VISCOSITY APPLICATION NOTE:

# Auto Refinishing Paint - ASTM D7395

## USE

To coat automobile exteriors, making their appearance more attractive.

## TEST EQUIPMENT

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|---|---|
| **Viscometer:** | High Torque CAP 2000+L and Low Torque 2000+L |
| **Spindle:** | Cone 10 (CAP-S-10) |
| **Speed:** | 100 RPM |
| **Temperature:** | 25°C |

## TEST METHOD

In our experiment we used the "Standard Test Method for Cone/Plate Viscosity at a 500 $s^{-1}$ Shear Rate" as described in ASTM Standard D7395. This test method for measuring paint viscosity calls for the material to be equilibrated at 25°C for one minute. The test method recommends using the solvent trap to help prevent evaporation of the material.

We used a High Torque CAP 2000+L and a Low Torque CAP 2000+L viscometer with Capcalc software for automated instrument control and data acquisition. We used Cone 10 to achieve on-scale results with 170 µL of fluid. The cone and plate were cleaned before dispensing each paint portion. A fresh portion of sample was used for each trial. Three trials were done for each color of paint. Representative data from the analyses are shown in Figures 1, 2, and 3.

The tolerance for the High Torque CAP 2000+L Viscometer running at 100 RPM with cone 10 is +/-100 cP, for the Low Torque CAP 2000+L Viscometer is +/-4.4 cP. Figures 1 and 2 show that results obtained with the Low Torque CAP 2000+L and the High Torque CAP 2000+L Viscometer were repeatable within the tolerance of the viscometers.

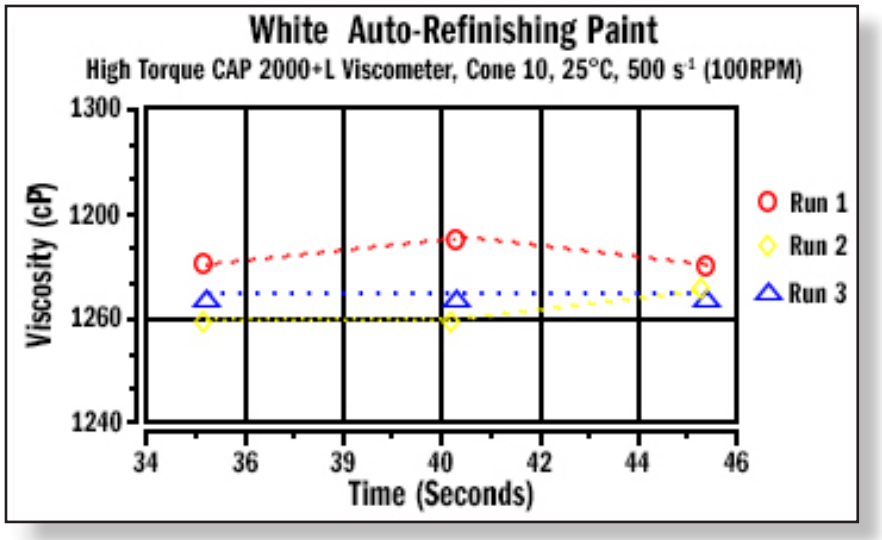


Figure 1

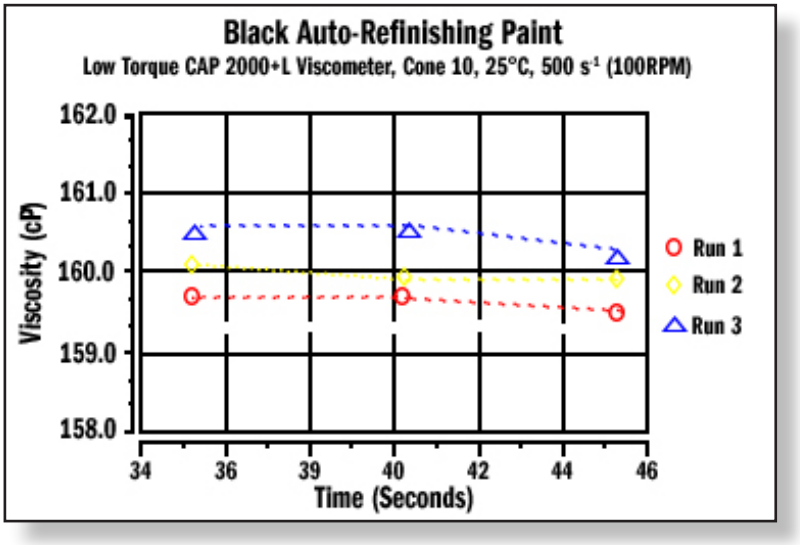


Figure 2

Figure 3 plots Run 1 of Figures 1 and 2. Figure 3 shows the great difference in the viscosities of Black and White Auto-Refinishing Paints. This difference required different viscometers to be used for each paint. For the black paint, we used a Low Torque CAP 2000+L Viscometer so we could achieve on scale results at a lower viscosity. For the white paint, we used a High Torque CAP 2000+L Viscometer so we could achieve on scale results at a higher viscosity.

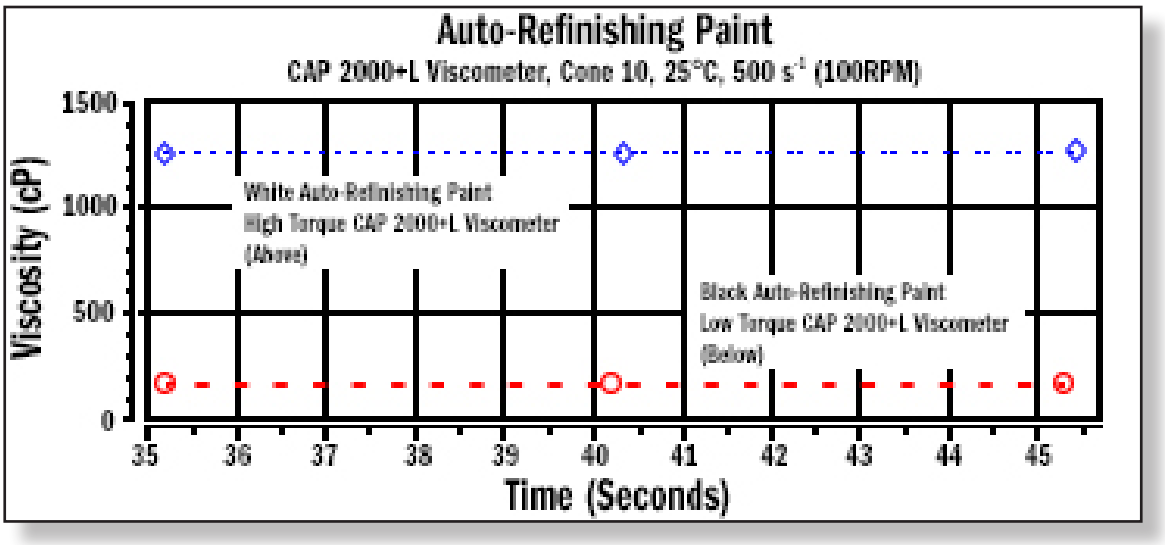


Figure 3: Test Method Comparison:
Black and White Auto-Refinishing Paint