CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1998

DateRun: 04/05/1998

Experimenters: Jason Marshall

ClientType: Manufacturers of Precision Parts and Assemblies

ProjectNumber: Project #2

Substrates: Stainless Steel

PartType: Coupon

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

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric, OSEE

Purpose: Determine relationship between efficiency and OSEE

Experimental Procedure: Initial measurements of six coupons were made for OSEE and gravimetric analysis. The coupons were contaminated with the sulfur based oil supplied by the client. A second set of readings were made for the analytical methods. Coupons were cleaned using the two different baths (new and one week) of M-Auto from Church & Dwight. Cleaning took place in beakers place in a 40 kHz Crest Ultrasonic Unit for five minutes at 130 F. Coupons were rinsed in tap water at 120 F for thirty seconds and dried using air blow off and an Original Disc Furnace portable heater model 1500IV for one minute. After coupons cooled to room temperature, the final OSEE and gravimetric readings were made.

SUBSTRATE MATERIAL: Stainless Steel Coupons
CONTAMINANTS: C-Eblis oil (sulfur based)

Results: Gravimetric analysis revealed the cleaning efficiencies to be 98% for the new bath and 87% for the used bath. OSEE readings are listed in Table 1.
Table 1. OSEE Readings of Coupons

Table 1. OSEE Readings of Coupons			
New			
Coupon #	Pre	Dirty	Clean
7	116	62	141
8	102	62	233
9	139	87	160
Used			
Coupon #	Pre	Dirty	Clean
10	104	85	117
11	181	96	132
12	128	85	127

When the coupons were contaminated with the oil, OSEE readings went down. After cleaning the values went back up again. The clean OSEE numbers from the New bath were higher than the Used bath. Also, the clean readings for both cleaners were greater than the initial values. This indicates that the coupons may not have been completely clean before the experiment was started.

Summary:

Substrates:	Stainless Steel				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Church & Dwight Co Inc.	Armakleen M Auto	3	98.00	☑	

Conclusion: Gravimetric analysis was used to link OSEE readings to cleanliness levels. As can be seen in this trial, the more contaminant present on the substrate, the lower the OSEE numbers will be.