CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2006
DateRun:	08/21/2006
Experimenters:	Jason Marshall
ClientType:	Metal Working
ProjectNumber:	Project #1
Substrates:	Cold Rolled Steel
PartType:	Coupon
Contaminants:	Oil
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Gravimetric

Purpose: To evaluate the three effective products on the fifth supplied oil.

Experimental Procedure: The three successful products from the first four oil removal trials were evaluated on the fifth oil. The products were diluted to 5% in 600 ml beakers using DI water and heated to 130 F on a hot plate.

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 minimal stir bar 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: Only one of the three products, Inproclean 3800, removed over 70% of the oil using immersion 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	0.8292	0.332	59.96
	0.6821	0.1624	76.19
	0.8035	0.294	63.41
Inproclean 3800	0.5866	0.1379	76.49
	0.6547	0.1968	69.94
	0.677	0.1983	70.71
Sea Wash Blue	0.8414	0.3769	55.21
	0.8509	0.3515	58.69
	0.8815	0.3466	60.68

Summary:

Substrates:	Cold Rolled Steel					
Contaminants:	Oil					
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**	
Brulin Corporation	Aquavantage 1400	5	66.52	☐		
Oakite Products	Inproclean 3800	5	72.38	☑		
Warren Chemical Company	Sea Wash Blue	5	58.19	☐		

Conclusion: Follow up tests will be conducted using ultrasonic energy and/or longer cleaning times to improve efficiencies.