

CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2002												
DateRun:	02/14/2002												
Experimenters:	Jason Mar	shall											
ClientType:	Electroma	gnetic M	anufact	urer									
ProjectNumber:	Project #3												
Substrates:	Aluminum												
PartType	Coupon												
Contaminants													
Cleaning Matheday													
Cleaning Methods:	Ultrasonics												
Analytical Methods:	Gravimetric												
Purpose:	To identify cleaners for the removal of second lubricant.												
Experimental Procedure:	Four products were selected from the last project and two were submitted from client. All six products were diluted to 5% using DI water in a 600 ml beaker and heated to 140 F on a hot plate. Each solution was degassed for 5 minutes in a Crest 25 kHz ultrasonic tank.												
	Eighteen p (CAS#s: 6 weighed a solution fo Master Ap were calco	oreweigh 4742-52- Igain to c or 20 sec pliance h ulated.	ed coup -5, 123-9 determir onds, fo neat gun	oons wer 95-5, 801 he the an llowed b at 500 F	e coate 6-28-2, nount of y a 5 se After c	d with t , 8002-1 f contar cond ta cooling,	he Atofir 13-9) usi ninant a p water coupons	na Copp ng a ha pplied. rinse a s were v	perskin 5 and held Three co t 140 F a weighed	10 m swal oupo ind d for a	netal workin b. Coupons ns were cle lried for 10 s a final time a	g compound were then aned in each seconds using a and efficiencies	
Results:	The four previous products were very successful in removing the lubricant from the aluminum coupons 20 seconds. A couple of the coupons had some oil remaining at the very top of the coupon. This was area that was above the water line during cleaning. If the coupon had been completely submerged, th oil would probably have been removed. The two client supplied cleaners removed less than 86% of th oil. These coupons had substantial amounts of oil remaining. Unlike the previously described coupons the oil that remained was below the water line. The following table lists the calculated efficiencies for each solution.										num coupons in on. This was the ubmerged, this an 86% of the bed coupons, riciencies for		
	Cleaners	lnitial wt	Cont. wt	Clean wt.	Initial wt of cont.	Final wt of cont.	%Cont Remove	: Obse	rvations				
		22.4548	22.7403	322.4982	0.2855	0.0434	84.80	Oil re	sidue				
	BCS Co	22.3480	22.6197	22.3975	0.2717	0.0495	81.78	Oil re	sidue				
		22.2537	22.5166	22.2779	0.2629	0.0242	90.79	Oil re	sidue				
	D II	22.4405	22.7295	22.4425	0.2890	0.0020	99.31						
	Brulin	22.3780	22.5122	22.3869	0.1342	0.0089	93.37	oil at	top				
		22.3973	22.0192	22.4034	0.2217	0.1090	61.74	Oil re	sidue				
	Houghton	22.3998	22.7103	322.5877	0.3105	0.1879	39.48	Oil re	sidue				
		22.3953	22.6702	22.4853	0.2749	0.0900	67.26	Oil re	sidue				
		22.3636	22.5369	22.3734	0.1733	0.0098	94.35	oil at	top				
	Oakite	22.4025	22.5897	22.4020	0.1872	-0.0005	100.27	/					
		22.3/33	22.5276	22.3/33	0.1543	0.0000	100.00)					
	Sunchine	22.3388	22.4950	22.3004	0.1308	0.0016	98.83						
	Sunsnine	22.3947	22.031-	22.5900	0.2307	0.0041	98.27	_					
		22.4603	22.7810	22.4619	0.3207	0.0016	99.50						
Today 22.348822.487622.34980.13880.0010 99.28													
		22.4391	22.6062	22.4404	0.1671	0.0013	99.22						
Summary:	Substrates: Aluminum												
	Contami	nants:	icating/Lapping Oils										
	Compan	y Name:		Proc	luct Na	ame:		Conc.:	Efficier	ıcv:	Effective:	Observations:	
	BCS Comp	any	251 SI	۲				5	85.7	9			

Brulin Corporation Aquavantage 1400

5

96.67

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Houghton International	MTC 53	5	56.16		
Oakite Products	Inproclean 3800	5	98.20	\checkmark	
Simple Green	Crystal Simple Green Industrial Cleaner & Degreaser	5	98.44	V	
Today & Beyond	Beyond 2005	5	99.33	\checkmark	

Conclusion:

The four successful cleaners will be used under the proposed operating conditions of 2, one second cleaning and 1, one second rinsing stages. The supplied silver tape will be lightly coated with the lubricant and analyzed using OSEE.