CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2017

DateRun: 07/12/2017

Experimenters: Alicia McCarthy, Hayley Byra

ClientType: General

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Coupon

Contaminants: Lubricating/Lapping Oils

Cleaning Methods: Immersion/Soak

Analytical Methods: None

Purpose: To evaluate the effectiveness of five TCE alternatives at removing lubricants from 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 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				
	0.0213	0.006	71.83	64.69
	0.0755	0.0297	60.66	
	0.0453	0.0174	61.59	
Fluosolv NC				
	0.1095	0.0013	98.81	86.73
	0.1015	0	100	
	0.3046	0.1176	61.39	
Solstice PF				
	0.0914	0.0022	97.59	97.39
	0.1643	0.0026	98.42	
	0.1012	0.0039	96.15	
Solstice PF-2A				
	0.1095	0.0012	98.9	98.15
	0.0493	0.0013	97.36	
	0.066	0.0012	98.18	
Vertrel Sion				
	0.0226	-0.0003	101.33	99.94
	0.0978	-0.0014	101.43	
	0.0647	0.0019	97.06	

Blasocut took two to three minutes before it visually came off the coupon in each drop in solvent. Fluosolv CX had a thin layer of residue on each of the coupons.

Summary:

Substrates:	Aluminum				
Contaminants:	Lubricating/Lapping Oils				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
NuGeneration Technologies, LLC	FluoSolv CX	100	64.69	☐	
NuGeneration Technologies, LLC	FluoSolv NC 786	100	86.73	☑	
Honeywell	Solstice PF with N2	100	97.39	☑	
Honeywell	Solstice PF-2A with N2	100	98.15	☑	

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DuPont	Vertrel Sion	100	99.94	☑	

Conclusion: Four of the five drop-in solvents were effective at removing Blasocut 2000 Universal from aluminum. Next steps is repeating procedure on Oak 7a lubricant.