CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2000

DateRun: 11/28/2000

Experimenters: Jason Marshall

ClientType: Chemical Company

ProjectNumber: Project #1

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Latex binder

Cleaning Methods: Ultrasonics

Analytical Methods: Visual

Purpose: To further evaluate the effectiveness of five previously tested products

Experimental Procedure: Five cleaners were selected from the previous effective cleaning. Water was also included in testing. All cleaners were diluted to 5% by volume using DI water in 600 ml beakers and heated to 130 F in the ultrasonic bath. Eighteen coupons were coated with the binder mix. Three coupons were immersed in a solution and cleaned with ultrasonics for three minutes. Coupons were rinsed for 30 second with tap water at 120 F and dried with a Master Appliance Corp, Hot-air gun model HG-301A for one minute at 500 F. Coupons were inspected to determine the level of cleanliness achieved. The coupons were also compared to each other to determine which cleaning chemistry worked the best.

SUBSTRATE MATERIAL: stainless steel, 316
CONTAMINANTS: Latex binder (water 53.648%, Vultex CA-1 catalyst 0.724% (7664-41-7), Igepal CO-630 0.545% (9016-45-9), Biosoft D35 X 2.595%, Dur-O-Set NS 25-1823 24.447% (50-00-0), Fulatex Polymer 12.663%, Black pigment BS 15870 5.478%(1333-86-4), Repearl F-8025 0.900% (57-55-6)
CONTAMINATING PROCESS USED: Mixed binder was applied to coupons using a hand held swab and allowed to dry.

Results: Shopmaster removed all of the thin film which remained after the immersion cleaning process in the previous trial. Water alone almost removed all of the thin film. Polyspray Jet 790 P, 440 R SMT did not remove all of the thin film, but removed a majority of it. Beyond 2004 and Formula 625 XL were able to clean only a small portion of the thin film. Table 2 lists the ranking of the cleaners.

Table 2. Ranking of Cleaners

Shopmaster	1
Formula 625	6
440 R SMT	4
Beyond 2004	5
Jet 790 P	3
Water	2

Summary:

Substrates:	Stainless Steel				
Contaminants:	Latex binder				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Buckeye International	Shopmaster	5	1.00	☑	Rank
Quaker Chemical	Formula 625 XL	5	6.00	☐	Rank
Smart Sonic Corp	440 R SMT Detergent	5	4.00	☐	Rank
Today & Beyond	Beyond 2004	5	5.00	☐	Rank
US Polychem Corporation	Polyspray Jet 790 P	5	3.00	☐	Rank
Water	Water	100	2.00	☐	Rank

Conclusion: Shopmaster and water were both effective in removing the latex binder from the stainless steel using ultrasonic energy for three minutes. The next phase of testing will be to clean the supplied static mixer.