CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	1998
DateRun:	09/14/1998
Experimenters:	Jason Marshall, Shyam Sarda
ClientType:	Electromagnetic Manufacturer
ProjectNumber:	Project #1
Substrates:	Copper, Nickel
PartType:	Coupon
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil
Cleaning Methods:	Ultrasonics
Analytical Methods:	Gravimetric
Purpose:	To determine the minimum cleaning time for the selected aqueous cleaner on second oil
Experimental Procedure:	Twelve pre-weighed coupons were contaminated with oil using a hand held swab and then weighed. One cleaning solution was made into 15% solutions using DI water in a 600 mL beaker. The solutions were heated to 130 F on a hot plate. The beakers were then placed into a Crest 40 kHz ultrasonic tank model 4Ht 1014-6 also at 130 F. Three coupons were placed in each cleaner for a set cleaning time. The cleaning time were 30, 60 120, and 180 seconds. Coupons were rinsed in tap water at 120 F for 30 seconds and air dried. Final weights were taken after drying was complete. SUBSTRATE MATERIAL: Copper/Nickel 70/30 CONTAMINANTS: Oil- Indopol L-14 (Polybutene/butene copolymer CAS# 9003-29-6)
Results:	Calgon AK 6215 worked exceptionally well during all of the cleaning times. Table 1 lists the cleaning results from this trial.

Table 1. Cleaning Efficiency of Calgon Ak-6215

Cleaning Time (sec)	30	60	120	180
Coupon 1	102.1	100.6	100.4	99.4
Coupon 2	101.1	100.5	99.8	99.9
Coupon 3	101.0	99.1	100.0	100.1
Ave	101.4	100.1	100.1	99.8
Std Dev	0.6	0.8	0.3	0.4

Summary:

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Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Calgon Corporation	AK 6215	15	100.07	☑	

Conclusion: The Calgon product has been determined to clean both contaminants in under 1 minute.