CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008

DateRun: 06/18/2008

Experimenters: Jason Marshall, Shweta Bansal

ClientType: Tool Manufacturer

ProjectNumber: Project #1

Substrates: Steel

PartType: Coupon

Contaminants: Cutting/Tapping Fluids

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate top performing products on second supplied contaminant using ultrasonic cleaning

Experimental Procedure: The top seven products were selected from the previous lab trial. Each product was diluted to 5% using DI water in 600 ml glass beakers. Solutions were heated to 130 F on immersed in a heat bath in a Branson 40 kHz ultrasonic tank. Products were degassed for five minutes.

Twenty-one preweighed steel coupons were coated with the Tru-Edge Cutting Fluid using a swab. Coupons were weighed a second time to determine the amount of soil added. Three coupons were immersed into each product and cleaned for 5 minutes using ultrasonic agitation. Following cleaning, coupons were rinsed for 15 seconds in tap water at 120 F and dried using air blow off for 30 seconds at room temperature. Final weights were recorded, and efficiencies were calculated.

Results: Six of the seven products removed more than 90% of the cutting fluid using ultrasonic cleaning for five minutes. Five of these removed over 99%. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Surface Cleanse 930	0.2168	0.0692	68.08
	0.3967	0.0848	78.62
	0.4485	0.0886	80.25
M Aero	0.4262	0.0070	98.36
	0.6946	0.0153	97.80
	0.4470	-0.0078	101.74
Polyspray Jet 790 xs	0.3999	-0.0018	100.45
	0.3277	0.0006	99.82
	0.2444	0.0005	99.80
Metalnox M6310	0.3277	0.0021	99.36
	0.3719	0.0028	99.25
	0.2842	-0.0008	100.28
Daraclean 282 GF	0.3626	-0.0032	100.88
	0.3422	-0.0005	100.15
	0.3434	-0.0037	101.08
Micro 90	0.1917	0.0020	98.96
	0.3703	-0.0001	100.03
	0.4123	0.0005	99.88
Luminox	0.2849	0.0164	94.24
	0.3426	0.0165	95.18
	0.3976	0.0253	93.64

Summary:

Substrates:	Steel				
Contaminants:	Cutting/Tapping Fluids				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
International Products Corporation	Surface Cleanse Concentrated Neutral 930	5	75.65	☐	
Church & Dwight Co Inc.	Armakleen M Aero	5	99.30	☑	

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US Polychem Corporation	Polyspray Jet 790 XS	5	100.02	☑	
Kyzen Corporation	Metalnox M6310 (For Comparison Only)	5	99.63	☑	
Magnaflux	Daraclean 282 GF	5	100.70	☑	
International Products Corporation	Micro 90 Conc.	5	99.62	☑	
Alconox Inc	Luminox	5	94.35	☑	

Conclusion: The six effective products will be evaluated on the third supplied contaminant.