CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	1997
DateRun:	09/15/1997
Experimenters:	Jason Marshall
ClientType:	Manufacturer of Security Systems
ProjectNumber:	Project #1
Substrates:	Liquid
PartType:	Coupon
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil
Cleaning Methods:	
Analytical Methods:	Colorimeter
Purpose:	To analyze several contaminated Oakite solutions

Experimental Procedure:

Several three percent solutions of the Oakite cleaner were contaminated with a oil at different concentrations. The concentrations used were one, five, ten and twenty percent by volume. One solution of the Oakite was left uncontaminated (0% oil). After the solutions were made up and allowed to settle, about an hour, a shake test was performed to determine the height of the resulting foaming. The initial premise was that the higher the foam, the more greater the cleaning capability. After further consideration of the initial though process, it was determined that the oil would cause foaming as well and therefore, the relationship would be to determine the opposite of what was first expected. The first step in this experiment was to pour the sample into a volumetric cylinder and cover with parafilm. After covering the cylinder the solution was shaken evenly for ten seconds. Immediately following the shaking, the height of the resulting foam was measured. The values obtained were recorded and graphed.
A second test was performed on the solutions to measure absorbency at a selected wavelength. The value of the wavelength was set at 530nm. The 0% oil solution was used as the blank in the experiment. Each solution was poured into the cell and place into the instrument and the resulting absorbency was recorded and plotted in order to show the relationship more clearly.

SUBSTRATE MATERIAL: Oakite Inproclean 1300 - 3% by volume solution
CONTAMINANTS: Quaker C1A US oil
CONTAMINATING PROCESS USED: Add known percent volume of oil to the Oakite solution

Results:

It was observed in both trials that as the amount of oil in the cleaning solutions increased, the value that was being observed also increased. Both methods had similar rates of increase as can be seen in Figures 1 and 2.

Summary:

Substrates:	Liquid				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Oakite Products	Inproclean 1300	3	0.00	☐	

Conclusion:

After observing the relationship between oil concentration and physical characteristics, it can be seen that as the oil concentration increases, the observed characteristics increase to a point and then level off. The two traits that were measured were very easy to perform and to analyze.

The device used to measure the absorbance of the solutions was a relatively inexpensive piece of equipment that provides many other methods for analysis (i.e., turbidity). The instrument information is inclosed with this report.

Without the filtration that takes place at the clients facilities, the solutions are quite milky in color. Despite the different appearance of the solutions in the lab, the relationship between the measured characteristic and the oil concentration may be seen as helpful.

More analytical testing will be performed in the following week. The lab plans to test opacity for measuring solids in the solutions.