

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2004

DateRun: 07/27/2004

Experimenters: Jason Marshall, Heidi Wilcox, Andy Harris

ClientType: Metal Finishing

ProjectNumber: Project #2

Substrates: Steel

PartType: Part

Contaminants: Coatings

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric, Performance Test

Purpose: To reevaluate products on supplied parts.

Experimental Procedure: Five products that were found to be effective on all three soils were used at 120 F in a Crest Ultrasonic 40 KHz tank. Four products were used at 5% dilutions in 600 ml beakers and the fifth was used as received from the client in a 400 ml beaker. Each beaker was submersed in the tank filled with water at 120 F and degassed for 5 minutes.

The preweighed parts were contaminated with Castrol Rustilo 4163 (64742-46-7, 8002-74-2, 34590-94-8) and the weighed again. Five parts were cleaned in each product for five minutes with ultrasonic energy. The parts were rinsed in tap water at 120 F for 30 seconds and dried using air blow off at room temperature for 30 seconds. Parts were weighed a final time and efficiencies were calculated. Parts were then packaged and sent back to client to determine effectiveness.

Results: The five products appeared to remove all of the Rustilo. Only two parts with ball bearings had less than 95% removal with ultrasonics. The table below lists the initial soil weight, final weight and cleaning efficiency for each part cleaned.

	Initial wt	Final wt	% Removed
Beyond 2004	0.4902	-0.0001	100.02
	0.1483	0.0001	99.93
	0.409	-0.0010	100.24
	0.3925	0.0206	94.75 (ball bearing)
	0.0397	-0.0016	104.03
Aeromaster	0.1285	0.0005	99.61
	0.1798	0.0001	99.94
	0.4602	0.0037	99.20
	0.2213	0.0159	92.82 (ball bearing)
	0.0811	-0.0004	100.49
M-Aero	0.1325	0.0001	99.92
	0.1835	-0.0010	100.54
	0.4464	-0.0006	100.13
	2.1066	-0.0002	100.01
	0.0113	-0.001	108.85
815 QR	0.1665	-0.0012	100.72
	0.1416	-0.0005	100.35
	0.3838	-0.0006	100.16
	0.3373	-0.0005	100.15
	0.0757	-0.0012	101.59
Alkalume	0.1018	0.0006	99.41
	0.1244	-0.0012	100.96
	0.3699	-0.0004	100.11
	0.1326	-0.0010	100.75
	0.0225	-0.0004	101.78

Summary:

<b>Substrates:</b>	Steel
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<b>Contaminants:</b>		Coatings			
<b>Company Name:</b>	<b>Product Name:</b>	<b>Conc.:</b>	<b>Efficiency:</b>	<b>Effective:</b>	<b>Observations:</b>
Today & Beyond	Beyond 2004	5	99.80	<input checked="" type="checkbox"/>	Trouble on the ball bearings
Buckeye International	Aeromaster	5	98.41	<input checked="" type="checkbox"/>	Trouble on the ball bearings
Church & Dwight Co Inc.	Armakleen M Aero NS	5	101.89	<input checked="" type="checkbox"/>	
Brulin Corporation	815 QR	5	100.59	<input checked="" type="checkbox"/>	
McGean Rohco Inc	Alkalume LN	100	100.60	<input checked="" type="checkbox"/>	

Conclusion: The five group of parts were sent back to be plated.