

WHY VISCOSITY TESTING

With so many things affected by reduction and since we have no control over the weather, if you can keep the viscosity of your material consistent, it will always spray well. Every spray gun and every material has its own particular viscosity requirement, so a reading that worked well for one gun might not work well for another.

Start by spraying some finish and adding reducer, if necessary, until it sprays and lays down the way you want it to. Measure the viscosity. From now on "tune" your finish with reducer to get the same reading and it will spray out of that gun the same way every time, regardless of the temperature.

How to Use the Ford #4 Viscometer

When using a spray gun or any automated application equipment to apply coating, manufacturers generally specify viscosity requirements for their equipment. The Ford #4 Viscometer is an easy and accurate instrument for determining whether the M.L. Campbell product you are using falls within those requirements. To determine the viscosity of a product, you will need the following materials:

1. Ford # 4 Dip Viscometer
2. Stopwatch
3. A thermometer (Note: A product's viscosity changes as temperature changes. Typically, heat lowers viscosity and cold raises it. The M.L. Campbell lab tests all products @ 77°F / 25°C. If you are testing viscosity in the field, it's best to test the product at a temperature as close to this standard as possible, which is why it's advisable to have a thermometer available.)
4. A container large enough to accommodate the Ford #4 Dip Viscometer. In most cases, the container in which the product was purchased is acceptable. (A Campy Cup also works well.)
5. At least four inches of product in the container.



To Test Viscosity:

1. Be sure you have an adequate amount of material in a large enough container (as described above).
2. Check and adjust the temperature of the material to be tested (should be approx. 77°F / 25°C).
3. Submerge the Ford #4 Dip Viscometer in the material to be tested.
4. Have the stopwatch ready.
5. Quickly and smoothly, raise the Ford #4 Viscometer out of the material. As the cup breaks the surface of the material, start the stopwatch.
6. Observe the stream of material flowing from the bottom of the cup. If the stream runs irregularly or stops before the cup is empty, the material might require filtering and re-testing.
7. If the stream of material flowing from the bottom of the cup flows smoothly, continue to observe. At the moment when material stops flowing from the bottom of the viscosity cup, hit the stop button on the stopwatch.
8. The number of seconds required for all of the material to flow out of the Ford # 4 Viscometer is reported as the Ford #4 viscosity. (Example result: 35 seconds Ford #4 or 35 seconds F4.)



CALCULATING DRY FILM THICKNESS

$$\text{Dry Film Thickness} = \text{Wet Mills} \times \text{Solids by Volume}$$

This formula helps us determine how many coats we will need to get a total finish film that is the recommended 3-5 dry mils thick.

The chart is based on applying a 5 mil wet coat a 5 mil wet coat.

% SOLIDS BY VOLUME	DRY FILM PER COAT
10	0.5
11	0.55
12	0.6
13	0.65
14	0.7
15	0.75
16	0.8
17	0.85
18	0.9
19	0.95
20	1
21	1.05
22	1.1
23	1.15
24	1.2
25	1.25
26	1.3
27	1.35
28	1.4
29	1.45
30	1.5
31	1.55
32	1.6
33	1.65
34	1.7
35	1.75
36	1.8
37	1.85
38	1.9
39	1.95
40	2
41	2.05
42	2.1
43	2.15
44	2.2
45	2.25
46	2.3
47	2.35
48	2.4
49	2.45
50	2.5