CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1997

DateRun: 09/18/1997

Experimenters: Jason Marshall

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: Colorimeter, Gravimetric

Purpose: To evaluate %removal vs %oil concentrations

Experimental Procedure: The purpose of this experiment was to find the percent removal using the Oakite/Oil solutions from the previous trial to aid in determining at which contaminant level interferences might occur.

Coupons were contaminated with the oil using swabs. The coupons were allowed to sit for over an hour. After obtaining the contaminated weights, the two coupons were cleaned per Oakite/Oil solutions. The same operating conditions were followed as in previous trials. An initial cleaning attempt resulted in inconclusive results. The most contaminated solution had better percent removal of the less contaminated solutions. Therefore, a decision was made to add stir-bar agitation to the cleaning procedure

SUBSTRATE MATERIAL: 1020 Cold rolled steel
CONTAMINANTS: Quaker C1A US oil

Results: After rerunning the cleaning trial, a relationship was observed between percent removal and percent oil concentration as seen in Figure 1.

As the oil concentration was increased, the cleaning efficiency decreased. It should be noted that even at a oil concentration of 20%, the percent removal was still quite good. The average percent removal was around 87%. Table 1 lists the values for each Oakite/Oil solution.

Table 1 Experimental Data

0%	1%	5%	10%	20%	%Oil
99.17	98.85	93.54	87.97	89.15	
98.99	98.07	92.19	89.64	85.00	
99.08	98.46	92.86	88.80	87.07	Average
0.13	0.55	0.96	1.18	2.93	Std dev

Summary:

Substrates:	Steel				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Oakite Products	Inproclean 1300	3	98.00	☑	

Conclusion: A relationship between percent oil concentration and percent removal was observed. This relationship shows that as the oil concentration increases, the cleaning efficiency decreases asymptotically. The next step is to determine at what point does the cleanliness of the parts cause failure during the painting process. After obtaining this level, the previously demonstrated testing techniques can be used to determine when the cleaning solution approaches this level.