CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2018

DateRun: 01/28/2018

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ClientType: Cleaner Manufacturer

ProjectNumber: Project #15

Substrates: Ceramics, Stainless Steel, Porcelain

PartType: Part

Contaminants: Food

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric, Visual

Purpose: To determine the efficiency of various oven cleaners in removing DCC-12 soil from ceramic, stainless steel, and porcelain coupons.

Experimental Procedure: Eighteen pre-weighed coupons (split into sets of three porcelain, stainless steel, and ceramic for each cleaner) were collected to test two separate cleaners: Easy Off Heavy Duty Oven Cleaner and Formula 409 Heavy Duty Oven Cleaner. Each coupon was contaminated with 0.3 grams of DCC-12 soil (85.4% butter, 6.5% sugar, 4.7% deionized water, 3.4% all-purpose white flour) using a hand held swab. The coupons were placed in an oven to cure for two hours at 475 ºF. After aging, coupons were allowed to cool, and weights were recorded again. The product was left to soak for five minutes on each coupon, and then each was cleaned for 20 cycles using a manual straight line washability unit. Three coupons were placed on the machine at once, washed, and then left to air dry. After air drying for one day, the coupons were reweighed to determine the final weight. The coupons were visually rated by three different individuals on a scale of 1 to 5 (1- completely cleaned, 5- soil untouched).

Results: Table 1: Summary of Gravimetric Results

Cleaner	Substrate	Initial wt. of cont.	Final wt. of cont.	% Removed	Average % Removal	Product Average % Removal
Easy Off Oven Heavy Cleaner	Ceramic	0.17557	0.1802	-2.637	13.35	21.24
		0.1948	0.1707	12.37		
		0.3312	0.2308	30.31		
	Stainless Steel	0.1609	0.1812	-12.62	-11.26	
		0.1972	0.2192	-11.16		
		0.1279	0.1407	-10.01		
	Porcelain	0.1475	0.0395	73.22	61.64	
		0.1265	0.1028	18.74		
		0.2826	0.0199	92.96		
Formula 409 Heavy Duty Oven	Ceramic	0.2903	0.0858	70.44	69.52	54.60
		0.4554	0.1258	72.38		
		0.434	0.1487	65.74		
	Stainless Steel	0.3924	0.3937	-0.33	-0.29	
		0.3654	0.3666	-0.33		
		0.4715	0.4726	-0.23		
	Porcelain	0.4804	0.0247	94.86	94.57	
		0.3779	0.0218	94.23		
		0.2695	0.0145	94.62		

Formula 409 Heavy Duty Oven Cleaner was more effective than Easy Off Oven Cleaner at removing DCC-12 oven soil.

Table 2: Summary of Visual Ratings

Cleaner	Substrate	Rater 1	Rater 2	Rater 3	Average Rating
Easy Off Oven Heavy Cleaner	Ceramic	3	4.5	4.5	3.72
		3.5	4	4	
		3.5	3.5	3	
	Stainless Steel	5	4.5	4.5	4.78
		5	5	5	

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		5	4.5	4.5	
	Porcelain	3.5	3.5	3.5	3.28
		3	4.5	4.5	
		2.5	2.5	2	
Formula 409 Heavy Duty Oven	Ceramic	2.5	3	2.5	2.94
		3	3	3	
		3	3.5	3	
	Stainless Steel	5	4.5	5	4.94
		5	5	5	
		5	5	5	
	Porcelain	2.5	2.5	2	2.17
		1.5	2	2.5	
		2	2.5	2	

Summary:

Substrates:	Ceramics, Stainless Steel, Porcelain				
Contaminants:	Food				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Reckitt Benckiser	Easy Off heavy Duty Oven Cleaner	100%	21.24	☐	
Brand Buzz	409 Heavy Duty Oven Cleaner	100%	54.60	☐	

Conclusion:

Brand Buzz Formula 409 Heavy Duty Oven cleaner was found to be over twice as effective as the Reckitt Benicker Easy Off Oven Heavy Duty cleaner. Visual observation produced similar results for both products. Neither cleaner appeared particularly effective under the testing conditions.