CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2016

DateRun: 08/22/2016

Experimenters: George Liang, Vinh Tran

ClientType: Cleaner Manufacturer

ProjectNumber: Project #1

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To evaluate supplied products for Green Seal GS 34 soil removal.

Experimental Procedure: There are two types of Green Seal GS 34 soil; one being maintenance soil and the second being production soil. The two types of soils were prepared individually. The first soil, maintenance soil, consisted of 10 grams of carbon black, 10 grams of iron oxide, 100 mL WD-40, 100 mL hydraulic oil, and 100 mL gear oil. Each component was placed in a 750 mL beaker and mixed for 20 minutes at room temperate using a magnetic stirrer. The second soil, production soil, was made by mixing 200 mL Quench Oil and 200 mL cutting oil for 20 minutes at room temperature using a magnetic stirrer in a second 750 mL beaker.

Approximately 100 mg of each soil was applied to a pre-cleaned and pre-weighed stainless steel coupon onto one side only with a hand held swab. The maintenance soils for all three coupons were baked in an oven for 30 minutes at a temperature of 40oC (105F). For the production soil, three coupons were baked in an oven for 30 minutes at a temperature of 105 oC (220F). The coupons were then allowed to cool to room temperature and weighed a second time. Both cleaning products were diluted to 5%. A total of 500mL of cleaning solution were made from each cleaning product; the solution consisted of 475mL of water and 25mL of the corresponding cleaning product to make the dilution.

Three stainless steel coupons were suspended into each 500mL diluted cleaning product solution, allowing the entire contaminated surface to be submerged in the cleaning solution. The coupons were washed for 20 minutes using immersion cleaning only at room temperature.

The washing was followed by two rinse steps. The coupons were drained for 30 seconds prior to each rinse step, for reach rinse step a 20 minute soak in water was utilized. After the two rinse steps, all coupons were first allowed to air dry for 30 minutes and then dried in an oven at 105 oC for 30 minutes. The coupons were then cooled to room temperature and final weights were measured.

Results:

Contaminants	Cleaner	Initial wt	Final wt	% Removal	% Avg	% Overall
Production Soil	Logos	0.0970	0.0604	37.73		
		0.0962	0.0551	42.72		
		0.1017	0.0594	41.59	40.68	
Maintenance Soil	Logos	0.0901	0.0872	3.22		
		0.1108	0.1076	2.89		
		0.0984	0.0927	5.79	3.97	22.32
Production Soil	Simple Green	0.0945	0.0443	53.12		
		0.0983	0.0435	55.75		
		0.0985	0.0559	43.25	50.71	
Maintenance Soil	Simple Green	0.1028	0.1014	1.36		
		0.0935	0.0893	4.49		
		0.1086	0.1008	7.18	4.35	27.53

Summary:

Substrates:	Stainless Steel				
Contaminants:	Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Logos Technologies	NatSurFact A	5	22.32	☐	
Logos Technologies	NatSurFact B	5	27.53	☐	

Conclusion:

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Both cleaning products were not effective at removing the maintenance and production soil, because a typical effective cleaning product would have a percent removal of 85% or higher. However, the cleaning product Simple Green was slightly more effective at removing the soil compared to the cleaning product Logos. In addition, both cleaning products were more effective at removing production soil than maintenance soil.