CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2000

DateRun: 03/21/2000

Experimenters: Jason Marshall, Nicole Vayo

ClientType: City Government

ProjectNumber: Project #1

Substrates: Aluminum, Brass, Ceramics, Stainless Steel

PartType: Coupon

Contaminants: Cutting/Tapping Fluids, Greases, Inks, Lubricating/Lapping Oils, Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To evaluate two supplied cleaning products for removal of listed contaminants

Experimental Procedure: One product was used directly from the bottle and the second was diluted to 5% using DI water in 600 ml beakers. Both solutions were evaluated at room temperature for five minutes of soaking. Three coupons per contaminant were cleaned and then rinsed for 30 seconds at room temperature. Coupons were dried for two hours at room temperature. Gravimetric analysis was performed to determine percent removal of the contaminants.

SUBSTRATE MATERIAL: Aluminum 202-2024 T-3, Brass, Stainless Steel 202-174-68-HR, Ceramic Coupons
CONTAMINANTS: The contaminants used are listed in Table 1.

Table 1. Contaminants

Class	Name	CAS #
OIL	Citgo NC 400	64741-89-5, 8052-42-4
INK	Steel Blue	67-63-0, 108-88-3, 9004-70-0 , 109-60-4, 141-78-6, 64-17-5
GREASE	KSL-111	64742-47-8, 8052-42-4
LUB	Keystone423	64742-57-0, 64742-62-7

Results: One product was used directly from the bottle and the second was diluted to 5% using DI water in 600 ml beakers.
Both solutions were evaluated at room temperature for five minutes of soaking. Three coupons per contaminant were cleaned and then rinsed for 30 seconds at room temperature. Coupons were dried for two hours at room temperature. Gravimetric analysis was performed to determine percent removal of the contaminants.

Table 3. Cleaning Effectiveness

Product								
Drummand American Keynote				Drummand American Clout				
Cont/Sub	AL-LUB	CE-OIL	SS-INK	AL-GR	AL-GR	CE-OIL	BR-INK	SS-LUB
Coupon 1	99.26	99.33	0.07	99.67	98.9	99.61	8.81	96.71
Coupon 2	99.21	99.53	16.8	99.95	98.86	99.86	7.32	95.24
Coupon 3	99.58	99.79	5.34	99.79	98.87	99.5	9.73	97.65
Average	99.35	99.55	7.4	99.8	98.88	99.66	8.62	96.53

Summary:

Substrates:	Aluminum, Brass, Ceramics, Stainless Steel
Contaminants:	Cutting/Tapping Fluids, Greases, Inks, Lubricating/Lapping Oils, Oil

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Drummond America Corporation	Keynote	100	99.35	☑	lubricant
Drummond America Corporation	Keynote	100	99.55	☑	oil
Drummond America Corporation	Keynote	100	7.40	☐	ink
Drummond America Corporation	Keynote	100	99.80	☑	
Drummond America Corporation	Clout	5	98.88	☑	grease
Drummond America Corporation	Clout	5	99.66	☑	oil
Drummond America Corporation	Clout	5	8.62	☐	ink
Drummond America Corporation	Clout	5	96.53	☑	lubricant

Conclusion:

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Both Keynote and Clout had excellent removal of the oil, lubricant and grease but had equal difficulty in cleaning the ink.