CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2016

DateRun: 09/08/2016

Experimenters: Carla De La Cruz

ClientType: Jewelry Mfr

ProjectNumber: Project #3

Substrates: Aluminum

PartType: Coupon

Contaminants: Waxes

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric, Visual

Purpose: To find the best fit product for cleaning Leach Garner's #4 Master draw 419TT from aluminuml 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 15 minutes, in 5 minute increments while observations were taken. Finally, clean weights were taken at the end of all the testing.

Results:

Cleaner	Initial wt of cont.	Final wt of cont.	% Cont Removed	% Overall
FluoSolv CX	0.0609	0.0173	71.59	
	0.0913	0.0104	88.61	79.16
	0.0515	0.0117	77.28	
FluoSolv NC	0.0396	0.0074	81.31	
	0.0393	0.0076	80.66	81.83
	0.0437	0.0072	83.52	
Vertrel Sion	0.0639	0.0111	82.63	
	0.048	0.0093	80.63	82.79
	0.0672	0.01	85.12	
Solstice PF	0.0667	0.0322	51.72	
	0.047	0.0211	55.11	54.01
	0.0529	0.0237	55.2	

Summary:

Substrates:	Aluminum
Contaminants:	Waxes

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
NuGeneration Technologies, LLC	FluoSolv CX	100	79.16	☐	
NuGeneration Technologies, LLC	FluoSolv NC 786	100	81.83	☐	
DuPont	Vertrel Sion	100	82.79	☐	
Honeywell	Solstice PF with N2	100	54.01	☐	

Conclusion: The last batch of testing associated with the Leach Garner project showed some similar results to the first time this soil was tested on copper and stainless steel. There did not seem to be much removal by any of the cleaners, as most left behind significant amounts of residue. The gravimetric values do not quite agree with what was observed, but according to the gravimetric analysis the best cleaner appeared to be DuPont's Vertrel Sion which removed about 80% of the soil, yet it too left behind some significant residue. It did seem to dissolve the soil somewhat but after 15 minutes there were no significant changes from the first 5 minutes of cleaning. It is suggested that this particular soil be cleaned under heated conditions as unheated cleaning is quite ineffective.