

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002  
 DateRun: 04/11/2002  
 Experimenters: Jason Marshall, Purav Dave  
 ClientType: Cleaning Equipment Mfr  
 ProjectNumber: Project #2  
 Substrates: Stainless Steel  
 PartType: Coupon  
 Contaminants: Waxes  
 Cleaning Methods: Ultrasonics  
 Analytical Methods:  
 Purpose: 7th contaminant cleaning

**Experimental Procedure:** Thirteen preweighed coupons were coated with a paraffin wax, by heating the wax with a Master Appliance heat gun and rubbing the coupons with the hot wax. Once cooled, coupons were reweighed. Five coupons were clipped to wire racks and immersed into the Flow-Matic machine and cleaned for 1 minutes using ultrasonics at 92 F, removed and rinsed in a tap water spray and re-immersed into the ultrasonics for an additional 1 minute followed by a second 5 second rinse. The coupons were then dried using an air knife for 15 seconds. A second set of five coupons followed the same cleaning cycle except they were hung on a wire stand and immersed into a Crest 40 kHz ultrasonic tank. The final three coupons were cleaned in water using stir-bar agitation, rinsed with the spray and dried with air knives.

**Results:** Comparison of the two processes revealed that both system were ineffective at removing the wax from the stainless steel coupons.  
 Table 1. Cleaning Efficiencies

Process	Flow-Matic	Traditional
	-0.28	0.00
	-0.21	0.42
	2.46	0.16
	-0.94	0.68
	-0.96	0.04
Average	0.01	0.26
Std Dev	1.41	0.29

Water in the immersion cleaning removed about the same amount of wax as the ultrasonic systems.  
 Wax  
 -0.32  
 -0.42  
 -0.14  
 -0.30  
 0.14

**Summary:**

<b>Substrates:</b>		Stainless Steel			
<b>Contaminants:</b>		Waxes			
<b>Company Name:</b>	<b>Product Name:</b>	<b>Conc.:</b>	<b>Efficiency:</b>	<b>Effective:</b>	<b>Observations:</b>
Water	Water	100	0.26	<input type="checkbox"/>	Traditional System
Water	Water	100	0.01	<input type="checkbox"/>	Flow-Matic System
Water	Water	100	-0.30	<input type="checkbox"/>	Immersion System

**Conclusion:** Neither system was effective in cleaning the wax.