

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2001
 DateRun: 12/17/2001
 Experimenters: Jason Marshall
 ClientType: Metal Working
 ProjectNumber: Project #1
 Substrates: Aluminum
 PartType: Coupon
 Contaminants: Lubricating/Lapping Oils
 Cleaning Methods: Immersion/Soak
 Analytical Methods: Gravimetric

Purpose: To compare current cleaner to alternative cleaners in the removal of lubricant

Experimental Procedure: Eight cleaners were selected from the laboratories database of effective testing and vendor information. These cleaners in addition to the clients current cleaner was diluted to 5% in 500 ml beakers using DI water. All nine were heated to 130 F on a hot plate. Twenty-seven preweighed coupons were coated with the Renocut lubricant. Coupons were allowed to sit for 1 hour before a second weight was measured. Three coupons were immersed into each solution and cleaned for 5 minutes using stir-bar agitation. At the end of the cleaning, coupons were rinsed for 30 seconds in tap water at 120 F, followed by 1 minute of drying with a heat gun at 500 F. Once coupons returned to room temperature, a final weight was recorded and product efficiencies were calculated.

Results: The eqight cleaners removed over 90% of the oil from the coupons within the 5 minutes of immersion cleaning. The client supplied cleaner had one coupon that only removed 40% of the lubricant while the other two had 96% removed. It was not readily apparent why the one coupon removed so little of the contaminant. The standard deviation of the coupons was well outside the labs acceptable limits resulting in a retesting of the client supplied cleaner. When retested, the efficiency was found to be 92%. Five cleaners had greater than 96% removal of the lubricant. The following table lists the calculated efficiencies for all nine products and the retest.

Cleaner	Coupon 1	Coupon 2	Coupon 3	Average
Brulin	98.74	99.47	98.43	98.88
Buckeye	95.09	93.10	93.53	93.91
Envirosolutoins	94.52	94.29	89.29	92.70
Gemtek	98.41	97.42	98.56	98.13
Innovative	97.07	97.13	97.70	97.30
Savogran	87.77	89.23	96.11	91.04
Today	96.75	98.37	98.58	97.90
Valtech	98.78	99.16	99.79	99.24
Texo	95.59	97.84	41.21	78.21
Texo Retest	90.52	94.12	92.01	92.22

Summary:

Substrates:	Aluminum				
Contaminants:	Lubricating/Lapping Oils				
Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Brulin Corporation	Formula 815 GD	5	98.88	<input checked="" type="checkbox"/>	
Buckeye International	Shopmaster LPH	5	93.91	<input checked="" type="checkbox"/>	
Bio Chem Systems	Green Stuff 6325	5	92.70	<input checked="" type="checkbox"/>	
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	5	98.13	<input checked="" type="checkbox"/>	
Innovative Organics Inc	Amberclean 527 L	5	97.30	<input checked="" type="checkbox"/>	
Savogran Company	Dirtex Prepaint Cleaner	5	91.04	<input type="checkbox"/>	
Today & Beyond	Beyond 2004	5	97.90	<input checked="" type="checkbox"/>	
Valtech Corporation	Valtron SP 2275	5	99.24	<input checked="" type="checkbox"/>	
Texo Corporation	Texo Cleaner 127	5	92.22	<input type="checkbox"/>	Retest

Conclusion:

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Seven of the products with an efficiency over the client supplied cleaner will be retested using ultrasonic energy.