry Mils. You will notice that when you calculate the Dry Mils for Pigmented Systems that the System Total is often greater than 5 Mils. This is because of the primers in these systems. They need to be sanded back rather aggressively, so the total system thickness will be less than 5 Dry Mils.

Greater than 5 Dry Mills and a finish can become brittle, wrinkle, spider web and cause all kinds of other problems.

It is usually recommended that when applying your finish, you apply 4-5 Mils of Wet finish onto the wood. You should use your wet mil gauge to check on how much you are putting down. Based on a 5 Mil wet coat of finish there are a number of charts that I have included to help you calculate your Dry Film Thickness and number of coats needed.

How to Use the Wet Film Thickness Gauge

The Wet Film Thickness Gauge is an aluminum instrument for measuring the thickness of sprayed coating while it is still wet. The gauge has been inset with a number of protrusions (similar to teeth.) Printed above each protrusion, or tooth, is a number, which represents the distance (in mils) from the bottom edge of the gauge to the tip of the protrusion.

To Test Wet Film Thickness:

- 1. Place the gauge vertically onto a freshly coated piece of work.
- 2. Firmly press the gauge into the wet film
- 3. Withdraw and note the highest tooth on the gauge with coating on it, and note the next highest tooth with no coating on it.



- 4. The Wet Film Thickness lies between these two numbers. (For example, if a tooth marked 3 mils is covered with coating and the tooth marked 4 is not covered, the true Wet Film Thickness is reported as 3 - 4 mils.)
- 5. Clean the gauge with any suitable solvent immediately after use.

Alternative Ways to Test Wet Film Thickness

You can generally see residue of pigmented coatings on the end of the gauge's teeth. For clear coatings, however, it might be necessary to:

- 1. Place the freshly used gauge vertically onto a piece of paper and remove.
- 2. Inspect the paper for signs of coating residue on the teeth. The coating residue will appear on the paper as a series of short lines (as below).

(Gauge End)

(Gauge End)

The longer lines on the ends represent coating residue from the ends of the gauge, while the shorter lines in the middle are the lines from which the Wet Film Thickness is measured.

- 3. Hold the cleaned gauge next to the paper and compare the marks on the paper with the numbered protrusions on the gauge.
- 4. Note the mark on the paper which corresponds to the tooth on the gauge with the highest value, then note the next higher numbered protrusion on the gauge.
- 5. Report the Wet Film Thickness as a range between these two numbers.
- As an alternative to reading the gauge this way, you can also:

(Protrusions)

- 1. Drag the gauge across the coated surface, similar to the stroking of a paintbrush.
- Note the value of the highest protrusion that leaves a mark, and the next highest protrusion that does not leave a mark.
- 3. Report the Wet Film Thickness as a range between these two numbers.

