

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2000
 DateRun: 03/20/2000
 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.