CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2016

DateRun: 09/07/2016

Experimenters: Carla De La Cruz

ClientType: Jewelry Mfr

ProjectNumber: Project #3

Substrates: Copper, Stainless Steel

PartType: Coupon

Contaminants:

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric, Visual

Purpose: To find the best fit product for cleaning Leach Garner's #1 Masterdraw from copper and stainless steel surfaces meant to resemble the cleaning of precious metals.

Experimental Procedure: Coupons of stainless steel and copper were selected and arranged on trays, so that each cleaner had an assigned set of each surface. Before taking initial weights coupons were wiped down with Kimwipes. After taking weights the coupons were promptly soiled and reweighed. All cleaners were gathered in respective bottles and beakers. A stir bar was used in conjunction with a heating plate equipped to stir the solutions. The coupons were added to the beakers three of a kind at one time, and then allowed to sit in the stirred solution at room temperature for 5 minutes while observations were taken. Finally, clean weights were taken at the end of all the testing.

Results:

Cleaner	Substrate	Initial wt.	Final wt.	% Cont Removed	% Overall
Fluosolv CX	Stainless	0.0727	0.0037	94.91	
	Stainless	0.0395	0.0034	91.39	94.03
	Stainless	0.0810	0.0034	95.80	
	Copper	0.1005	0.0037	96.32	
	Copper	0.0460	0.0031	93.26	95.13
	Copper	0.0861	0.0036	95.82	
FluoSolv NC	Stainless	0.0884	0.0034	96.15	
	Stainless	0.0436	0.0025	94.27	95.45
	Stainless	0.0689	0.0028	95.94	
	Copper	0.0865	0.0018	97.92	
	Copper	0.0588	0.0026	95.58	95.68
	Copper	0.0790	0.0051	93.54	
Vertrel Sion	Stainless	0.0681	0.0019	97.21	
	Stainless	0.0451	0.0036	92.02	95.48
	Stainless	0.0644	0.0018	97.20	
	Copper	0.0965	0.0016	98.34	
	Copper	0.0880	0.0017	98.07	98.19
	Copper	0.0760	0.0014	98.16	
Solstice PF	Stainless	0.0572	0.0037	93.53	
	Stainless	0.1256	0.0039	96.89	95.49
	Stainless	0.0759	0.0030	96.05	
	Copper	0.0860	0.0060	93.02	
	Copper	0.0730	0.0055	92.47	93.38
	Copper	0.1123	0.0060	94.66	

Summary:

Substrates:	Copper, Stainless Steel				
Contaminants:					
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
NuGeneration Technologies, LLC	FluoSolv CX	100	94.58	☑	
NuGeneration Technologies, LLC	FluoSolv NC 786	100	95.57	☑	
DuPont	Vertrel Sion	100	96.84	☑	
Honeywell	Solstice PF with N2	100	94.44	☑	

Conclusion:

CLEANING LABORATORY EVALUATION SUMMARY

The percent removal for all the cleaners were quite high, yet there was streaking and some filming left behind for every coupon. Overall, Honeywell's Solstice PF did not perform as well as some of the others, as it left behind significantly more content than any other cleaner. There was no cleaner that was effective in cleaning without leaving a film or streaks, but of those used Vertrel Sion was the best candidate. The coupons seemed to resist streaking better if they were pulled from the solution slowly, rather than just pulling them out.