

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002

DateRun: 06/12/2002

Experimenters: Jason Marshall

ClientType: General

ProjectNumber: Project #1

Substrates: Wood

PartType: Coupon

Contaminants: Paints

Cleaning Methods: Low Pressure Spray

Analytical Methods: Gravimetric, Timing

Purpose: To compare new spray delivery system with traditional spray can method for complete surface coating

Experimental Procedure: Six preweighed particle board tiles were placed into a spray chamber to be coated one a time. Three tiles were to be coated with one of the two spray application methods. The paint spray nozzle was placed 12 inches perpendicular to the tile. The spray system was operated until the tile was completely coated, moving from left to right and back right to left across the face of the tile. A stop watch was used to record the time required for the coating process. After completely coating the surface, the tile was removed from the spray chamber and placed flat to dry. Once the paint was dry, a second weight was recorded and coating amounts were calculated. The results of each system were compared.

Results: The Enviro Caddie system (EC system) applied more paint in less time than the Traditional Spray Can system (TSC system). The EC system applied about 2.5 grams of paint in 9 seconds where as the TSC system applied about 1.2 grams of paint in 11 seconds. The TSC system was more consistent in its delivery resulting in a lower standard deviation. Table 1 below lists the calculated delivery amounts for both systems.

Table 1 below lists the weights and calculated delivery rates

| System | Coupon # | Base | After Coating | Coating Weight | Average Wt | Std Deviation |
|---------------|----------|------------------|---------------|----------------|------------|---------------|
| Enviro Caddie | 11 | 310.17 | 313.07 | 2.9 | | |
| | 12 | 306.64 | 309.05 | 2.41 | | |
| | 13 | 298.61 | 300.89 | 2.28 | 2.53 | 0.33 |
| Traditional | 14 | 307.01 | 308.18 | 1.17 | | |
| | 15 | 298.79 | 299.94 | 1.15 | | |
| | 16 | 303.58 | 304.7 | 1.12 | 1.15 | 0.03 |
| System | | Time to Coat | Average Time | Std Deviation | | |
| Enviro Caddie | | 9 | | | | |
| | | 10 | | | | |
| | | 8 | 9 | 1 | | |
| Traditional | | 10 | | | | |
| | | 11 | | | | |
| | | 12 | 11 | 1 | | |
| | | Weight/area/time | | | | |
| System | | g/mm2/ sec | Average | | | |
| Enviro Caddie | | 0.061 | | | 0.550 | |
| | | 0.046 | | | 0.457 | |
| | | 0.054 | 0.054 | 0.008 | 0.433 | |
| Traditional | | 0.022 | | | 0.222 | |
| | | 0.020 | | | 0.218 | |
| | | 0.018 | 0.020 | 0.002 | 0.213 | |

The EC system produced small craters in the coating surface, where as the TSC system did not. The EC system coating was much darker and shinier than the TSC system. Figures 1 and 2 show the coatings for both systems.

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Figure 1. Enviro Caddie System

Figure 2. Traditional Spray Can System

Substrates: Particle Board;

Coating Type: Paint;

Delivery System: Average coating weight per Area per time

Enviro Caddie 0.000537 g/cm²/sec

Traditional Spray Can 0.000199 g/cm²/sec

Summary:

Conclusion:

The Enviro Caddie system provided a heavier coating in less time than the Traditional Spray Can system. The quality of the coating for the Enviro Caddie system was questionable due to the appearance of small craters throughout the tile.