CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2017

DateRun: 07/23/2017

Experimenters: Alicia McCarthy, Hayley Byra

ClientType: General

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Coupon

Contaminants: Lubricating/Lapping Oils

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric, Visual

Purpose: To evaluate the effectiveness of five drop-in solvents at removing aged lubricant on aluminum alloys.

Experimental Procedure: Preweighed aluminum coupons were tested for each cleaner. Coupons were soiled with Blasocut 2000 Universal lubricant (CAS 64742-52-5; 61790-44-1; 68608-26-4; 63449-39-8; 107-41-5; 770-35-4) using a swab to cover the bottom third of the substrate and air dried for 20 minutes. Coupons were then soaked in water for 10 minutes and air dried for four days before recording dirty weights. Coupons were immersed, three at a time, in a beaker with 200ml of the chosen cleaner at room temperature (68 F) for five minutes. Visual observations were taken during this time, and final weights were recorded after cleaning. This process was repeated for each cleaner on Blasocut 2000 Universal.

Results:

Cleaner	Initial wt.	Final wt.	% Removed	Average % Removed
Fluosolv CX				
	0.0222	0.0031	86.04	78.16
	0.0424	0.0123	70.99	
	0.0430	0.0097	77.44	
Fluosolv NC				
	0.0646	0.0009	98.61	98.07
	0.0857	0.0016	98.13	
	0.0475	0.0012	97.47	
Solstice PF				
	0.0653	0.0011	98.32	98.37
	0.1009	0.0027	97.32	
	0.0938	0.0005	99.47	
Solstice PF-2A				
	0.0692	0.0012	98.27	98.09
	0.0580	0.0013	97.76	
	0.0735	0.0013	98.23	
Vertrel Sion				
	0.1478	0.0000	100.00	99.62
	0.0960	0.0005	99.48	
	0.1123	0.0007	99.38	

Fluosolv CX had residue still on the coupons after five minutes of immersion. The other four drop-in solvents performed the same and no soil was visable after cleaning.

Summary:

Substrates:	Aluminum				
Contaminants:	Lubricating/Lapping Oils				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
NuGeneration Technologies, LLC	FluoSolv CX	100	78.16	☐	
NuGeneration Technologies, LLC	FluoSolv NC 786	100	98.07	☑	
Honeywell	Solstice PF with N2	100	98.37	☑	

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Honeywell	Solstice PF-2A with N2	100	98.09	☑	
DuPont	Vertrel Sion	100	99.62	☑	

Conclusion: Four of the five drop-in solvents were effective at removing aged Blasocut 2000 Universal on aluminum. Next step would be to try incorporating agitation and increase immersion time. Not all products will be used in future testing due to EHS criteria and performance.