

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2024

DateRun: 04/25/2024

Experimenters: Amelia Wagner

ClientType: Cleaner Manufacturer

ProjectNumber: Project #1

Substrates: Aluminum, Galvanized Steel, Stainless Steel

PartType: Coupon

Contaminants: Greases

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric

Purpose: All-purpose test to determine the efficacy of the GeoPro X product in removing Lithium grease from a variety of substrates compared to other janitorial and industrial degreasing products.

Experimental Procedure: Three coupons of each substrate were used per cleaning product, for a total of 24 coupons. Each coupon was weighed using a gravimetric balance and had their weights recorded. Each coupon was then soiled with about 0.5 grams of lithium grease by using a swab to administer the contaminant down the center of the coupons. Each coupon was then weighed again, and had their 'dirty weights' recorded. The coupons were then cleaned with their respective cleaning product using the Straight Line Washability Unit (or SLW) to ensure a standard pressure is applied to each coupon while being manually wiped. Two sprays of the correct cleaner was applied to a wypall that is attached to the cleaning sled of the SLW to wipe the soil away and two sprays were applied directly to each coupon (meaning each coupon was cleaned with about 2.5 ml of cleaning chemistry). The SLW unit was run for 20 cycles (20 back and forth motions) for each coupon. Once cleaned, the coupons were allowed to air dry before having their final weights recorded.

| Results: | Product | Coupon Type | Initial wt of cont. | Final wt of cont. | %Cont Removed | AVG percent removal | AVG Overall Removal |
|-----------------------|------------------|------------------|---------------------|-------------------|---------------|---------------------|---------------------|
| | GeoPro X 1.5% | Aluminum | 0.0262 | 0.0236 | 9.92 | 5.97 | 6.20 |
| | | | 0.0424 | 0.0396 | 6.60 | | |
| | | | 0.0431 | 0.0425 | 1.39 | | |
| | | Galvanized Steel | 0.0319 | 0.0311 | 2.51 | 2.15 | |
| | | | 0.0463 | 0.0447 | 3.46 | | |
| | | | 0.0625 | 0.0622 | 0.48 | | |
| | | Stainless Steel | 0.0642 | 0.0624 | 2.80 | 10.48 | |
| | | | 0.0454 | 0.0394 | 13.22 | | |
| | | | 0.0778 | 0.0658 | 15.42 | | |
| | Formula 409 RTU | Aluminum | 0.0733 | 0.0150 | 79.54 | 67.03 | 53.04 |
| | | | 0.0580 | 0.0241 | 58.45 | | |
| | | | 0.0439 | 0.0162 | 63.10 | | |
| | | Galvanized Steel | 0.0503 | 0.0186 | 63.02 | 54.18 | |
| | | | 0.0586 | 0.0282 | 51.88 | | |
| | | | 0.0674 | 0.0353 | 47.63 | | |
| | | Stainless Steel | 0.0450 | 0.0339 | 24.67 | 37.93 | |
| | | | 0.0764 | 0.0415 | 45.68 | | |
| 0.0465 | | | 0.0263 | 43.44 | | | |
| Polychem Deox 007 1:7 | Aluminum | 0.0325 | 0.0219 | 32.62 | 42.98 | 57.08 | |
| | | 0.0479 | 0.0247 | 48.43 | | | |
| | | 0.0499 | 0.0260 | 47.90 | | | |
| | Galvanized Steel | 0.0390 | 0.0123 | 68.46 | 69.00 | | |
| | | 0.0792 | 0.0153 | 80.68 | | | |
| | | 0.0650 | 0.0274 | 57.85 | | | |
| | Stainless Steel | 0.0440 | 0.0161 | 63.41 | 59.25 | | |
| | | 0.0519 | 0.0179 | 65.51 | | | |
| | | 0.0602 | 0.0308 | 48.84 | | | |

Summary: **Substrates:** Aluminum, Galvanized Steel, Stainless Steel

CLEANING LABORATORY EVALUATION SUMMARY

| | | | | | |
|-------------------------|---------------------------------|---------------|--------------------|--------------------------|----------------------|
| Contaminants: | Greases | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| AquOm Inc | GeoProX | 1.5% | 6.20 | <input type="checkbox"/> | |
| Clorox Company | Formula 409 All Purpose Cleaner | RTU | 53.04 | <input type="checkbox"/> | |
| US Polychem Corporation | Polychem DEOX 007 | 12.5% | 57.08 | <input type="checkbox"/> | |

Conclusion: None of the products are effective in removing lithium grease from Aluminum, Galvanized Steel, or Stainless Steel. The Fomula 409 and Polychem Deox 007 performed comparatively and removed, on average, about 50% of the soil from the coupons. The GeoPro X 1.5% concentration unfortunately did not perform comparatively to the two other products, removing only about 6.2% of soil from the coupons.