CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2003
DateRun:	09/18/2003
Experimenters:	Jason Marshall
ClientType:	Tool Manufacturer
ProjectNumber:	Project #1
Substrates:	Steel
PartType:	Coupon
Contaminants:	Paints
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Gravimetric
Purpose:	To evaluate the eight cleaners on the final contaminant
Experimental Procedure:	The eight cleaners from the previous trials were used for the removal of the paint/varnish mix from steel coupons. Six products were used at full strength and two (Inproclean 3800 & SC Aircraft) were diluted to 10% using DI water in 250 ml beakers. Six products were used at room temperature and two (E3HB & SC Aircraft) were heated to 120 F based on past testing results. Twenty-four preweighed coupons were coated with the varnish and allowed to dry. Once dry, coupons were weighed again to determine the amount of varnish that was added to the coupons. Three coupons were immersed in each solution for 10 minutes with no agitation. Coupons were then rinsed/dried using air blow off at room temperature for 30 seconds. Coupons were weighed a final time and efficiencies for each cleaner was calculated. Contaminant: Varnish Mix - Cooper's Creek Chemicals, Cooper Black Tank Paint No 739 (64742-89-8, 8052-42-4, 108-88-3); Sherwin Williams Company, V74B2 Black Asphaltum coating (64742-89-8, 64742-88-7, 8052-42-4).
Results:	Only one products was very successful in removing the varnish mix after 10 minutes of soaking. The varnish that was cleaned in 278 Super Solv was dissolved by the cleaner. There was some residue on the coupons at the end of the 10 minutes, but was easily removed with the air blow off. Increasing the cleaning time may result in all of the varnish being dissolved by the cleaner. A second cleaner, D Greeze 1000 was the next successful cleaner, removing just over 80% of the paint. A third cleaner, AK 225 did start to alter the varnish. During the air blow off, flakes of the varnish were blown off. Most of the other cleaners had little effect on the varnish mix. The table below lists the amount of contaminant added and remaining for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
AK 225	0.1861	0.0747	59.86
	0.0335	0.0132	60.60
	0.0887	0.0452	49.04
DS 108	0.0711	0.0713	-0.28
	0.0331	0.0305	7.85
	0.0433	0.0418	3.46
Beyond 2008	0.1022	0.1063	-4.01
	0.0847	0.0843	0.47
	0.1215	0.1194	1.73
D Greeze 1000	0.0699	0.0133	80.97
	0.0935	0.0082	91.23
	0.0860	0.0202	76.51
278 Super Solv	0.1136	0.0095	91.64
	0.0554	0.0048	91.34
	0.0963	0.0121	87.44
Inproclean 3800	0.0301	0.0468	-55.48
	0.1220	0.0989	18.93
	0.0642	0.0794	-23.68
E3HB	0.0659	0.0580	11.99
	0.0593	0.0541	8.77
	0.0510	0.0486	4.71
SC Aircraft & Metal Cleaner	0.0718	0.0696	3.06
	0.0935	0.0804	14.01

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	0.0343	0.0408	-18.95

Summary:

Substrates:	Steel
Contaminants:	Paints

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
AGA Chemical	AK 225	100	56.50	☐	
Dysol	DS 108 Wipe Solvent	100	3.68	☐	
Today & Beyond	Beyond 2008	100	-0.60	☐	
Transene Company, Inc.	D Greeze 1000	100	82.90	☑	
AW Chesterton	278 Super Solv	100	90.14	☑	
Oakite Products	Inproclean 3800	10	-20.07	☐	
Metabolix Inc	Metabolix E3HB	100	8.49	☐	
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	10	-0.63	☐	

Conclusion:

Three products will be retested in an attempt to improve cleaning efficiency. These products are AK 225, D Greeze 1000 and 278 Super Solv.