CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2014

DateRun: 06/23/2014

Experimenters: Loc Nguyen, Jonathan Oljey

ClientType: Cleaner Manufacturer

ProjectNumber: Project #1

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To evaluate the efficiency one cleaner on GS 34 Soil-1 and GS 34 Soil- 2 from stainless steel and aluminum coupons using manual wipe technique.

Experimental Procedure: Two sets of stainless-steel coupons were weighed. The first set was soiled with GS 34 Soil-1 and the other set was soiled with GS 34 Soil-2. Both soils were applied at the loading of ~100mg. The soiled coupons were oven dried for 30 minutes with 40 °C for GS 34 Soil-1 and 105 °C for GS 34 Soil-2. Dirty weights were recorded for all of the coupons.

The Eco Green Heavy-Duty Degreaser was supplied ready to use concentration. Three coupons were placed in a Gardner Straightline Washability unit and spray with a cleaning solution and allowed to soak for 1 minute. After soaking, the unit was run for 20 cycles (33 seconds) followed by a quick spray rinse using tap water at room temperature. Final weights were recorded the following day. Efficiencies were calculated and recorded.

Soil 1: Maintenance soil = 10 grams of carbon black, 10 grams iron oxide, 100 ml WD-40, 100 ml hydraulic oil, and 100 ml gear oil.
Soil 2: Production soil = 200 ml Quench Oil and 200 ml cutting oil

Results:

Cleaner	Initial wt	Final wt	% Removed	Average
Maintanance_Aluminum	0.0806	0.0067	91.69	92.06
	0.0831	0.0054	93.50	
	0.0621	0.0056	90.98	
Maintanance_ StainlessSteel	0.1457	0.0075	94.85	95.15
	0.0777	0.0042	94.59	
	0.0848	0.0034	95.99	
Production_Aluminum	0.0868	0.0059	93.20	92.33
	0.0733	0.0066	91.00	
	0.0819	0.0059	92.80	
Production_StainlessSteel	0.1073	0.0034	96.83	96.71
	0.1140	0.0045	96.05	
	0.1420	0.0039	97.25	

Overall Eco Green Heavy-Duty Degreaser: 94.06

Summary:

Substrates:	Stainless Steel				
Contaminants:	Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
A & C Green Cleaner LLC	A & C Eco Green Heavy Duty Degreaser	100	94.06	☑	

Conclusion: The Heavy-Duty Degreaser was very effective in the removal of GS-34 soils. The highest removal efficiency was approximately 97% on the stainless-steel coupons covered in production soil. The lowest removal efficiency was approximately 92% on the aluminum coupons covered in maintenance soil. There was a clear difference in efficiency based on which substrate was used. Stainless steel coupons showed a higher removal efficiency than aluminum coupons.