CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2014
DateRun:	04/16/2014
Experimenters:	Loc Nguyen
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Stainless Steel
PartType:	Coupon
Contaminants:	Oil
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To evaluate second supplied product for Green Seal GS 34 degreasing standard.
Experimental Procedure:	Two types of soils were prepared individually. The first soil, maintenance soil, consisted of 10 grams of carbon black, 10 grams iron oxide, 100 ml WD-40, 100 ml hydraulic oil, and 100 ml gear oil. Each component was placed in a 750 beaker and mixed for 20 minutes at room temperature 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 precleaned and preweighed stainless steel coupon onto one side only with a handheld swab. No soil was applied to the two control coupons. The maintenance soil for all three coupons was baked in an oven for 30 minutes at a temperature of 40° C (105 F). For the production soil, all three coupons were baked in an oven for thirty minutes at 105° C (220 F). The coupons were then allowed to cool to room temperature and weigh a second time (soiled mass = B). 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 1 spray of cleaning solution. Each coupon was sprayed 1 time 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.

Results:

Cleaner – Conc - Soil	Initial wt	Final wt	% Removed
SKW QUAB 5% Soil 1			
	0.0565	0.0096	83.01
	0.1060	0.0080	92.45
	0.0785	0.0108	86.24
SKW QUAB 10% Soil 1			
	0.0318	0.0062	80.50
	0.0196	0.0073	62.76
	0.0838	0.0064	92.36
SKW QUAB 15% Soil 1			
	0.0490	0.0059	87.96
	0.0613	0.0065	89.40
	0.0671	0.0063	90.61
Purple Power 5% Soil 1			
	0.0384	0.0039	89.84
	0.0209	0.0042	79.90
	0.0349	0.0034	90.26
Purple Power 10% Soil 1			
	0.0200	0.0020	90.00
	0.0343	0.0025	92.71
	0.0292	0.0027	90.75
Purple Power 20% Soil 1			
	0.0433	0.0014	96.77

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	0.0192	0.0001	99.48
	0.0201	0.0006	97.01
Biocircle CB100 20% Soil 1			
	0.0319	0.0008	97.49
	0.0198	0.0000	100.00
	0.0238	0.0018	92.44
SKW QUAB 5% Soil 2			
	0.0809	0.0050	93.82
	0.0866	0.0050	94.23
	0.0907	0.0064	92.94
SKW QUAB 10% Soil 2			
	0.0828	0.0040	95.17
	0.1100	0.0038	96.55
	0.0825	0.0028	96.61
SKW QUAB 15% Soil 2			
	0.0872	0.0079	90.94
	0.0880	0.0065	92.61
	0.0970	0.0042	95.67
Purple Power 5% Soil 2			
	0.0956	0.0046	95.19
	0.1092	0.0036	96.70
	0.0893	0.0018	97.98
Purple Power 10% Soil 2			
	0.1035	0.0041	96.04
	0.1151	0.0030	97.39
	0.0981	0.0044	95.51
Purple Power 20% Soil 2			
	0.1110	0.0033	97.03
	0.0862	0.0026	96.98
	0.0978	0.0034	96.52
Biocircle CB100 20% Soil 1			
	0.1086	0.0190	82.50
	0.0826	0.0016	98.06
	0.0773	0.0015	98.06

Summary:

Substrates:	Stainless Steel
Contaminants:	Oil

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
SKW Quality Chemicals	SKW Quab	5	90.45	☑	
SKW Quality Chemicals	SKW Quab	10	87.33	☑	
SKW Quality Chemicals	SKW Quab	15	91.20	☑	
Aiken Chemical Co.	Purple Power	5	91.65	☑	
Aiken Chemical Co.	Purple Power	10	93.73	☑	
J Walter Inc.	Bio Circle CB 100	20	97.24	☑	
Aiken Chemical Co.	Purple Power	20	97.30	☑	

Conclusion: Each supplied cleaner worked to effective levels of cleaning for each soil. Purple Power at 20% demonstrated the most effective level of cleaning for each soil, followed by Biocircle at 20%. The SKW Quab at 15% was comparable to the Purple Power at 5%.