CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2004

DateRun: 05/03/2004

Experimenters: Jason Marshall

ClientType: Jewelry Mfr

ProjectNumber: Project #2

Substrates: Sterling/Silver

PartType: Coupon

Contaminants: Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To evaluate alternatives on second supplied contaminant

Experimental Procedure: Nine products were selected based on client request for vapor degreasing solvents. Each product was used at full strength in a 250 ml beaker and heated to 96 F on a hot plate. Twenty-seven preweighed silver plated copper coupons were coated with the Houghton Chemical Cut-Max 135 (64742-52-5, 64741-96-4) using a hand held swab. Coupons were weighed a second time to determine the amount of soil added to each coupon. Three coupons were cleaned in each solution for 5 minutes using stir-bar agitation. After cleaning parts were weighed a final time and efficiencies were calculated.

Results: All nine products removed over 85% of the oil. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
HFE 7100	0.1504	0.0230	84.71
	0.2870	0.0185	93.55
	0.1815	0.0127	93.00
HFE 7200	0.1089	0.0119	89.07
	0.1725	0.0155	91.01
	0.1083	0.0148	86.33
AK 225	0.1085	0.0034	96.87
	0.3010	0.0018	99.40
	0.1515	0.0019	98.75
Vertrel CCA	0.0935	0.0072	92.30
	0.0866	0.0091	89.49
	0.0779	0.0098	87.42
Ensolv	0.1190	0.0019	98.40
	0.1042	0.0022	97.89
	0.0844	0.0023	97.27
Ensolv A	0.1239	0.0012	99.03
	0.1457	0.0006	99.59
	0.2006	0.0008	99.60
Metalnox M6760	0.0505	-0.0003	100.59
	0.1837	-0.0010	100.54
	0.1136	0.0004	99.65
Solvon PB	0.1417	-0.0012	100.85
	0.0547	-0.0003	100.55
	0.0754	-0.0008	101.06
Solvon IP	0.1124	0.0002	99.82
	0.0822	0.0003	99.64
	0.1167	0.0000	100.00

Summary:

Substrates:	Sterling/Silver
Contaminants:	Oil

Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
3M	HFE 7100	100	90.42	☑	
3M	HFE 7200	100	88.81	☑	

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AGA Chemical	AK 225	100	98.34	☑	
DuPont	Vertrel CCA	100	89.74	☑	
Enviro Tech International Inc	Ensolv	100	97.86	☑	
Enviro Tech International Inc	Ensolv A	100	99.41	☑	
Kyzen Corporation	Metalnox M6960	100	100.26	☑	
Poly Systems USA Inc	Solvon Kreussler PB	100	100.82	☑	
Poly Systems USA Inc	Solvon Kreussler IP	100	99.82	☑	

Conclusion: All nine products will be tested on the third supplied contaminant.