CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2006

DateRun: 05/10/2006

Experimenters: Jason Marshall

ClientType: General

ProjectNumber: Project #1

Substrates: Steel

PartType: Coupon

Contaminants: Paints

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate selected products on third supplied paint using ultrasonic cleaning.

Experimental Procedure: Two products from the previous contaminant were diluted to 5% using DI water in 600 ml beakers. Another previously tested product was used at 50% dilution. A mix of two dibasic esters from DuPont was used in a 50-50 ratio. The client supplied product was used at full strength. Each solution was heated to 130 in a 40 kHz ultrasonic tank.

The contaminant consisted of a water based paint at 40 parts, a cross-linker (64265-57-2) at 2 parts and DI water at 1 part. The mixed paint was applied to fifteen preweighed steel coupons and allowed to dry. A second weight was recorded to determine the amount of paint applied.

Three painted coupons were immersed in a cleaning product and cleaned for 10 minutes using the 40 kHz ultrasonic tank. After the cleaning, coupons were rinsed in a tap water bath for 15 seconds at 120 F and air dried for 30 seconds at room temperature. The coupons were then rubbed with a gloved hand to determine how easily the paint could be removed. Once dry, the coupons were weighed a final time and removal efficiencies were calculated.

Results: Two of the alternatives worked very well after 10 minutes of cleaning. The Inproclean 4000 T was easily wiped from the surface after cleaning. The SC Actisolv allowed the paint to be removed during drying with air blow off. The table below lists the amount of paint applied, the amount remaining and the effectiveness of the products.

Cleaner	Initial wt	Final wt	% Removed	Observations
Inproclean 4000 T	0.0839	0.0030	96.42	Rubbed off
	0.0779	0.0038	95.12	
	0.0502	0.0002	99.60	
SC Acitsolv	0.0347	0.0036	89.63	Easily wiped off
	0.0850	0.0016	98.12	
	0.0603	0.0003	99.50	
DBE 5/6	0.0527	0.1315	-149.53	No removal
	0.0542	0.1259	-132.29	
	0.0671	0.1621	-141.58	
Surface Cleanse 930	0.0656	0.0319	51.37	Some rub off
	0.0615	0.0635	-3.25	
	0.0427	0.0124	70.96	
D Zolve 1012	0.0394	0.0004	98.98	
	0.0743	0.0004	99.46	
	0.0513	0.0021	95.91	

Summary:

Substrates:	Steel				
Contaminants:	Paints				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Oakite Products	Inproclean 4000 T	5	97.05	☑	
Gemtek Products	SC Actisolv Safety Solvent	50	95.75	☑	

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Invista S.a.r.l	Flexisolv DBE Ester	50	-141.58	☐	
International Products Corporation	Surface Cleanse Concentrated Neutral 930	5	39.68	☐	
Transene Company, Inc.	D Zolve 1012	100	98.12	☑	

Conclusion: The two effective alternatives will be used to clean the reaming supplied spindles.