

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2024  
 DateRun: 04/30/2024  
 Experimenters: Amelia Wagner  
 ClientType: Environmental Sustainability Company  
 ProjectNumber: Project #1  
 Substrates: Stainless Steel, Steel, Chrome  
 PartType: Coupon  
 Contaminants: Inks, Lubricating/Lapping Oils, Oil  
 Cleaning Methods:  
 Analytical Methods: Gravimetric

Purpose: All-purpose test to determine the efficacy of the GeoPro X product in removing GS 34 standard maintenance soil from a variety of substrates compared to other janitorial and industrial degreasing products. Rerun of previous test using a higher concentration of GeoPro X to see if the higher concentration leads to a higher efficacy.

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 GS 34 maintenance soil by using a swab to administer the contaminant down the center of the coupons. The contaminated coupons were then left to dry for 24 hours. After the 24 hour drying period, each coupon was 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:

| Cleaner                     | Substrate          | Initial<br>wt of<br>cont. | Final<br>wt of<br>cont. | %Cont<br>Removed | AVG %<br>Removed | Overall<br>%<br>Removed |
|-----------------------------|--------------------|---------------------------|-------------------------|------------------|------------------|-------------------------|
| GeoPro X<br>3%              | Chrome             | 0.1559                    | 0.0046                  | 97.05            | 95.52            | 96.25                   |
|                             |                    | 0.0767                    | 0.0019                  | 97.52            |                  |                         |
|                             |                    | 0.0250                    | 0.0020                  | 92.00            |                  |                         |
|                             | Stainless<br>Steel | 0.0656                    | 0.0025                  | 96.19            | 96.95            |                         |
|                             |                    | 0.0735                    | 0.0024                  | 96.73            |                  |                         |
|                             |                    | 0.1935                    | 0.0040                  | 97.93            |                  |                         |
|                             | General<br>Steel   | 0.2593                    | 0.0048                  | 98.15            | 96.26            |                         |
|                             |                    | 0.1623                    | 0.0039                  | 97.60            |                  |                         |
|                             |                    | 0.0646                    | 0.0045                  | 93.03            |                  |                         |
| Formula<br>409 RTU          | Chrome             | 0.0526                    | 0.0026                  | 95.06            | 97.12            | 97.32                   |
|                             |                    | 0.1080                    | 0.0020                  | 98.15            |                  |                         |
|                             |                    | 0.0546                    | 0.0010                  | 98.17            |                  |                         |
|                             | Stainless<br>Steel | 0.1732                    | 0.0039                  | 97.75            | 97.12            |                         |
|                             |                    | 0.0705                    | 0.0038                  | 94.61            |                  |                         |
|                             |                    | 0.1710                    | 0.0017                  | 99.01            |                  |                         |
|                             | General<br>Steel   | 0.1167                    | 0.0018                  | 98.46            | 97.70            |                         |
|                             |                    | 0.1803                    | 0.0020                  | 98.89            |                  |                         |
|                             |                    | 0.1130                    | 0.0048                  | 95.75            |                  |                         |
| Polychem<br>Deox 007<br>1:7 | Chrome             | 0.0426                    | 0.0011                  | 97.42            | 96.27            | 97.92                   |
|                             |                    | 0.1805                    | 0.0014                  | 99.22            |                  |                         |
|                             |                    | 0.1317                    | 0.0103                  | 92.18            |                  |                         |
|                             | Stainless<br>Steel | 0.1492                    | 0.0014                  | 99.06            | 98.66            |                         |
|                             |                    | 0.0856                    | 0.0005                  | 99.42            |                  |                         |
|                             |                    | 0.1046                    | 0.0026                  | 97.51            |                  |                         |
|                             | General<br>Steel   | 0.0831                    | 0.0010                  | 98.80            | 98.81            |                         |
|                             |                    | 0.1564                    | 0.0017                  | 98.91            |                  |                         |
|                             |                    | 0.2040                    | 0.0026                  | 98.73            |                  |                         |

Summary:

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|                         |                                     |               |                    |                                     |                      |
|-------------------------|-------------------------------------|---------------|--------------------|-------------------------------------|----------------------|
| <b>Substrates:</b>      | Stainless Steel, Steel, Chrome      |               |                    |                                     |                      |
| <b>Contaminants:</b>    | Inks, Lubricating/Lapping Oils, Oil |               |                    |                                     |                      |
| <b>Company Name:</b>    | <b>Product Name:</b>                | <b>Conc.:</b> | <b>Efficiency:</b> | <b>Effective:</b>                   | <b>Observations:</b> |
| AquOm Inc               | GeoProX                             | 3%            | 96.25              | <input checked="" type="checkbox"/> |                      |
| Clorox Company          | Formula 409 All Purpose Cleaner     | RTU           | 97.32              | <input checked="" type="checkbox"/> |                      |
| US Polychem Corporation | Polychem DEOX 007                   | 12.5%         | 97.92              | <input checked="" type="checkbox"/> |                      |

Conclusion:

All products tested performed comparatively and are highly effective in removing GS34 maintenance soil from Chrome, Stainless Steel, and General Steel.