CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2018
DateRun:	05/01/2018
Experimenters:	Vinh Tran, Spencer Gifford
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Aluminum, Ceramics, Plastic
PartType:	Coupon
Contaminants:	Greases, Dirt, Oil
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To evaluate the supplied product for car wheel dirt removal from aluminum, ceramic, and plastic surfaces following GS 35 methodology.
Experimental Procedure:	Supplied products were diluted to a concentration of 4oz of cleaners to 1 gallon of tap water at room temperature. Pre-weighed aluminum and plastic coupons were soiled with 0.5 grams of vehicle dirt contaminant (Bike Dirt Soil: 16% w/w, Super White Multi-Purpose Lithium Grease: 45% w/w, and Used Motor Oil 39% w/w) using a hand held swab. Once dirtied, the aluminum ceramic and plastic coupons were re-weighed again to obtain initial weights of the contaminants. Three of the same type of coupons were placed into a Gardner Straight Line Washability unit. A Wypall X60 reinforced wipe was attached to the cleaning sled and soaked with 1 spray cleaning solutions. Each coupon was sprayed once with the same cleaning solution. The solution was allowed to penetrate for 30 seconds followed by cleaning in the SLW unit for 20 cycles (~33 seconds). The cleaned coupons dried for one hour before taking the final weights.

Results:

Cleaner	Substrate	Initial wt. of Cont. (g)	Final wt. of Cont. (g)	Cont. Removed (%)	Avg. Cont. Removed (%)	Overall Avg. Cont. Removed (%)
Alpha Chemical Wheel Guard 1	Aluminum	20.8001	21.291	93.46	91.97	91.91
		20.7845	21.2712	90.88		
		22.1642	22.6767	91.57		
	Ceramic	52.1519	52.63	95.08	93.59	
		52.3698	52.8572	97.11		
		50.9381	51.4199	88.56		
	Plastic	32.4343	32.909	100.11	90.16	
		33.9744	34.453	84.75		
		34.0865	34.6545	85.63		
Alpha Chemical Wheel Guard 2	Aluminum	21.9978	22.4872	89.11	88.83	86.40
		22.167	22.6957	88.56		
		22.0611	22.5401	88.81		
	Ceramic	51.7117	52.2094	82.86	78.37	
		52.6866	53.1845	77.57		
		54.217	54.6937	74.68		
	Plastic	34.3233	34.867	91.21	92.00	
		34.119	34.6208	90.16		
		32.2588	32.7758	94.64		
Alpha Chemical Wheel Guard 3	Aluminum	22.1491	22.6819	95.76	95.42	92.82
		22.1552	22.6811	94.56		
		21.9527	22.4804	95.94		
	Ceramic	51.9448	52.4516	85.73	89.52	
		52.1225	52.6188	91.72		
		52.156	52.6345	91.12		
	Plastic	34.1453	34.6946	91.23	93.52	
		34.1558	34.694	93.20		
		34.1594	34.6178	96.14		

For the most part, there was very little difference in effectiveness between Chemical Wheel Guards 1 and 3, however Wheel Guard 2 left noticeably more residue visually and was roughly 6% less effective than the

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other two formulations. Despite this, it was still effective at removing the contaminant in every case but on Ceramics. In order of effectiveness, Wheel Guard 1 was the most consistent, with Wheel Guard 3 coming right behind it.

Summary:

Substrates:	Aluminum, Ceramics, Plastic				
Contaminants:	Greases, Dirt, Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Alpha Chemical Services	Alpha Chemical Wheel Guard 1	4oz/ 1gallon	91.91	☑	
Alpha Chemical Services	Alpha Chemical Wheel Guard 2	4oz/ 1gallon	86.40	☐	
Alpha Chemical Services	Alpha Chemical Wheel Guard 3	4oz/ 1gallon	92.82	☐	

Conclusion: All three cleaners were effective in removing the contaminants from the coupons.