CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1998

DateRun: 08/27/1998

Experimenters: Jason Marshall

ClientType: Aluminum Job Shop

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Coupon

Contaminants: Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To compare water with other aqueous products in the removal of the new oil.

Experimental Procedure: Six different chemistries were selected from the laboratories databases based on previous uses and vendor information. One cleaner was made into a 10% solution and the others into 5% solutions using DI water in a 400 mL beaker. In addition to the aqueous cleaners selected, DI water was used as the seventh cleaner. A rust inhibitor was added to the water. All 7 cleaners were heated to 140 F on a hot plate. Twenty-one preweighed coupons were contaminated with the new oil and a second weighing was performed. Three coupons were placed in each cleaner for 5 minutes with stir-bar agitation. Coupons were rinsed in tap water at 120 F for 30 seconds and allowed to air dry for 1 hour. Final, clean weights were recorded.

SUBSTRATE MATERIAL: Al #202-3003 H-14
CONTAMINANTS: Oil-Second oil supplied by client
CONTAMINATING PROCESS USED: Oil was applied to coupons using a hand-held swab.

Results: All of the selected cleaners showed excellent removal of the oil. It was observed that the cleaning time could be lowered from 5 minutes to under 3 minutes. The water was just as effective as the aqueous cleaners. Table 1 list the cleaning efficiencies.

Table 1. Cleaning Efficiency

	MC 580	Natural Blue	SWR One	2000 XS	Sea Wash	Super Neutral	Water
Coupon 1	99.49	100.3	99.99	99.19	100	99.92	99.47
Coupon 2	99.98	100.1	99.98	99.83	99.93	99.95	99.85
Coupon 3	99.71	98.82	99.8	100.3	99.98	99.81	99.94
Ave	99.73	99.74	99.92	99.77	99.97	99.89	99.75
Std Dev	0.25	0.80	0.11	0.56	0.04	0.07	0.25

Summary:

Substrates:	Aluminum				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Matchless Metal Polish Company	MC 580	5	99.73	☑	
Permatex Industrial Corporation	Natural Blue	5	99.74	☑	
SWR Corporation	SWR One	5	99.92	☑	
US Polychem Corporation	Polychem A 2000 XS	5	99.77	☑	
Safe CleanUp Solutions	Super Neutral	10	99.89	☑	
Warren Chemical Company	Sea Wash Neutral	5	99.97	☑	
Water	DI Water	100	99.75	☑	with inhibitor
Magnaflux	Daracoat 615	0	0.00	☐	with DI water

Conclusion: The new oil was easily removed from the aluminum substrate within 3 minutes of minimal agitation. The three coupons cleaned in the water solution have been sent to be analyzed by the client.