CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2007

DateRun: 03/08/2007

Experimenters: Jason Marshall, Shweta Bansal

ClientType: Jewelry Mfr

ProjectNumber: Project #1

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Buffing/Polishing Compounds

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate successful semi-aqueous products using ultrasonic cleaning.

Experimental Procedure: Seven products were selected from previous trial based on effectiveness. Three products were diluted to 10% using DI water and four were used at full strength in 600 ml beakers. Each solution was heated to 130 F in a Crest 40 kHz ultrasonic tanked filled with water. The solutions were degassed for 5 minutes.

Twenty-one preweighed coupons were coated with Jackonslea Grey Color 305 A (1344-28-1) by heating the buffing compound to facilitate transfer to the stainless-steel coupons. Once cooled, coupons were weighed again to determine the amount of buffing compound applied. Three coupons were cleaned in each solution for 1 minute using 40 kHz ultrasonic cleaning. Coupons were rinsed for 15 seconds in 120 F tap water and dried using compressed air at room temperature for 30 seconds. Coupons were weighed a third time to determine the amount of soil remaining and efficiencies were calculated for each coupon cleaned.

Results: Five of the seven products removed over 90% of the buffing compound in one minute of ultrasonic cleaning. The SC Supersolve and Soy Gold 2000 removed under 75%. The table lists the amount of buffing compound applied, the amount remaining after cleaning and the efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
SC Supersolv	0.4877	0.1757	63.97
	0.5796	0.2421	58.23
	0.2359	0.0151	93.60
Bio T Max	0.1241	0.0178	85.66
	0.4573	0.0184	95.98
	0.2438	0.0225	90.77
Solsafe 245	0.3111	0.0179	94.25
	0.3448	0.0264	92.34
	0.4383	0.0654	85.08
DS 104	0.4908	0.0861	82.46
	0.3434	0.0244	92.89
	0.4298	0.0202	95.30
Optisolv OP7168	0.2951	0.0118	96.00
	0.3164	0.0428	86.47
	0.3153	0.0187	94.07
Soy Gold 2000	0.6081	0.2442	59.84
	0.5184	0.1181	77.22
	0.7174	0.2157	69.93
D Greeze 500 Lo	0.6484	0.0741	88.57
	0.5876	0.0294	95.00
	0.4084	0.0306	92.51

Summary:

Substrates:	Stainless Steel				
Contaminants:	Buffing/Polishing Compounds				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Gemtek Products	SC Supersolve Safety Solvent	10	71.93	☐	
Bio Chem Systems	Bio T Max	100	90.80	☑	
Bio Chem Systems	Solsafe 245	100	90.56	☑	

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Dysol	DS 104 Wipe Solvent	100	90.22	☑	
Kyzen Corporation	Optisolv OP7168	10	92.18	☑	
AG Environmental Products	Soy Gold 2000	10	69.00	☐	
Transene Company, Inc.	D Greeze 500 LO	100	92.03	☑	

Conclusion: The five effective products will be tested on supplied dirty parts using ultrasonic cleaning.