CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2017
DateRun:	05/09/2017
Experimenters:	George Liang
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #8
Substrates:	Aluminum, Stainless Steel
PartType:	Coupon
Contaminants:	Greases, Oil, Food
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To evaluate supplied product for DCC-12 oven soil removal from stainless steel and aluminum surfaces following TURI's all-purpose cleaning method.

Experimental Procedure:

The following experimental procedure is in accordance with TURI's cleaning standard operating procedure for all-purpose cleaning substituting a partially aged DCC-12 soil.

Soiling Process:

A set of pre-weighed stainless steel and aluminum coupons were contaminated with 0.5 grams of DCC-12 soil using a handheld swab onto the center of the coupon's surfaces. DCC-12 was made with the following ingredients: Butter 85.4%, Sugar 6.5%, Deionized Water 4.3%, and Flour 3.4%. The coupons were then aged in the oven at 450 oF for 25 minutes (normal aging time for DCC 12 is 2 hours). After the aging of the soil, the coupons were allowed to sit at room temperature to cool down for 20-30 minutes before reweighing again to determine the amount of contaminant added.

Cleaning Process:

Three soiled substrates were placed into a Gardner Straight Line Washability unit. Two Wypall X60 reinforced wipe was attached to the cleaning sled and soaked with 1 spray of cleaning solutions. The cleaning solutions were diluted to the desired concentrations specified by the vendor and heated to a temperature of 110 oF. Each substrate was sprayed 1 time with the same cleaning solution. The solution was allowed to penetrate for 30 seconds. This was followed by cleaning in the SLW unit for 20 cycles (~33 seconds).

Efficacy Rating Process:

The substrates were left to dry at room temperature for an hour before weighing to determine the amount of contaminant removed.

Results:

The objective of the experiment is to compare the efficacy of the sampled cleaners: Vi-Jon Premium Pot & Pan and Brady Premium Pot & Pan through gravimetric and visual efficacy evaluations.

Comparative Analysis:

The Vi-Jon Premium Pot & Pan was observed to have similar efficacy on the aluminum as the Brady Premium Pot & Pan, with respective ratings of 79.91% as compared to 80.71%. On aluminum coupons Vi-Jon Premium Pot & Pan was observed to have an efficacy that was closely comparable to Brady Premium Pot & Pan, with respective ratings of 81.04% as compared to 86.19%. Table pertaining to the amount of contaminant added and removed using a gravimetric scale by its respective cleaning agent to measure the efficacy of the cleaners.

Cleaner	Initial wt(g)	Final wt.(g)	% Removed
Brady Premium Pot and Pan Aluminum			
	0.3871	0.0319	91.76
	0.3935	0.0574	85.41
	0.3839	0.0714	81.4
Brady Premium Pot and Pan Stainless Steel			
	0.4238	0.125	70.5
	0.3388	0.0056	98.35
	0.3859	0.1031	73.28
Vi-Jon Premium Pot and Pan Aluminum			
	0.3947	0.067	83.03

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	0.3835	0.0713	81.41
	0.3899	0.0831	78.69
Vi-Jon Premium Pot and Pan Stainless Steel			
	0.3919	0.0646	83.52
	0.4046	0.075	81.46
	0.4022	0.1016	74.74

Summary:

Substrates:	Aluminum, Stainless Steel				
Contaminants:	Greases, Oil, Food				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Brady Industries	Brady Premium Pot and Pan	0.2	83.45	☑	
Vi-Jon	Vi-Jon Premium Pot and Pan	0.2	80.48	☑	

Conclusion:

In conclusion, the most effective to least effective cleaning agent for DCC-12 soil removal without prior soak in cleaning solution: Brady Premium Pot & Pan; Vi-Jon Premium Pot & Pan.