

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2012  
DateRun: 01/31/2012  
Experimenters: Junhee Cho, Johnny Le  
ClientType: Optical Manufacturer  
ProjectNumber: Project #1  
Substrates: Aluminum  
PartType: Coupon  
Contaminants: Lubricating/Lapping Oils  
Cleaning Methods: Immersion/Soak  
Analytical Methods: Gravimetric

Purpose: To compare the effectiveness of two products on four soils using immersion cleaning.

Experimental Procedure: The two solvent-based products were used at full strength in 400 ml beakers at room temperature. Three preweighed aluminum coupons were coated with each additional soil (Synextreme HD2, Lubriplate High Temp, Antiseize and Mold dry film lubricant). Coupons were weighed a second time to determine the amount of soil added. Three coupons were cleaned in each solution for five minutes using no agitation. At the end of cleaning, the coupons were allowed to air dry at room temperature overnight. Final weights were recorded, and efficiencies were calculated.

Results: The Solsafe 245 was effective on two of the four additional soils and the Biosolv was not effective on any of the four soils. The Solsafe 245 product showed signs of being able to remove the Antiseize and the Molydry film lube but would require additional modification of the cleaning process to achieve successful removal. The table lists the amount of soil added, the amount remaining and the affiance of each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Bio-Solve_Synextreme HD-2			
	0.0726	0.0503	30.72
	0.2005	0.1658	17.31
	0.1608	0.1137	29.29
Solsafe 245_Synextreme HD-2			
	0.2081	0.0181	91.3
	0.1144	0.011	90.38
	0.1617	0.0113	93.01
Bio-Solve_Lubriplate high temp			
	0.1117	0.0929	16.83
	0.1015	0.1314	-29.46
	0.1109	0.0403	63.66
Solsafe 245_Lubriplate high temp			
	0.1256	0.0055	95.62
	0.1089	0.0037	96.6
	0.114	0.0048	95.79
Bio-Solve_Antiseize			
	0.0832	0.0808	2.88
	0.1214	0.1172	3.46
	0.1352	0.1332	1.48
Solsafe 245_Antiseize			
	0.1227	0.1201	2.12
	0.1943	0.1908	1.8
	0.4223	0.4193	0.71

# CLEANING LABORATORY EVALUATION SUMMARY

Bio-Solve_Molydry film lube			
	0.0055	0.0048	12.73
	0.0048	0.0046	4.17
	0.0047	0.005	-6.38
Solsafe 245_Molydry film lube			
	0.0034	0.0035	-2.94
	0.0045	0.0038	15.56
	0.0026	0.0015	42.31

Summary:

<b>Substrates:</b>	Aluminum				
<b>Contaminants:</b>	Lubricating/Lapping Oils				
<b>Company Name:</b>	<b>Product Name:</b>	<b>Conc.:</b>	<b>Efficiency:</b>	<b>Effective:</b>	<b>Observations:</b>
Bio Chem Systems	Solsafe 245	100	96.00	<input checked="" type="checkbox"/>	Lubiplate high temp
Bio Chem Systems	Solsafe 245	100	1.54	<input type="checkbox"/>	Antisieze
Bio Chem Systems	Solsafe 245	100	18.31	<input type="checkbox"/>	Molydry film lube
Phoenix Resins Inc	BioSolv	100	25.77	<input type="checkbox"/>	Synextrene HD-2
Phoenix Resins Inc	BioSolv	100	17.01	<input type="checkbox"/>	Lubiplate high temp
Phoenix Resins Inc	BioSolv	100	2.61	<input type="checkbox"/>	Antisieze
Phoenix Resins Inc	BioSolv	100	3.50	<input type="checkbox"/>	Molydry film lube
Bio Chem Systems	Solsafe 245	100	91.57	<input checked="" type="checkbox"/>	Synextreme HD-2

Conclusion:

Additional follow up test will be conducted to identify method to remove all of the two soils that were not effectively cleaned.