CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2017

DateRun: 07/11/2017

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 lubricant from aluminum alloys.

Experimental Procedure: Preweighed aluminum coupons were tested for each cleaner. Coupons were soiled with Oak 7a lubricant (CAS: 64742-53-6; 68909-65-9) using a swab to cover the bottom third of the substrate and dirty weights were recorded. 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.

Results:

Cleaner	Initial wt.	Final wt.	% Removed	Average % Removed
Fluosolv CX				
	0.0524	0.0062	88.17	89.35
	0.1075	0.0037	96.56	
	0.1427	0.0238	83.32	
Fluosolv NC				
	0.0331	-0.0002	100.6	101.26
	0.0707	-0.0012	101.7	
	0.0881	-0.0013	101.48	
Solstice PF				
	0.0821	0.0007	99.15	99.87
	0.0946	0	100	
	0.0882	-0.0004	100.45	
Solstice PF-2A				
	0.0579	0.0003	99.48	100.1
	0.0987	-0.0008	100.81	
	0.0649	0	100	
Vertrel Sion				
	0.1144	0.0031	97.29	98.36
	0.0743	0.0023	96.9	
	0.0911	-0.0008	100.88	

Four out of the five drop-in solvents visually performed the same and were effective at removing Oak 7a. No substrate damage was observed on coupons with a percentage higher than 100%. The high removal percentage was potentially due to the cleanliness of coupons before testing. Fluosolv CX had some residue still on the coupons after five minutes.

Summary:

Substrates:	Aluminum				
Contaminants:	Lubricating/Lapping Oils				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
NuGeneration Technologies, LLC	FluoSolv CX	100	89.35	☑	
NuGeneration Technologies, LLC	FluoSolv NC 786	100	101.26	☑	
Honeywell	Solstice PF with N2	100	99.87	☑	

CLEANING LABORATORY EVALUATION SUMMARY

Honeywell	Solstice PF-2A with N2	100	100.10	☑	
DuPont	Vertrel Sion	100	98.36	☑	

Conclusion: All five drop-in solvents were effective at removing Oak 7a from aluminum. Next step would be to repeat the procedure for EDM 30 lubricant.