CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1997

DateRun: 09/08/1997

Experimenters: Jason Marshall, Prashant Trivedi

ClientType: Manufacturer of Security Systems

ProjectNumber: Project #1

Substrates: Steel

PartType: Coupon

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

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To determine if current cleaner was best choice

Experimental Procedure: The purpose of the experiment was to determine if the client's current cleaner was their best possible choice. The existing cleaner was compared to two other similar chemistries. Percent removal was selected as the basis in determining which cleaner was the best. Coupons were contaminated using the client supplied oil with a swab. The contaminated coupons were allowed to sit overnight before taking the contaminated weights. The coupons were then cleaned with the client supplied cleaner as well as two similar products for comparative purposes. The cleaners were heated in beakers to 125 F. Cleaning was performed for two minutes in beakers. The coupons were then rinsed with a tap water for fifteen seconds at 120 F. The parts were then allowed to air dry. Percent removal was determined for each cleaner.
SUBSTRATE MATERIAL: 1020 cold rolled steel
CONTAMINANTS: Aquamove 109 AS Protective Oil

Results: After analyzing the data obtained from testing, it was determined that the Oakite cleaner was the best of the three cleaners in the removal of the Aquamove 109 AS Protective Oil. See Figure 1 for details. Oakite had an average removal of 97%, followed by Calgon at 86% and Daraclean had a removal of 73%. Each of the cleaners were fairly consistent in the removal of the oil. See Table 1 for standard deviations (Std Dev).

Table 1 Percent Removal

Product	Calgon	Daraclean	Oakite
Coupon 1	90.89	76.31	93.43
Coupon 2	87.08	65.69	99.32
Coupon 3	79.85	76.94	97.85
Average	85.94	72.98	96.87
Std Dev	5.61	6.32	3.06

Summary:

Substrates:	Steel				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Calgon Corporation	AK 6215	3	85.94	☑	
Magnaflux	Daraclean 282	3	72.98	☑	
Oakite Products	Inproclean 1300	3	96.87	☑	

Conclusion: This test was completed under the assumption that the Aquamove oil was the oil the most closely matched the clients situation. From the data obtained, the Oakite product was the best of the three cleaning chemistries. The Oakite product had an average contaminant removal of 97% followed by Calgon at 86% and by Daraclean at 73%. All three proved to be consistent in their cleaning capabilities.

A second preliminary test will be run to determine if the percent removal of the contaminant will be effected at different cleaner concentrations. In this trial, the Quaker oil will be used in place of the Aquamove.