CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2000

DateRun: 02/22/2000

Experimenters: Jason Marshall

ClientType: Mfr Boating Accessories

ProjectNumber: Project #1

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Inks

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To further evaluate selected cleaners for the removal of inks.

Experimental Procedure: Three cleaners were selected from the previous trial. The aqueous products was diluted with DI water to 20% in a 600 ml beaker. One of the semi-aqueous products was diluted to 50% and the other was used at full strength. Three sets of nine preweighed coupons were coated with one of the supplied inks and weighed again. Three coupons of each color were cleaned in each solution for five minutes with no agitation. After cleaning the coupons were rinsed for 15 second in tap water at 120F. After rinsing, each coupon was wiped twice using a fresh paper towel. Following the drying, final clean weights were recorded and efficiencies were calculated.

SUBSTRATE MATERIAL: Stainless Steel Coupons SS-302 B86
CONTAMINANTS: Inks-EMMCorp Thermosetting Inks of ER Series, Blue, Gold, Red
CONTAMINATING PROCESS USED: Coupons were coated with inks using a hand held swab.

Results: SWR One was the only solution that had moderate removal of each of the three inks. During the cleaning, the color of SWR turned from its normal color of pink to which ever color it was attempting to clean (blue, gold, red). The other two solutions did not show the same dissolving action as SWR One. Inproclean had higher cleaning efficiencies than the Bio T Max. Table 2 lists the calculated results for each cleaner and ink colors.

Table 2. Cleaning Efficiencies

Cleaner	Inproclean 4000 T			Bio T Max			SWR One		
Ink	Blue	Gold	Red	Blue	Gold	Red	Blue	Gold	Red
Coupon 1	48.03	15.22	54.84	50.22	29.69	54.15	51.43	62.61	84.86
Coupon 2	55.41	20.25	52.56	29.17	15.62	49.27	58.82	59.33	84.30
Coupon 3	73.21	14.44	60.64	51.96	10.14	47.91	60.86	75.18	78.35
Average	58.88	16.64	56.02	43.79	18.49	50.44	57.04	65.70	82.50
	No visible signs of dissolving			No visible signs of dissolving			Dissolved inks easily		

Summary:

Substrates:	Stainless Steel				
Contaminants:	Inks				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Oakite Products	Inproclean 4000 T	50	58.88	☐	
Bio Chem Systems	Bio T Max	100	50.44	☐	
SWR Corporation	SWR One	25	82.50	☑	

Conclusion: These three cleaners will be used once again for an additional experiment to imitate the cleaning procedure actually used for the removal of ink cleaning. Solutions will be used along with a more rigorous wipe cleaning.