CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2008
DateRun:	05/20/2008
Experimenters:	Jason Marshall, Shweta Bansal
ClientType:	Machining Company
ProjectNumber:	Project #1
Substrates:	Aluminum
PartType:	Coupon
Contaminants:	Cutting/Tapping Fluids
Cleaning Methods:	Mechanical Agitation
Analytical Methods:	Gravimetric
Purpose:	To evaluate products at higher concentrations and longer times on cutting fluid.
Experimental Procedure:	Three products from previous lab testing were used at 20% dilution and one was used at five percent. Preweighed coupons were coated with the supplied cutting fluid (WA wood, 57 F Cutting oil) using a handheld swab and weighed a second time to determine the amount of soil added. Each cleaner was put in a bowl and three coupons were dunked into the solution at a constant rate for 30 seconds of cleaning. The coupons were then put on a tray and when done and allowed to air dry. There was no rinse. The process was done to as closely replicate the process used on site as possible. Once dry, final weights were recorded, and efficiency calculated for each coupon cleaned. A second batch of coupons were cleaned for 1 minute following all other procedures. An additional three products were included in the evaluation at 20% dilutions.
Results:	The 20% solution at 30 seconds were still ineffective on the grinding fluid. However, the increased cleaning time (1 minute) improved the results of one of the products removing 70% of the contaminant. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned at both time lengths.

30 Second Cleaning Cutting Fluid

Cleaner	Initial wt	Final wt	% Removed
Shopmaster LPH	0.1656	0.1691	-2.11
	0.3368	0.2371	29.60
	0.3971	0.2072	47.82
Shopmaster HP	0.2231	0.1682	24.61
	0.2474	0.1883	23.89
	0.5608	0.2226	60.31
Bio T 300 B	0.4343	0.2278	47.55
	0.4375	0.1765	59.66
	0.4345	0.2044	52.96

1 Minute Cleaning Cutting Fluid

Cleaner	Initial wt	Final wt	% Removed
SC Aircraft	0.4834	0.1541	68.12
	0.5838	0.1508	74.17
	0.4597	0.1502	67.33
Inproclean 3800	0.2482	0.083	66.56
	0.3524	0.1263	64.16
	0.3248	0.1691	47.94
Aquavantage 1400 GD	0.5265	0.1646	68.74
	0.5438	0.1725	68.28
	0.3860	0.2117	45.16
Shopmaster LPH	0.2909	0.1386	52.35
	0.3697	0.2190	40.76
	0.5554	0.2282	58.91
Shopmaster HP	0.3101	0.1072	65.43
	0.2714	0.1213	55.31

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	0.3428	0.1536	55.19
Bio T 300 B	0.1879	0.1681	10.54
	0.3201	0.2395	25.18
	0.3086	0.1689	45.27

Summary:

Substrates:	Aluminum
Contaminants:	Cutting/Tapping Fluids

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Buckeye International	Shopmaster LPH	20	50.68	☐	
Buckeye International	Shopmaster HP	20	58.64	☐	
Bio Chem Systems	Bio T 300 B	5	27.00	☐	
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	20	69.87	☑	
Oakite Products	Inproclean 3800	20	59.55	☐	
Brulin Corporation	Aquavantage 1400	20	60.72	☐	

Conclusion: Only one product, SC Aircraft & Metal Cleaner, had partial success, removing about 70% of the cutting fluid.