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 parrafin 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:

Substrates:	Stainless Steel				
Contaminants:	Waxes				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Water	Water	100	0.26	☐	Traditional System
Water	Water	100	0.01	☐	Flow-Matic System
Water	Water	100	-0.30	☐	Immersion System

Conclusion: Neither system was effective in cleaning the wax.