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: Waxes

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric, Visual

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

Experimental Procedure: Preweighed aluminum coupons were tested for each cleaner. Coupons were soiled with Lenox Lube Tube Wax (CAS:8002-74-2; 57-11-4; 5989-27-5) 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				
	0.1554	0.1326	14.67	18.02
	0.0947	0.0767	19.01	
	0.0869	0.0692	20.37	
Fluosolv NC				
	0.8361	0.719	14.01	14.91
	0.8227	0.6897	16.17	
	1.1123	0.9504	14.56	
Solstice PF				
	0.8529	0.664	22.15	16.35
	0.8597	0.7561	12.05	
	0.8457	0.7202	14.84	
Solstice PF-2A				
	0.5232	0.4318	17.47	21.24
	0.416	0.3098	25.53	
	0.4061	0.3219	20.73	
Vertrel Sion				
	0.474	0.3752	20.84	41.73
	0.7537	0.2876	61.84	
	0.7268	0.4179	42.5	

Although drop-in solvents were ineffective at removing the wax completely, the wax was slightly lifting off the coupon with Fluosolv NC. An increase in immersion time may remove a higher percentage of the wax.

Summary:

Substrates:	Aluminum				
Contaminants:	Waxes				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
NuGeneration Technologies, LLC	FluoSolv CX	100	18.02	☐	
NuGeneration Technologies, LLC	FluoSolv NC 786	100	14.91	☐	
Honeywell	Solstice PF with N2	100	16.35	☐	
Honeywell	Solstice PF-2A with N2	100	21.24	☐	

CLEANING LABORATORY EVALUATION SUMMARY

DuPont	Vertrel Sion	100	41.73	☐	

Conclusion: All five drop-in solvents were ineffective at removing wax from aluminum. Next step would be to add agitation and increase immersion time. Not all products will be evaluated in future testing due to EHS criteria and performance.