

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2000  
 DateRun: 07/14/2000  
 Experimenters: Jason Marshall  
 ClientType: Bellows Mfr  
 ProjectNumber: Project #1  
 Substrates: Aluminum  
 PartType: Coupon  
 Contaminants: Greases  
 Cleaning Methods: Ultrasonics  
 Analytical Methods: Gravimetric  
 Purpose: To further evaluate successful cleaners on additional contaminants.

Experimental Procedure: Four cleaners were selected from the previous trial based on the effective cleaning results obtained. All were diluted to 5% by volume using DI water in 600 ml beakers and heated to 130 F in the ultrasonic tank filled with tap water. Twelve preweighed coupons were coated with the grease using a swab and weighed a second time. Three coupons were immersed in the beakers in the ultrasonic unit. Initial observations were made at 5 minute intervals. After 20 minutes, coupons were removed from the ultrasonic energy and rinsed for 30 seconds in tap water at 120 F. Drying was performed with a Master Appliance Corp, Hot-air gun model HG-301A for one minute at 500 F. Coupons were weighed a final time and cleaning efficiencies were calculated.

SUBSTRATE MATERIAL: Aluminum Coupons  
 CONTAMINANTS: Cello-Seal, Grease  
 CONTAMINATING PROCESS USED: Grease applied using hand held swab

Results: The Today & Beyond and United Laboratories' products were successful in removing 90% of the grease from the aluminum coupons. The WR Grace product had one coupon that was 93% clean but the other two coupons were well under 50%. Table 2 shows the efficiencies for the four cleaners evaluated in the trial.

Table 2. Final Coupon Weights

20 minutes	Heatbath	T&B	UL	WR Grace
Coupon 1	32	99.21	97.19	30.03
Coupon 2	52.79	90.36	81.6	43.21
Coupon 3	23.9	97.85	91.08	92.71
Average	36.23	95.81	89.95	55.32

Summary:

<b>Substrates:</b>		Aluminum				
<b>Contaminants:</b>		Greases				
Company Name:		Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Heatbath Corporation		Multi-Kleen 1568	5	36.23	<input type="checkbox"/>	
Today & Beyond		Beyond 2001	5	95.81	<input checked="" type="checkbox"/>	
United Laboratories International		United 450 All Clear	5	89.95	<input checked="" type="checkbox"/>	
Magnaflux		Daraclean 200	5	55.32	<input type="checkbox"/>	

Conclusion: The uncleaned parts will be cleaned in the Today & Beyond and United Laboratories products using ultrasonic energy. The clean parts will be returned for inspection by the client.