CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2013
DateRun:	09/03/2013
Experimenters:	Jonathan Oljey, George Liang, Sam Kibirige
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Stainless Steel
PartType:	Coupon
Contaminants:	Oil
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To evaluate and compare the performance supplied cleaners for manual cleaning of oils.

Experimental Procedure:

The supplied cleaning products were diluted to the recommended concentrations using tap water at room temperature.

The two soils used were GS-34 maintenance and GS-34 Production. The First Soil, GS-34 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. The maintenance soil on the coupons was baked in an oven for 30 minutes at a temperature of 40° C (105 F). For the production soil, the 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. Three coupons were placed into a Gardner Straight Line Washability unit. A Wypall L30 reinforced wipe was attached to the cleaning sled and soaked with 2-3 sprays of a cleaning solution. Each coupon was sprayed 2-3 times with the same cleaning solution. The solution was allowed to penetrate for 30 seconds followed by cleaning in the SLW unit for 20 cycles (~30 seconds). Efficiency was calculated for each coupon.

Cleaner: Booyah Direct Release 2X; Direct Power Green 10%

Results:

Both cleaning products worked very well at removing both soils using manual cleaning. The Direct Power Green product slightly outperformed the Booyah product on the maintenance soil, 90.3% to 88.9 %, but the reverse was true for the production soil with Booyah working better than the Direct Power Green, 96.3% to 95.6.

The table lists the amount of soil added, the amount remaining, and the efficacy of each coupon cleaned by each product.

Cleaner	Initial wt	Final wt	% Removed
Maintenance Soil			
Booyah			
	0.0835	0.0161	80.72
	0.0696	0.0049	92.96
	0.0779	0.0054	93.07
Direct Power Green			
	0.0903	0.0073	91.92
	0.0748	0.0077	89.71
	0.0821	0.0088	89.28
Grime Off Spray			
	0.0815	0.0057	93.01
	0.0792	0.0073	90.78
	0.0816	0.0094	88.48
Grime Off Wipes			
	0.0742	0.0070	90.57
	0.0650	0.0080	87.69
	0.0747	0.0081	89.16
Production Soil			
Booyah			

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	0.0845	0.0034	95.98
	0.0957	0.0030	96.87
	0.0847	0.0032	96.22
Direct Power Green			
	0.0895	0.0033	96.31
	0.0984	0.0041	95.83
	0.0923	0.0047	94.91
Grime Off Spray			
	0.0801	0.0040	95.01
	0.0716	0.0037	94.83
	0.0898	0.0027	96.99
Grime Off Wipes			
	0.0973	0.0041	95.79
	0.0926	0.0034	96.33
	0.0923	0.0040	95.67

Summary:

Substrates:	Stainless Steel				
Contaminants:	Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Grignard	Direct Power Green(10% Conc.)	10	92.99	☑	
Wechem Inc.	Booyah Cleaner Degresaser 2X	25	92.63	☑	

Conclusion:

The supplied product new product from Wechem worked as well as the currently available product from Grignard for oil removal using manual wiping. On average both products removed more than 92% of the two soils.