CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1998

DateRun: 10/27/1998

Experimenters: Jason Marshall, Sandy Pomer

ClientType: Cleaner Manufacturer

ProjectNumber: Project #1

Substrates: Aluminum, Steel

PartType: Coupon

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

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To evaluate client's products for various substrates and contaminants.

Experimental Procedure: Pre-weighed coupons were over contaminated with the cutting oil. Contaminated weights were recorded. Five cleaners were provided by the client for evaluation of cleaning efficiencies. Each product was made into 5% solutions using DI water in 1000 mL beakers. Each solution was heated to 130 F on a hot plate. Three coupons were cleaned in each chemistry for 5 minutes with stir-bar agitation. Coupons were rinsed in 120 F tap water for 30 seconds and dried with Master Appliance Corp. Hot-air gun model HG-301A. After coupons cooled to room temperature, a final clean weight was made and cleaning efficiencies were calculated.

SUBSTRATE MATERIAL: Aluminum 202-5086 H-32 & Steel 1010
CONTAMINANTS: Oil-Sulfurized C-Eblis Oil

Results: Of the five chemistries tested only two resulted in high cleaning efficiencies, 7000 and 7100. Most of the products were observed to start removing the oil within the first minute of cleaning. Table 1 lists the cleaning efficiencies for each cleaner.

Table 1. Cleaning Efficiencies

	7100	7000	Low Foam	7300	9000
Coupon 1	95.35	85.60	81.21	40.06	40.97
Coupon 2	90.23	88.60	76.26	39.53	47.36
Coupon 3	91.25	68.38	54.63	26.25	67.99
Average	92.28	80.86	70.70	35.28	52.11
Std. Dev.	2.71	10.91	14.14	7.82	14.12

Summary:

Substrates:	Aluminum, Steel
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Watson Technical Associates	Formula 7100	5	92.28	☑	
Watson Technical Associates	Watson Formula 7000	5	80.86	☑	
Watson Technical Associates	Low Foam Washer Detergent	5	70.70	☐	
Watson Technical Associates	Watson Formula 7300	5	35.28	☐	
Watson Technical Associates	Watson Formula 9000	5	52.11	☐	

Conclusion: Two products were found to have cleaning efficiencies over 80% under the experimental conditions. Further testing will be conducted using different contaminants. All other conditions will remain the same.