

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: Gravimetric, Visual

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

Experimental Procedure: Prew weighed 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.

Cleaner	Initial wt.	Final wt.	% Removed	Average % Removed
Fluosolv CX				
	0.0524	0.0062	88.17	89.35
	0.1075	0.0037	96.56	
Fluosolv NC	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	
Solstice PF-2A	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	
Vertrel Sion	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	<input checked="" type="checkbox"/>	
NuGeneration Technologies, LLC	FluoSolv NC 786	100	101.26	<input checked="" type="checkbox"/>	
Honeywell	Solstice PF with N2	100	99.87	<input checked="" type="checkbox"/>	

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Honeywell	Solstice PF-2A with N2	100	100.10	<input checked="" type="checkbox"/>	
DuPont	Vertrel Sion	100	98.36	<input checked="" type="checkbox"/>	

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.