CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2004

DateRun: 07/07/2004

Experimenters: Jason Marshall

ClientType: Bicycle Manufacturer

ProjectNumber: Project #1

Substrates: Titanium

PartType: Coupon

Contaminants: Cutting/Tapping Fluids

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

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

Experimental Procedure: The three cleaners were selected by the client and were diluted to 5% using DI water in 600 ml beakers. All three products were heated to 120 F on a hot plate.

Nine preweighed titanium coupons were coated with client supplied tapping fluid, Master Chemical Corp Trim C270 (102-71-6, 63231-48-1, 141-43-5), using a hand held swab and then weighed a second time to determine the amount of soil added. Three coupons were cleaned in each solution for 5 minutes using stir-bar agitation. Coupons were rinsed in tap water for 15 seconds at 120 F, followed by air blow off at room temperature. Once dry, coupons were weighed a final time and efficiencies for each cleaner were calculated.

Results: All three products removed over 99% of the second oil. 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	0.1628	0.0001	99.94
	0.1813	0.0002	99.89
	0.2526	0.0005	99.80
M Aero NS	0.1688	0.0001	99.94
	0.2086	0.0003	99.86
	0.1696	0.0005	99.71
M 400	0.1642	0.0015	99.09
	0.2559	0.0015	99.41
	0.1983	0.0015	99.24

Summary:

Substrates:	Titanium
Contaminants:	Cutting/Tapping Fluids

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Church & Dwight Co Inc.	Armakleen M Aero	5	99.88	☑	
Church & Dwight Co Inc.	Armakleen M Aero NS	5	99.83	☑	
Church & Dwight Co Inc.	Armakleen M-400	5	99.25	☑	

Conclusion: The three products will be tested on the third supplied soil under the same conditions.