

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2018
 DateRun: 01/01/1970
 Experimenters: Sabrina Apel, Ted Kearney
 ClientType: Cleaner Manufacturer
 ProjectNumber: Project #1
 Substrates: Painted metal
 PartType: Part
 Contaminants: Dirt
 Cleaning Methods: Manual Wipe
 Analytical Methods: Gravimetric, Visual

Purpose: To evaluate the effectiveness of the Alpha Chemical Sample C formula against the Alpha Chemical Sample G formula and the Alpha Chemical Sample M formula on the removal of vehicle dirt.

Experimental Procedure: All painted steel coupons were pre-weighed and had about one half gram of Vehicle Dirt soil (45% Lithium grease, 39% motor oil, and 16% bike dirt) were distributed onto each coupon. Three painted steel coupons were cleaned by each of the three different Alpha Chemical formulations. The dirty weights were recorded; three coupons of the same substrate were aligned into a Single Line Washing Unit (SLW) with Wypall X60 attached to each cleaning sled. The Wypall X60 reinforced wipe along with the coupons were all sprayed three times with the cleaner and then allowed to soak for 30 seconds. Afterwards the Single Line Washing Unit (SLW) was activated and cleaned for 20 cycles. The clean coupons were then allowed to dry at room temperature before the final weights were recorded. This process was repeated 5 more times for every set of coupons with its respected cleaner, with all the data and observations recorded.

Results:

| Cleaner | Substrate | Initial wt. of cont. (g) | Final wt. of cont. (g) | % Cont Removed | Average % Cont Removed Per Trial | Overall Average % Content Removed |
|-------------------------------------|---------------|--------------------------|------------------------|----------------|----------------------------------|-----------------------------------|
| Alpha Chemical Sample C Formulation | Painted Steel | 0.5102 | 0.0134 | 97.37357899 | 100.20 | 99.91 |
| | | 0.5002 | -0.0157 | 103.1387445 | | |
| | | 0.5054 | -0.0005 | 100.0989315 | | |
| | | 0.5269 | 0.0142 | 97.30499146 | 98.31 | |
| | | 0.4669 | 0.0035 | 99.25037481 | | |
| | | 0.5831 | 0.0095 | 98.37077688 | | |
| | | 0.4788 | -0.0006 | 100.1253133 | 99.86 | |
| | | 0.5974 | 0.0074 | 98.76129896 | | |
| | | 0.5403 | -0.0037 | 100.6848047 | | |
| | | 0.5058 | -0.0042 | 100.8303677 | 99.84 | |
| | | 0.5389 | -0.0064 | 101.1876044 | | |
| | | 0.5607 | 0.0140 | 97.5031211 | | |
| | | 0.4933 | -0.0017 | 100.3446179 | 100.74 | |
| | | 0.5442 | 0.0011 | 99.79786843 | | |
| | | 0.5898 | -0.0122 | 102.0684978 | | |
| 0.4923 | 0.0030 | 99.39061548 | 100.49 | | | |
| 0.5056 | -0.0054 | 101.068038 | | | | |
| 0.5309 | -0.0054 | 101.0171407 | | | | |
| Alpha Chemical Sample G Formulation | Painted Steel | 0.5068 | 0.0227 | 95.52091555 | 96.53 | 99.60 |
| | | 0.5055 | 0.0154 | 96.95351137 | | |
| | | 0.5075 | 0.0147 | 97.10344828 | | |
| | | 0.5390 | 0.0041 | 99.2393321 | 99.12 | |
| | | 0.5986 | 0.0056 | 99.0644838 | | |
| | | 0.5565 | 0.0053 | 99.04761905 | | |
| | | 0.5366 | -0.0045 | 100.8386135 | 100.74 | |
| | | 0.5045 | -0.0013 | 100.2576809 | | |
| | | 0.5925 | -0.0066 | 101.1139241 | | |
| | | 0.6470 | 0.0033 | 99.48995363 | 100.98 | |

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|---|------------------|---------------|-------------|--------|-------|
| | | 0.4917-0.0016 | 100.3254017 | | |
| | | 0.5901-0.0184 | 103.1181156 | | |
| | | 0.4908-0.0003 | 100.0611247 | 99.87 | |
| | | 0.4930-0.0007 | 99.85801217 | | |
| | | 0.5381-0.0016 | 99.7026575 | | |
| | | 0.4818-0.0014 | 100.290577 | 100.37 | |
| | | 0.5847-0.0002 | 100.0342056 | | |
| | | 0.5765-0.0045 | 100.7805724 | | |
| Alpha Chemical Sample M Formulation | Painted Steel | 0.5042-0.0197 | 96.09282031 | 97.38 | 99.61 |
| | | 0.5010-0.0094 | 98.1237525 | | |
| | | 0.5039-0.0105 | 97.91625322 | | |
| | | 0.5121-0.0106 | 97.93009178 | 99.07 | |
| | | 0.5462-0.0028 | 99.48736726 | | |
| | | 0.5084-0.0011 | 99.78363493 | | |
| | | 0.5306-0.0134 | 102.5254429 | 100.36 | |
| | | 0.5193-0.0032 | 99.38378587 | | |
| | | 0.5512-0.0046 | 99.16545718 | | |
| | | 0.5310-0.0001 | 99.98116761 | 99.78 | |
| | | 0.5720-0.0009 | 99.84265734 | | |
| | | 0.5384-0.0026 | 99.51708767 | | |
| | | 0.5584-0.0040 | 100.7163324 | 100.32 | |
| | | 0.4866-0.0004 | 100.082203 | | |
| | | 0.5026-0.0008 | 100.1591723 | | |
| | | 0.5892-0.0012 | 100.203666 | 100.76 | |
| 0.5864-0.0011 | 100.1875853 | | | | |
| 0.5737-0.0108 | 101.882517 | | | | |

Summary:

| | | | | | |
|-------------------------|----------------------|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Painted metal | | | | |
| Contaminants: | Dirt | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Alpha Chemical Services | Sample C Formulation | 100 | 99.91 | <input checked="" type="checkbox"/> | |
| Alpha Chemical Services | Sample G Formulation | 100 | 99.60 | <input checked="" type="checkbox"/> | |
| Alpha Chemical Services | Sample M Formulation | 100 | 99.61 | <input checked="" type="checkbox"/> | |

Conclusion:

All three formulations were effective on removing the vehicle dirt from painted steel.