CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2016

DateRun: 08/31/2016

Experimenters: Carla De La Cruz, Vinh Tran

ClientType: Jewelry Mfr

ProjectNumber: Project #3

Substrates: Copper, Stainless Steel

PartType: Coupon

Contaminants: Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric, Visual

Purpose: To find the best fit product for cleaning Leach Garner's XXAluminum #19 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	0.1563	0.0016	98.98	
	Stainless	0.2342	0.0017	99.27	98.89
	Stainless	0.2288	0.0036	98.43	
	Copper	0.2816	0.0017	99.4	
	Copper	0.1711	0.002	98.83	99.06
	Copper	0.1706	0.0018	98.94	
FluoSolv NC	Stainless	0.1814	0.0001	99.94	
	Stainless	0.2076	0.0008	99.61	99.70
	Stainless	0.2012	0.0009	99.55	
	Copper	0.2276	0.0010	99.56	
	Copper	0.2314	0.0009	99.61	99.50
	Copper	0.2408	0.0016	99.34	
Vertrel Sion	Stainless	0.2193	0.0005	99.77	
	Stainless	0.2838	0.0001	99.96	99.80
	Stainless	0.1835	0.0006	99.67	
	Copper	0.2641	0.0005	99.81	
	Copper	0.2289	0.0006	99.74	99.81
	Copper	0.2474	0.0003	99.88	
Solstice PF	Stainless	0.1413	0.0001	99.93	
	Stainless	0.2391	0.0005	99.79	99.81
	Stainless	0.2374	0.0007	99.71	
	Copper	0.2888	0.0013	99.55	
	Copper	0.2282	0.0015	99.34	99.50
	Copper	0.2861	0.0011	99.62	

Summary:

Substrates:	Copper, Stainless Steel				
Contaminants:	Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
NuGeneration Technologies, LLC	FluoSolv CX	100	98.98	☑	
NuGeneration Technologies, LLC	FluoSolv NC 786	100	99.60		

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DuPont	Vertrel Sion	100	99.81	☑	
Honeywell	Solstice PF with N2	100	99.70	☑	

Conclusion: Results for percent of contaminant removed were well in the upper nineties. Visually, the results were very good. Some coupons showed signs of streaking and an apparent film. Most of the soil was dissolved in less than 5 minutes. Although, all cleaners performed well, the best results were obtained from Vertrel Sion which caused the least amount of streaking.