

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2004  
 DateRun: 07/07/2004  
 Experimenters: Jason Marshall  
 ClientType: Bicycle Manufacturer  
 ProjectNumber: Project #1  
 Substrates: Titanium  
 PartType: Coupon  
 Contaminants: Inks  
 Cleaning Methods: Manual Wipe  
 Analytical Methods: Gravimetric

Purpose: To evaluate client requested products on the sixth supplied soil.

Experimental Procedure: The three cleaners were diluted to 5% using DI water in 600 ml beakers at room temperature. Nine preweighed titanium coupons were coated with ink from a Sharpie marker. The ink was applied first in a side to side manner and then in an up and down direction. Coupons were then weighed a second time to determine the amount of soil added. Three coupons were cleaned for about 2 minutes using a Gardner Straight Line Washability unit. Three coupons were placed into a Gardner Straight Line Washability unit. A Professional Painter's Rag was immersed into a beaker of the cleaning solutions and then attached to the cleaning sled. The cleaning unit was run for 75 cycles (~2 minutes). At the end of the cleaning cycle, coupons were weighed again and efficiencies were calculated.

Results: One of the three products removed over 85%. The table below lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
M Aero	0.0019	0.0002	89.47
	0.0030	0.0004	86.67
	0.0014	0.0002	85.71
M Aero NS	0.0014	0.0003	78.57
	0.0024	0.0008	66.67
	0.0025	0.0006	76.00
M 400	0.0010	0.0007	30.00
	0.0011	0.0008	27.27
	0.0014	0.0010	28.57

Summary:

<b>Substrates:</b>	Titanium				
<b>Contaminants:</b>	Inks				
<b>Company Name:</b>	<b>Product Name:</b>	<b>Conc.:</b>	<b>Efficiency:</b>	<b>Effective:</b>	<b>Observations:</b>
Church & Dwight Co Inc.	Armakleen M Aero	5	87.28	<input checked="" type="checkbox"/>	
Church & Dwight Co Inc.	Armakleen M Aero NS	5	73.75	<input type="checkbox"/>	
Church & Dwight Co Inc.	Armakleen M-400	5	28.61	<input type="checkbox"/>	

Conclusion: The three supplied products have been tested on six soils. The M Aero was the only product to work on all six contaminants. The M Aero NS worked on all except the ink. With further cleaning time, the ink would have been removed by M Aero NS.