

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2004
 DateRun: 02/23/2004
 Experimenters: Jason Marshall
 ClientType: Aircraft Parts Manufacturer
 ProjectNumber: Project #2
 Substrates: Aluminum
 PartType: Coupon
 Contaminants: Cutting/Tapping Fluids, Oil
 Cleaning Methods: Immersion/Soak
 Analytical Methods: Gravimetric
 Purpose: To evaluate successful cleaners on second supplied contaminant

Experimental Procedure: Five cleaners were selected from previous trial. Four aqueous based cleaners were diluted to 10% using DI water in 600 ml beakers. One semi-aqueous product was used at 50% diluted with DI water. All of the products were heated to 120 F on a hot plate. Fifteen preweighed aluminum coupons were coated with the second client supplied oil, Castrol Moly Dee Tapping Fluid. The oil was applied to coupons using a swab and then heated for 10 minutes using a Master Appliance heat gun. The coupons were allowed to cool to room temperature before weighing a second time. Three coupons were cleaned in each solution for 5 minutes using stir-bar agitation. Coupons were rinsed in tap water at 120 F for 15 seconds and then were dried using air blow off at room temperature. Once dry, coupons were weighed a final time and efficiencies for each cleaner were calculated.

Results: Three of the five products removed over 80% of the tapping fluid within five minutes. The Bio T 300 B removed nearly 100% of the soil. The current cleaner removed 76%. The table lists the amount of soil added, the amount remaining after cleaning and the efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
815 GD	0.5010	0.1742	65.23
	0.3405	0.1057	68.96
	0.5977	0.0366	93.88
SC Aircraft & Metal Cleaner	0.4451	0.2141	51.90
	0.4596	0.2159	53.02
	0.4988	0.1558	68.77
Metalnox M6314	0.6176	0.1369	77.83
	0.7053	0.0609	91.37
	0.6044	0.1048	82.66
Hurrisafe 9450	0.6122	0.0574	90.62
	0.7026	0.0490	93.03
	0.5148	0.0972	81.12
Bio T 300 B	0.9124	0.0010	99.89
	0.7337	0.0023	99.69
	0.6849	0.0009	99.87

Summary:

Substrates:		Aluminum			
Contaminants:		Cutting/Tapping Fluids, Oil			
Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Brulin Corporation	Formula 815 GD	10	76.02	<input type="checkbox"/>	
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	10	57.90	<input type="checkbox"/>	
Kyzen Corporation	Metalnox M6314 (For Comparison Only)	10	83.95	<input checked="" type="checkbox"/>	
PCI of America	Hurrisafe 9450	10	88.26	<input checked="" type="checkbox"/>	
Bio Chem Systems	Bio T 300 B	50	99.82	<input checked="" type="checkbox"/>	

Conclusion:

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Increasing the cleaning time should improve the effectiveness of the products. A follow up trial will be conducted at a longer time but will not use a rinse.