CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2010
DateRun:	04/26/2010
Experimenters:	Junhee Cho
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Stainless Steel
PartType:	Coupon
Contaminants:	Hucker's Soil
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To evaluate supplied products for presoaking capabilities for manual dishwashing.
Experimental Procedure:	Preweighed stainless steel coupons were coated with a modified Hucker's soil and then placed in a conventional oven at 100 F for 2 hours. Dirty weights were recorded after the coupons cooled to room temperature. One set of coupons were cleaned 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. A second set of soiled coupons were first immersed into the cleaning solutions for 10 minutes and then cleaned following the manual cleaning process. Results were compared for each methodology. The two client supplied products were diluted according to recommendations using DI water (0.8 and 0.13). A comparative product was used at the 0.1% dilution recommended by the ASTM 4009 for foam stability in manual cleaning. Water also was used.
Results:	The two supplied products were more effective at removing the Hucker's soil from the three surfaces using the presoaking with manual wiping. Dawn and water both had lower efficiency after soaking than manual cleaning alone. The table lists the amount of soil added, the amount remaining after cleaning and the calculated efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Alpha Chemical Liquid presoak 0.8% (presoaking)	0.0337	0.0016	95.25
	0.0566	0.0028	95.05
	0.0289	0.0029	89.97
Alpha Chemical Solid presoak 0.3% (presoaking)	0.0283	0.0056	80.21
	0.0777	0.0086	88.93
	0.0612	0.0044	92.81
Dawn cleaner 0.1 % (presoaking)	0.0278	0.0122	56.12
	0.1104	0.0057	94.84
	0.0675	0.0036	94.67
Water 100% (presoaking)	0.0549	0.0142	74.13
	0.1523	0.0272	82.14
	0.0663	0.0152	77.07
Alpha Chemical Liquid presoak 0.8% (non-presoaking)	0.2667	0.016	94.00
	0.0267	0.0025	90.64
	0.0294	0.0043	85.37
Alpha Chemical Solid presoak 0.3% (non-presoaking)	0.0324	0.0077	76.23
	0.0377	0.0111	70.56

CLEANING LABORATORY EVALUATION SUMMARY

	0.0537	0.0103	80.82
Dawn cleaner 0.1 % (non-presoaking)	0.0609	0.0068	88.83
	0.0379	0.0071	81.27
	0.1227	0.0148	87.94
water 100% (non-presoaking)	0.0833	0.0352	57.74
	2.0382	0.0066	99.68
	0.0286	0.0059	79.37

Summary:

Substrates:	Stainless Steel				
Contaminants:	Hucker's Soil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Alpha Chemical Services	Liquid Presoak	0.8	93.42	☑	
Alpha Chemical Services	Solid Presoak	0.3	87.32	☑	
Procter & Gamble	Dawn Dish Detergent	0.1	81.87	☐	
Water	Water	100	77.78	☐	

Conclusion: The supplied presoak products removed over 85% of the aged soil. Both worked better than water or Dawn and better than cleaning without a presoak.