

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2012

DateRun: 11/09/2012

Experimenters: Johnny Le, Loc Nguyen, Anni Geng, Mina Le

ClientType: Cleaner Manufacturer

ProjectNumber: Project #1

Substrates: Ceramics, Plastic, Steel

PartType: Coupon

Contaminants: Greases, Oil, Food

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric

Purpose: To evaluate supplied tablet for all purpose cleaning

Experimental Procedure: The provided product tablet (~2.5grams) was dissolved in 16 ounces of water. A comparative product was used at the ready-to-use concentration.

Prewriteed ceramic, plastic and painted steel coupons were coated with a mixture of shortening (33%), lard (33%) and cooking oil (33%) using a handheld swab and allowed to dry for 24 hours at room temperature. The contaminated coupons were weighed again to determine the amount of soil added.

Three coupons were placed into a Gardner Straight Line Washability unit. A Kimberly-Clark Wypal reinforced paper towel was attached to the cleaning sled and soaked with 2-3 sprays of cleaning solutions. Each coupon was sprayed 1-2 times with the same cleaning solution. The cleaning unit was run for 20 cycles (~33 seconds). At the end of the cleaning, coupons were wiped once with a dry paper towel. Final weights were recorded, efficiencies were calculated and recorded.

Results: Both products removed more than 95% of the soil using manual wiping for 30 seconds. The table lists the amount of soil added, the amount remaining, and the efficiency of each coupon cleaned.

| Cleaner                                  | Initial wt | Final wt | % Removed |
|--|------------|----------|-----------|
| Sunstate Lab All Purpose - Ceramic       |            |          |           |
|  | 0.0801     | 0.0025   | 96.88     |
|  | 0.0846     | 0.0055   | 93.50     |
|  | 0.0360     | 0.0043   | 88.06     |
| Sunstate Lab All Purpose - Painted Steel |            |          |           |
|  | 0.0538     | 0.0037   | 93.12     |
|  | 0.0746     | 0.0024   | 96.78     |
|  | 0.0659     | 0.0039   | 94.08     |
| Sunstate Lab All Purpose - Plastic       |            |          |           |
|  | 0.0889     | 0.0013   | 98.54     |
|  | 0.0833     | 0.0066   | 92.08     |
|  | 0.1058     | 0.0109   | 89.70     |
| Formula 409 - Ceramic                    |            |          |           |
|  | 0.0807     | 0.0049   | 93.93     |
|  | 0.0742     | 0.0047   | 93.67     |
|  | 0.0769     | 0.0098   | 87.26     |
| Formula 409 - Painted Steel              |            |          |           |
|  | 0.0563     | 0.0026   | 95.38     |
|  | 0.0630     | 0.0042   | 93.33     |
|  | 0.0805     | 0.0072   | 91.06     |
| Formula 409 - Plastic                    |            |          |           |
|  | 0.0819     | 0.0087   | 89.38     |
|  | 0.0767     | 0.0028   | 96.35     |
|  | 0.1255     | 0.0050   | 96.02     |

Summary:

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|                         |                                     |               |                    |                                     |                      |
|-------------------------|-------------------------------------|---------------|--------------------|-------------------------------------|----------------------|
| <b>Substrates:</b>      | Ceramics, Plastic, Steel            |               |                    |                                     |                      |
| <b>Contaminants:</b>    | Greases, Oil, Food                  |               |                    |                                     |                      |
| <b>Company Name:</b>    | <b>Product Name:</b>                | <b>Conc.:</b> | <b>Efficiency:</b> | <b>Effective:</b>                   | <b>Observations:</b> |
| Clorox Company          | Formula 409 All Purpose Cleaner     | 100           | 92.93              | <input checked="" type="checkbox"/> |                      |
| Sunstate Laboratory LLC | Sunstate All Purpose Cleaner Tablet | 15            | 93.64              | <input checked="" type="checkbox"/> |                      |

Conclusion: The supplied product worked as well as an on-the market all-purpose cleaning product.