

# 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		
	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:

<b>Substrates:</b>	Stainless Steel				
<b>Contaminants:</b>	Inks				
<b>Company Name:</b>	<b>Product Name:</b>	<b>Conc.:</b>	<b>Efficiency:</b>	<b>Effective:</b>	<b>Observations:</b>
Oakite Products	Inproclean 4000 T	50	58.88	<input type="checkbox"/>	
Bio Chem Systems	Bio T Max	100	50.44	<input type="checkbox"/>	
SWR Corporation	SWR One	25	82.50	<input checked="" type="checkbox"/>	

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.