CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2000
DateRun:	07/20/2000
Experimenters:	Jason Marshall, John Brunelle
ClientType:	State Agency
ProjectNumber:	Project #1
Substrates:	Aluminum
PartType:	Coupon
Contaminants:	Cutting/Tapping Fluids, Greases, Lubricating/Lapping Oils, Oil
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Gravimetric
Purpose:	To evaluate cleaning effectiveness of selected cleaners.
Experimental Procedure:	The three products were selected based on environmental indicators for potential replacement cleaners in parts cleaning. Dilutions were made in 600 ml beakers using DI water. Preweighed coupons were covered with the various contaminants and weighed a second time to determine the amount applied. Three coupons were cleaned per solution. Products were evaluated at room temperature using stir bar agitation. Cleaning lasted five minutes. Coupons were rinsed in tap water at room temperature for 30 seconds and dried using a Master Appliance Corp, Hot-air gun model HG-301A at 500 F for one minute. SUBSTRATE MATERIAL: The substrates used are listed in Table 1.

Table 1. Substrates

Substrate	ID#
Aluminum1	202-7075 T-6
Aluminum2	202-5052 H-32

CONTAMINANTS: The contaminants cleaned in the trial are specified in Table 2.

Contaminant	Code	CAS#
Oil, Citgo NC400	OI	64-741-89-5, 8052-42-4
Lubricant, 423	LU	64742-57-0, 64742-62-7, 8052-42-4
Grease, KSL-111	GR	64742-47-8

Results: The cleaning results for each cleaner is listed in Table 4 below. During this trial only one of the three products was moderately successful in removing the contaminants from the aluminum surface. The Bio-T V50 removed over 85% of the oil while the other two cleaners only removed 69% (NAB) and 34% (SW8).

Table 4. Cleaning Efficiencies

Company	Envirosolution		
Product	Bio T V-50		
Subst/Cont	AL1-OI	AL1-LU	AL2-GR
Coupon 1	97.47	20.69	78.26
Coupon 2	79.35	40.74	16.67
Coupon 3	79.04	0.00	79.17
Average	85.29	20.48	58.03
Company	North American		
Product	NAB 9000		
Subst/Cont	AL1-OI	AL1-LU	AL2-GR
Coupon 1	85.11	14.29	18.18
Coupon 2	68.52	15.62	35.29
Coupon 3	53.22	16.67	5.88
Average	68.95	15.53	19.79
Company	Hazwell - ForBest		
Product	Seawash-8		

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Subst/Cont	AL1-OI	AL1-LU	AL2-GR
Coupon 1	31.15	-15.15	0.00
Coupon 2	50.27	-27.78	13.64
Coupon 3	19.46	-8.11	21.74
Average	33.63	-17.01	11.79

Summary:

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Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Bio Chem Systems	Bio T V 50	10	85.29	☑	oil
Bio Chem Systems	Bio T V 50	10	20.48	☐	lubricant
Bio Chem Systems	Bio T V 50	10	58.03	☐	grease
North Atlantic Bio Industries	NAB 9000	10	68.95	☐	oil
North Atlantic Bio Industries	NAB 9000	10	15.53	☐	lubricant
North Atlantic Bio Industries	NAB 9000	10	19.79	☐	grease
Warren Chemical Company	Sea Wash 8 No Force	10	33.63	☐	oil
Warren Chemical Company	Sea Wash 8 No Force	10	-17.01	☐	lubricant
Warren Chemical Company	Sea Wash 8 No Force	10	11.79	☐	

Conclusion: