

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2021

DateRun: 08/12/2021

Experimenters: Nicole Kebler

ClientType: Cleaning Company

ProjectNumber: Project #1

Substrates: Ceramics, Stainless Steel

PartType: Coupon

Contaminants: Greases, Dirt, Films, Soaps, Oil

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric, Visual

Purpose: To evaluate the effectiveness of Nusteam steam cleaner for the removal of soil from ceramic and stainless steel in comparison to Formula 409 and Clorox Bathroom Cleaner.

Experimental Procedure: Three ceramic coupons and three stainless steel coupons per cleaning product were pre-weighed for initial weights. Ceramic coupons were soiled with Bathroom Soil and stainless-steel coupons were soiled with DCC-17, they were left to dry for 24 hours. After dry, they were weighed for dirty weights. The three coupons were added to the Straight Line Washability Unit (SLW) and were sprayed twice by the comparative product. A Kimberly-Clark Wypall reinforced paper towel was sprayed twice and the SLW unit ran for 20 cycles. After cleaning the coupons, the coupons were left to dry. The NuSteam unit was heated up until the light changed from red to green, a clean pad was added to the unit per substrate. After heated, the unit was used for one wipe, and coupons were left to dry. A final weight for one wipe was recorded and then coupons were wiped an additional 19 times. After 20 full wipes were complete, the final weights were recorded.

Results: NuSteam performed better than the comparative products for both ceramic and stainless steel. For one wipe on stainless steel there was 99% removal effectiveness and for 20 there was 98% effectiveness. For one wipe on ceramic there was 96% removal effectiveness and for 20 wipes was 99.7% effectiveness. Clorox removed bathroom soil from ceramic at 83% effectiveness and Formula 409 removed DCC-17 from stainless steel with 98% effectiveness. NuSteam showed almost full removal after one wipe.

| Substrate | Cleaner | Soil | Initial wt. of Cont | 1 Wipe Final wt. of Cont | 1 Wipe Cont Removed | 1 Wipe Average |
|-----------------|---------|---------------|---------------------|--------------------------|---------------------|----------------|
| Stainless Steel | NuSteam | DCC-17 | 0.5241 | 0.0077 | 98.53 | 98.92 |
| | | | 0.5050 | 0.0079 | 98.44 | |
| | | | 0.7100 | 0.0015 | 99.79 | |
| Ceramic | | Bathroom Soil | 0.1256 | 0.0069 | 94.51 | 95.77 |
| | | | 0.1112 | 0.0049 | 95.59 | |
| | | | 0.1216 | 0.0034 | 97.20 | |

Additional Results

| Substrate | Cleaner | Soil | Initial wt. of Cont | 20 Wipe Final wt. of Cont | 20 Wipe Cont Removed | 20 Wipe Average |
|-----------------|-----------------|---------------|---------------------|---------------------------|----------------------|-----------------|
| Stainless Steel | NuSteam | DCC-17 | 0.5241 | 0.0083 | 98.42 | 98.83 |
| | | | 0.5050 | 0.0064 | 98.73 | |
| | | | 0.7100 | 0.0046 | 99.35 | |
| | 409 | | 0.6716 | 0.0308 | 95.41 | 97.62 |
| | | | 0.6190 | 0.0032 | 99.48 | |
| | | | 0.4861 | 0.0099 | 97.96 | |
| Ceramic | Nusteam | Bathroom Soil | 0.1256 | 0.0006 | 99.52 | 99.67 |
| | | | 0.1112 | 0.0001 | 99.91 | |
| | | | 0.1216 | 0.0005 | 99.59 | |
| | Clorox Bathroom | | 0.1107 | 0.0245 | 77.87 | 83.40 |
| | | | 0.1115 | 0.0154 | 86.19 | |
| | | | 0.1227 | 0.0170 | 86.15 | |

Summary:

CLEANING LABORATORY EVALUATION SUMMARY

Conclusion: After one wipe, the NuSteam removed the soil from both substrates with averages over 96%. Nusteam performed better than comparative products for 20 wipes, averaging over 99% for both substrates. Clorox Bathroom had the lowest removal for ceramic substrates at 83% removal.