

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2010  
 DateRun: 11/17/2010  
 Experimenters: Junhee Cho, Timothy Weil, Kathleen Tenaglia  
 ClientType: Cleaner Manufacturer  
 ProjectNumber: Project #1  
 Substrates: Aluminum, Copper, Stainless Steel  
 PartType: Coupon  
 Contaminants: Hucker's Soil  
 Cleaning Methods: Manual Wipe  
 Analytical Methods: Gravimetric

Purpose: To evaluate supplied products capabilities for manual pot and pan washing.

Experimental Procedure: Prew weighed stainless steel, copper and aluminum coupons were coated with a modified Hucker's soil, allowed to dry for 24 hours and then dirty weights were recorded. The three products were formulated to 0.13% dilution and used to clean soils from the selected stainless steel, aluminum, and copper substrates. A set of three coupons of each dirty substrate were then cleaned with the three cleaners and manually wiped off using the Gardner Straight Line Washability unit (GSLW). The GSLW cycled for 20 cycles over 30 seconds. The cleaned substrates were then allowed to sit and dry for one hour. They were weighed, and the numbers were then recorded and evaluated for overall efficiency.

Results: The table lists the amount of soil added, the amount remaining after cleaning and the calculated efficiency for each coupon cleaned.

| Product and Substrate               | Initial wt | Final wt | % Removed |
|-------------------------------------|------------|----------|-----------|
| Pot and Pan Cleaner Stainless Steel | 0.1730     | 0.0115   | 93.35     |
|                                     | 0.5488     | 0.0074   | 98.65     |
|                                     | 0.2476     | 0.0076   | 96.93     |
| Pot and Pan Cleaner Aluminum        | 0.3512     | 0.0069   | 98.04     |
|                                     | 0.1623     | 0.0045   | 97.23     |
|                                     | 0.2329     | 0.0053   | 97.72     |
| Pot and Pan Cleaner Copper          | 0.0963     | 0.0046   | 95.22     |
|                                     | 0.2005     | 0.0029   | 98.55     |
|                                     | 0.2301     | 0.0033   | 98.57     |
| Dawn Stainless Steel                | 0.3320     | 0.0094   | 97.17     |
|                                     | 0.2329     | 0.0213   | 90.85     |
|                                     | 0.4091     | 0.0163   | 96.02     |
| Dawn Aluminum                       | 0.2543     | 0.0049   | 98.07     |
|                                     | 0.1886     | 0.0068   | 96.39     |
|                                     | 0.2174     | 0.0079   | 96.37     |
| Dawn Copper                         | 0.2587     | 0.0024   | 99.07     |
|                                     | 0.1622     | 0.0030   | 98.15     |
|                                     | 0.1694     | 0.0039   | 97.70     |
| Blue Ocean Stainless Steel          | 0.4538     | 0.0018   | 99.60     |
|                                     | 0.2330     | 0.0002   | 99.91     |
|                                     | 0.3823     | 0.0084   | 97.80     |
| Blue Ocean Aluminum                 | 0.2366     | 0.0075   | 96.83     |
|                                     | 0.2510     | 0.0072   | 97.13     |
|                                     | 0.3024     | 0.0078   | 97.42     |
| Blue Ocean Copper                   | 0.1144     | 0.0018   | 98.43     |
|                                     | 0.1153     | 0.0022   | 98.09     |
|                                     | 0.2699     | 0.0016   | 99.41     |

Summary:

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|                      |                                   |               |                    |                                     |                      |
|----------------------|-----------------------------------|---------------|--------------------|-------------------------------------|----------------------|
| <b>Substrates:</b>   | Aluminum, Copper, Stainless Steel |               |                    |                                     |                      |
| <b>Contaminants:</b> | Hucker's Soil                     |               |                    |                                     |                      |
| <b>Company Name:</b> | <b>Product Name:</b>              | <b>Conc.:</b> | <b>Efficiency:</b> | <b>Effective:</b>                   | <b>Observations:</b> |
| Procter & Gamble     | Dawn Dish Detergent               | 0.13          | 96.64              | <input checked="" type="checkbox"/> |                      |

Conclusion:

All three products were effective against DCC-17 Soil on Stainless Steel, Aluminum, and Copper when manually wiped off.