

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2017  
 DateRun: 06/19/2017  
 Experimenters: George Liang, Vinh Tran  
 ClientType:  
 ProjectNumber: Project #1  
 Substrates: Stainless Steel  
 PartType: Coupon  
 Contaminants: Oil  
 Cleaning Methods: Manual Wipe  
 Analytical Methods: Gravimetric  
 Purpose: To evaluate the efficiency of various cleaners in the removal of motor oil from stainless steel coupons.

**Experimental Procedure:**  
**Soiling process:**  
 A set of six stainless steel coupons were weighed on an analytical balance to determine their initial mass. Once this was completed the coupons were evenly soiled with half a gram of motor oil with a handheld swab. The coupons were reweighed to determine the mass of the coupons with the contaminant applied.  
**Cleaning process:**  
 Dilutions were prepared for the two cleaners, SWR One and Suma Break-Up HD Degreaser as recommended by the vendor. Two 500 mL beaker solutions were made with 10% dilution of SWR One cleaner, and the other with 5% dilution of Suma Break-Up HD Degreaser. Three soiled coupons were placed on a Gardner Straight Line Washability unit. A Kimberly-Clark Wypal reinforced paper towel was attached to the cleaning sled and soaked with a spray of cleaning solution. Each coupon was sprayed one time with the same cleaning solution. The cleaning unit was run for 20 cycles (~33 seconds). The process was repeated for the remaining three soiled coupons with the second cleaner. The coupons were allowed to dry for an hour before being weighed. The coupons were also weighed a full day afterward to determine if there were any significant changes in mass. Final weights were recorded, efficiencies were calculated and recorded.

**Results:**

| Cleaner                    | Initial wt | Final wt | % Removed |
|----------------------------|------------|----------|-----------|
| SWR One                    | 0.5006     | 0.0134   | 97.32     |
|                            | 0.5025     | 0.0085   | 98.31     |
|                            | 0.5004     | 0.0117   | 97.66     |
| Suma Break-Up HD Degreaser | 0.5053     | 0.0144   | 97.15     |
|                            | 0.4938     | 0.0142   | 97.12     |
|                            | 0.5003     | 0.0198   | 96.04     |

**Summary:**

|                      |                            |               |                    |                                     |                      |
|----------------------|----------------------------|---------------|--------------------|-------------------------------------|----------------------|
| <b>Substrates:</b>   | Stainless Steel            |               |                    |                                     |                      |
| <b>Contaminants:</b> | Oil                        |               |                    |                                     |                      |
| <b>Company Name:</b> | <b>Product Name:</b>       | <b>Conc.:</b> | <b>Efficiency:</b> | <b>Effective:</b>                   | <b>Observations:</b> |
| SWR Corporation      | SWR One                    | 10            | 97.76              | <input checked="" type="checkbox"/> |                      |
| Diversey Corporation | Suma Break-Up HD Degreaser | 5             | 96.77              | <input checked="" type="checkbox"/> |                      |

**Conclusion:** In terms of overall effectiveness, both cleaners were very effective at removing motor oil from the stainless steel surfaces. The SWR One cleaner was at 97.76 and the Suma Break-Up HD Degreaser was 96.77.