CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1997

DateRun: 12/08/1997

Experimenters: Jason Marshall

ClientType: Manufacturer of Security Systems

ProjectNumber: Project #1

Substrates: Steel

PartType: Part

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

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: Compare different aged bath cleaning capabilities

Experimental Procedure: The experiment was performed in the same manner as the previous trials by contaminating preweighed coupons with the Quaker oil, weighing, then cleaning, rinsing, drying and finally weighing again. The coupons were then cleaned using stir bar agitation in a beaker at 130 F for two minutes. Rinsing was done by immersing the parts in tap water at 120 F for thirty seconds in a beaker. Drying was conducted with an Original Disc Furnace portable heater, model # 1500IV, until the parts were completely dry. Four cleaning ages were tested: Zero month, one month, two months, three months old and three months new.
SUBSTRATE MATERIAL: 1020 Cold rolled steel
CONTAMINANT: Quaker C1A US oil

Results: The percent removal of the oil from the coupons were fairly consistent with the previous trials, the efficiency decreasing as the bath got older. See Table 1 for results.

Table 1 Percent Removal of Contaminants

Month	0	1	2	3old	3new
	99.9	91.4	96.5	93.9	84.2
	99.8	92.3	99.1	91.8	93.4
	100	86.5	91.9	84.9	75.7
Ave	99.9	90.5	96.5	90.2	84.4
Std Dev	0.1	3.12	3.65	4.71	8.85

The one month sample was the only exception to the trend. It had a lower efficiency than the two month sample. The decreased efficiency could be due to how well the cleaning solutions were mixed prior to use. In the previous trial, the efficiency of the 3 month sample was only 42% and it had been suggested that the solution needed to be shaken in order to get a uniform mixture.

The three month sample this time was shaken and had an efficiency of 90%, thus showing that mixing was needed to obtain accurate results. Inadequate mixing would result in an abnormal amount of oil present in the cleaning solution resulting in a lower than expected efficiency. In the next trial, all samples will be shaken for a set period of time to ensure consistent cleaning.

Summary:

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

Conclusion: The cleaning efficiencies of the various bath ages were similar to previous test results with only one exception. The one month sample had a lower efficiency than the two month sample. Proper shaking of the cleaners prior to use may eliminate this discrepancy.