CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2004

DateRun: 11/07/2004

Experimenters: Jason Marshall

ClientType: Manufacturers of Precision Parts and Assemblies

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Coupon

Contaminants: Lubricating/Lapping Oils

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To evaluate aqueous cleaners for potential replacement of contact cleaner.

Experimental Procedure: Five products were selected from the lab's database of test results based on the products' past success in removing similar lubricants. Four of the products were diluted to 2% along with the client's current product using DI water in 600 ml beakers. A sixth product was used at full strength as recommended by the manufacturer. All six products were heated to 115 on a hot plate.

Eighteen preweighed 6061 aluminum coupons were coated with Fuch's Lubricants Renocut 6515 NC (mineral oil, vegetable oil) using a hand held swab. Coupons were allowed to sit for over an hour. A second set of weights were recorded to determine the amount of soil added. Three coupons were immersed into each cleaning product and cleaned using minimal agitation provided by a stir bar. Coupons were cleaned for 5 minutes, followed by a 15 second water rinse at 120 F and airblow off for 30 seconds at room temperature. Once dry, final weights were recorded and efficiencies were calculated for each product.

Results: All of the products out performed one of the client's current aqueous cleaners. Three of the products removed over 87% of the lubricant. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Amberclean Q3	0.0918	0.0481	47.60
	0.1934	0.0638	67.01
	0.1074	0.0203	81.10
Formula 815 GD	0.2651	0.0983	62.92
	0.1748	0.0528	69.79
	0.2564	0.0552	78.47
Inproclean 3800	0.1845	0.0421	77.18
	0.2610	0.0275	89.46
	0.2194	0.0459	79.08
Surface Cleanse 930	0.2272	0.0076	96.65
	0.2441	0.0255	89.55
	0.2865	0.0085	97.03
Valtron SP 2275	0.2827	0.0518	81.68
	0.2171	0.0205	90.56
	0.5620	0.0471	91.62
Ionox HC2	0.3371	0.0702	79.18
	0.3519	0.0108	96.93
	0.3171	0.0095	97.00

Summary:

Substrates:	Aluminum
Contaminants:	Lubricating/Lapping Oils

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Innovative Organics Inc	Amberclean Q3	2	65.24	☐	
Brulin Corporation	Formula 815 GD	2	70.39	☐	
Oakite Products	Inproclean 3800	2	81.91	☐	
International Products Corporation	Surface Cleanse Concentrated Neutral 930	2	94.41	☑	

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Valtech Corporation	Valtron SP 2275	2	87.95	☑	
Kyzen Corporation	Ionox HC 2	100	91.04	☑	

Conclusion: The same six products will be retested under similar conditions. Ultrasonic energy will be added to improve efficiency.