CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2009

DateRun: 08/16/2009

Experimenters: Jason Marshall, Timothy Weil

ClientType: Cleaner Manufacturer

ProjectNumber: Project #1

Substrates: Glass/Quartz

PartType: Coupon

Contaminants: Food

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric, Visual

Purpose: To evaluate supplied product for coffee equipment cleaning as compared to traditional product

Experimental Procedure: To prepare coffee sludge for application onto preweighed coupons, 35 g of coffee was added to 500 ml of water. The coffee mixture was stirred using a magnetic stir bar while being heated to boiling on a hot plate for 1 hour 45 minutes. After the initial heating, the coffee grounds were removed from the solution. The resulting coffee mix was again agitated and heated until the liquid mix became more of a sludge. When the coffee mix was at an appropriate viscosity, the sludge was applied to the glass coupons using a hand held swab and allowed to cool. Once cool, dirty weights were recorded to determine the amount of coffee added.

Three coupons were placed in the Gardner Straightline washability unit. Cleaning products were sprayed onto the coupons using 3-5 pumps from a manual spray bottle. Five to seven pumps were applied to a Kimberly Clark Wypal reinforced paper wiper that was attached to the cleaning sled of the washability unit. Ten cleaning cycles were performed for each cleaning product. At the conclusion of the cleaning, a clean, dry reinforced paper towel was used to dry the coupons. Final weights were recorded, efficiencies calculated and observations made.

Note: Cleaning cycle length was determined prior to cleaning using water only. The time for water to completely remove the coffee stain was determined and then cleaning cycle time for the products was set at half that time.

Results: The supplied product had the highest overall efficiency at 97.3, followed closely by the Activeion cleaner at 97.14. The traditional product had a lower efficiency than the water (control). However, all three cleaners removed more than 90% of the coffee within 20 seconds of manual cleaning. Even though water removed a majority of the coffee and looked cleaner than the chemical cleaners, the water left behind a coffee stain residue that was not present from the other products.

Cleaner	Initial wt	Final wt	% Removed
Coffee Equipment Cleaner	0.1692	0.0052	96.93
	0.1848	0.0047	97.46
	0.1981	0.0049	97.53
Formula 409	0.2441	0.0110	95.49
	0.2380	0.0083	96.51
	0.1756	0.0179	89.81
ActiveIon	0.1201	0.0038	96.84
	0.1468	0.0030	97.96
	0.1068	0.0036	96.63
Water	0.2484	0.0053	97.87
	0.2034	0.0088	95.67
	0.1353	0.0058	95.71

Summary:

Substrates:	Glass/Quartz
Contaminants:	Food

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Alpha Chemical Services	Coffee Equipment Cleaner	0.3	97.30	☑	
Clorox Company	Formula 409 All Purpose Cleaner	100	93.94	☑	
Activeion Cleaning Solutions LLC	Activeion Pro	100	97.14	☑	

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Water	Water	100	96.42	☑	

Conclusion: The Alpha Chemical Services Coffee Equipment Cleaner performed very well, surpassing the lab's 85% cutoff level for effective cleaning. A follow up test will be conducted on a coffee maker soiled with coffee sludge and compared to the same products.