CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008

DateRun: 08/06/2008

Experimenters: Heidi Wilcox, Shweta Bansal

ClientType: Machining Company

ProjectNumber: Project #1

Substrates: Steel

PartType: Coupon

Contaminants: Cutting/Tapping Fluids

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate aqueous alternatives using ultrasonic cleaning

Experimental Procedure: Six products from previous trials were selected for testing. Five of the products were diluted to 20% and the sixth product was diluted to 5%. Products were heated to 130 F and immersed in a Branson 40 kHz ultrasonic tank and degassed for at least five minutes.
Eighteen preweighed coupons were coated with the supplied cutting fluid using a handheld swab and weighed a second time to determine the amount of soil added. Three coupons were cleaned with ultrasonic energy for five minutes, rinsed in tap water for 15 seconds at 120 F and dried using compressed air at room temperature for 30 seconds. Final weights were recorded, and efficiencies calculated for each coupon cleaned.

Results: Five of the six products removed more than 85% of the oil in the five minutes of cleaning. The last product removed 80%. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Shopmaster LpH	0.1368	0.0234	82.89
	0.2761	0.0159	94.24
	0.2485	0.0171	93.12
Aquavantage 1400 GD	0.2711	0.0024	99.11
	0.3318	0.0013	99.61
	0.4337	0.0017	99.61
Shopmaster HP	0.3196	0.0404	87.36
	0.3563	0.0439	87.68
	0.3455	0.0447	87.06
Inproclean 3800	0.4706	0.0020	99.58
	0.3914	-0.0041	101.05
	0.3043	-0.0008	100.26
Bio T 300 B	0.2473	0.0597	75.86
	0.3007	0.0518	82.77
	0.3603	0.0604	83.24
SC Aircraft & Metal Cleaner	0.4117	0.0107	97.40
	0.2978	0.0547	81.63
	1.3744	0.0217	98.42

Summary:

Substrates:	Steel				
Contaminants:	Cutting/Tapping Fluids				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Buckeye International	Shopmaster LPH	20	90.08	☑	
Brulin Corporation	Aquavantage 1400	20	99.44	☑	
Buckeye International	Shopmaster HP	20	87.37	☑	
Oakite Products	Inproclean 3800	20	100.30	☑	

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Bio Chem Systems	Bio T 300 B	5	80.62	☐	
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	20	92.48	☑	

Conclusion: The same products will be evaluated on the second supplied contaminant following the same conditions.