CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008

DateRun: 09/15/2008

Experimenters: Jason Marshall

ClientType: Cleaner Manufacturer

ProjectNumber: Project #1

Substrates: Ceramics, Plastic, Steel

PartType: Coupon

Contaminants: Hucker's Soil

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric

Purpose: To reevaluate supplied product at two dilution formulations

Experimental Procedure: The supplied cleaning product was used at two supplied dilutions, 10:1 and 20:1.

Preweighed ceramic, plastic G-10 and painted steel coupons were coated with Hucker's Soil Formulation (Jif Creamy Peanut Butter 9.2%, Salted Butter 9.2%, Arrowhead Mills stone ground wheat flour 9.2%, Egg Yolk 9.2%, Evaporated milk 13.8%, Distilled water 45.8%, Printer's ink with boiled linseed oil 0.9%, Shaws saline solution 2.7%) using a handheld swab and allowed to dry for 24 hours at room temperature. The contaminated coupons were weighed again to determine the amount of soil added.

Three coupons were placed into a Gardner Straight Line Washability unit. A Kimberly-Clark Wypal reinforced paper towel was attached to the cleaning sled and soaked with 5-7 sprays of cleaning solutions. Each coupon was sprayed 7-10 times with the same cleaning solution. The cleaning unit was run for 20 cycles (~33 seconds). At the end of the cleaning, coupons were wiped once with a dry paper towel. Final weights were recorded, efficiencies were calculated and recorded.

Results: Both dilutions were effective at removing the Hucker's soil from the three substrates. The 10:1 dilution was more effective on two of the three substrates, painted steel and plastic, but was slightly less effective on the ceramic than the 20:1 dilution. Overall, the 20:1 dilution had the higher average efficiency. The table lists the amount of soil added, the amount remaining and the calculated efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Heavy 10:1 Ceramic	0.1703	0.0135	92.07
	0.3528	0.0349	90.11
	0.2479	0.0351	85.84
Heavy 10:1 Steel	0.4030	0.0124	96.92
	0.1475	0.0007	99.53
	0.8258	0.0176	97.87
Heavy 10:1 Plastic	0.2386	0.0007	99.71
	0.1614	0.0023	98.57
	0.1714	0.0042	97.55
Heavy 20:1 Ceramic	0.1703	0.0045	97.36
	0.3306	0.0055	98.34
	0.2127	0.0070	96.71
Heavy 20:1 Steel	0.2307	0.0161	93.02
	0.2090	0.0025	98.80
	0.4617	0.0370	91.99
Heavy 20:1 Plastic	0.2534	0.0026	98.97
	0.2572	0.0023	99.11
	0.2945	0.0102	96.54

Summary:

Substrates:	Ceramics, Plastic, Steel
Contaminants:	Hucker's Soil

Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**

CLEANING LABORATORY EVALUATION SUMMARY

Environmental Care and Share	Heavy Duty Cleaner Answer	10	95.35	☑	
Environmental Care and Share	Heavy Duty Cleaner Answer	5	96.76	☑	

Conclusion: Both dilutions removed over 85% of the Hucker's soil and would be considered effective based on the SSL testing methodology.