CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2006

DateRun: 08/20/2006

Experimenters: Jason Marshall

ClientType: Metal Working

ProjectNumber: Project #1

Substrates: Cold Rolled Steel

PartType: Coupon

Contaminants: Oil

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate three products on fifth oil using ultrasonic cleaning.

Experimental Procedure: The three successful products from the first four oil removal trials were evaluated on the fifth oil using ultrasonic energy. The products were diluted to 5% in 600 ml beakers using DI water and heated to 130 F in a Brason 3510 ultrasonic tank filled with water. Products were degassed for 5 minutes.

Nine pre-weighed coupons were coated with the TuffDraw 1730 R using a handheld swab. Coupons were weighed a second time to determine the amount of oil added. Three coupons were cleaned in each solution for five minutes using 40 kHz ultrasonic agitation. Coupons were rinsed for 15 seconds in a tap water bath at 120 F and dried using a Master Appliance Heat gun at 500 F for 30 seconds. Once dry coupons were weighed a final time and product efficiencies were calculated.

Results: All three products removed over 98% of the oil within five minutes of cleaning with ultrasonic cleaning. The follow table lists the amount of oil added, the amount remaining and the efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Aquavantage 1400	0.9543	0.0002	99.98
	1.0184	0.0134	98.68
	1.1530	0.0274	97.62
Inproclean 3800	0.7666	0.0029	99.62
	0.8595	0.0014	99.84
	0.9828	0.0004	99.96
Sea Wash Blue	0.8159	0.0060	99.26
	0.8828	0.0005	99.94
	0.7195	0.0261	96.37

Summary:

Substrates:	Cold Rolled Steel				
Contaminants:	Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Brulin Corporation	Aquavantage 1400	5	98.76	☑	
Oakite Products	Inproclean 3800	5	99.81	☑	
Warren Chemical Company	Sea Wash Blue	5	98.53	☑	

Conclusion: The three products, Aquavantage 1400, Inproclean 3800 and Sea Wash Blue, were found to be successful on the five supplied oils. Next step would be to evaluate these products on actual parts.