

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2015
 DateRun: 09/01/2015
 Experimenters: George Liang, Russell Curtis
 ClientType: Cleaning Equipment Mfr
 ProjectNumber: Project #2
 Substrates: Glass/Quartz
 PartType: Part
 Contaminants: Dirt
 Cleaning Methods: Manual Wipe
 Analytical Methods: Visual, Timing
 Purpose: To evaluate the efficiency of a product for cleaning window surfaces

Experimental Procedure: One 30"X40" section of window was marked off as a testing surface. To the surface, 5 grams of AATC was mixed in 400 ml water to create a soil solution. The mixture was applied by taking a paint roller and soaking it in the soil solution and then swiping the paint roller on the window surface 25 times. The soiled surface was allowed to dry for 20 minutes. Once the soil was dry, testing took place for all the cleaning tools in way that they would be used in real world conditions. For the first round of testing the participants were told to clean the window fully till no trace of soil could be found, they were not instructed on how to use the tools and were timed during their performance. When they were done with one window that window was cleaned and soiled for the next test in that round. For the second round of testing we performed similar analysis, but the test was run with the participants following manufacturer instructions for the paper towels and the microfiber pad. The microfiber towel was not run again. All evaluations are based on a time performance.

Tools Evaluated: Microfiber towel, Paper Towel- Bounty Dura Towel, Unger Microfiber Pad

Results: Time Analysis Round 1 No Instructions: All Times are provided in seconds

| | Microfiber towel | | | Paper Towel | | | Microfiber Pad | | |
|------------|------------------|----|----|-------------|----|----|----------------|----|----|
| Lab Tech 1 | 32 | 33 | 23 | 29 | 32 | 30 | 19 | 25 | 18 |
| Lab Tech 2 | 61 | 34 | 40 | 55 | 60 | 38 | 36 | 35 | 34 |
| Lab Tech 3 | 34 | 34 | 23 | 66 | 47 | 27 | 22 | 29 | 27 |

Result of Time Analysis Round 2 with instructions: All Times are provided in seconds

| | Paper Towels | | | Microfiber Pad | | |
|------------|--------------|----|----|----------------|----|----|
| Lab Tech 1 | 19 | 23 | 19 | 23 | 22 | 21 |
| Lab Tech 2 | 37 | 34 | 27 | 21 | 25 | 24 |
| Lab Tech 3 | 27 | 28 | 24 | 19 | 25 | 22 |

Summary

| Round 1 | Averages | | |
|-----------------|------------|-------|----------------|
| | Microfiber | Paper | Microfiber Pad |
| Lab Tech 1 | 29 | 30 | 21 |
| Lab Tech 2 | 45 | 51 | 35 |
| Lab Tech 3 | 30 | 47 | 26 |
| Overall Average | 35 | 43 | 27 |

Round 2

| Round 2 | Averages | | |
|-----------------|--------------|----------------|--|
| | Paper Towels | Microfiber Pad | |
| Lab Tech 1 | 20 | 22 | |
| Lab Tech 2 | 33 | 23 | |
| Lab Tech 3 | 26 | 22 | |
| Overall Average | 26 | 22 | |

Summary:

CLEANING LABORATORY EVALUATION SUMMARY

| Substrates: | | Glass/Quartz | | | |
|----------------------|----------------------|---------------|--------------------|-------------------------------------|---|
| Contaminants: | | Dirt | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Water | Water | 100 | | <input type="checkbox"/> | Microfiber (spray on towel) F 2.54 S 2.50 T 44.3 |
| Water | Water | 100 | | <input type="checkbox"/> | Microfiber (spray on the window) F 1.58 S 1.70 T 16.7 |
| Water | Water | 100 | | <input type="checkbox"/> | Paper Towel F 2.88 S 3.92 T 18.3 |
| Water | Water | 100 | | <input checked="" type="checkbox"/> | Unger Microfiber Pad Tool F 2.63 S 2.53 T 18.0 |

Conclusion:

In both rounds of testing the Microfiber Pad (Unger Tool) performed better in cleaning the window than the other two cleaners, the microfiber pad also performed better with manufacturer instructions.