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:	Immersion/Soak
Analytical Methods:	Gravimetric
Purpose:	To evaluate supplied product for grease removal (using DCC-17) from stainless steel and aluminum surfaces with an initial soak in cleaning solution prior to following TURI's manual cleaning method.
Experimental Procedure:	The following experimental procedure is in accordance with TURI's cleaning a modified operating procedure for kitchen soil removal. The process added a soak prior to cleaning with manual washability unit.

Soiling Process:
A set of pre-weighed stainless steel and aluminum coupons were contaminated with 0.5 grams of DCC-17 soil using a handheld swab. Soil was applied onto the center of the coupon's surfaces. The soil, DCC-17, was made with the following ingredients: Vegetable Shortening 33%, Lard 33%, Vegetable Oil 33%, and Carbon lampblack 1%. After all the stainless steel and aluminum coupons were contaminated with DCC-17 soil, the coupons sat overnight and then re-weighed to determine the amount of contaminant added.

Cleaning Process:
Three soiled substrates were immersed into a bath for the respective cleaning agent for five minutes at a temperature of 110 oF. The coupons were then cleaned in the Gardner Straight Line Washability unit for 20 cycles (~33 seconds). The cleaning solutions were diluted to the desired concentrations specified by the vendor. Two Wypall X60 reinforced wipe were attached to the cleaning sled prior to running the SLW machine.

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: For the high-end products, Vi-Jon Premium Pot & Pan had an efficacy rating at roughly 90% for stainless steel and 94% on aluminum. The Brady premium product was slightly higher on aluminum surfaces, 96% and nearly identical on stainless steel, 94%. The table below contains to the amount of contaminant added, the amount remaining and the percent removal by the respective cleaning agent to measure the efficacy of the cleaners.

Cleaner	Initial wt(g)	Final wt.(g)	% Removed
Brady Premium Pot And Pan Stainless Steel			
	0.4815	0.0266	94.48
	0.4899	0.0346	92.94
	0.4896	0.029	94.08
Brady Premium Pot And Pan Aluminum			
	0.4885	0.0147	96.99
	0.488	0.0179	96.33
	0.4897	0.0183	96.26
Vi-Jon Premium Pot and Pan Stainless Steel			
	0.4896	0.0515	89.48
	0.4887	0.0493	89.91
	0.4914	0.0481	90.21
Vi-Jon Premium Pot and Pan Aluminum			
	0.4951	0.0243	95.09

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	0.4936	0.0292	94.08
	0.4913	0.0307	93.75

Summary:

Substrates:	Aluminum, Stainless Steel				
Contaminants:	Greases, Oil, Food				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Vi-Jon	Vi-Jon Premium Pot and Pan	0.2	91.94	☑	
Brady Industries	Brady Premium Pot and Pan	0.2	95.18	☑	

Conclusion:

In conclusion, most effective to the least effective cleaning agents in removing DCC-17 soil after an initial soak in the cleaning solution are listed in the following order: Brady Premium Pot & Pan; Vi-Jon Premium Pot & Pan.