CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2017

DateRun: 08/15/2017

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ClientType: General

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Coupon

Contaminants: Cutting/Tapping Fluids, Lubricating/Lapping Oils

Cleaning Methods: Immersion/Soak

Analytical Methods: Goniometry, Visual

Purpose: To compare the contact angle of TCE cleaned aluminum parts and potential alternatives as a basis for measuring cleanliness.

Experimental Procedure: Contact angles for TCE (CAS 79-01-6) cleaned solid and fin parts were averaged and then used as a reference for cleanliness during this test. The dirty parts were pre-soiled with Oak 7a lubricant (CAS: 64742-53-6; 68909-65-9), and each solvent used one solid and one fin part for testing. The fin parts were flattened using a hammer on one side to record the dirty contact angle and the other half of the part was kept intact (See Appendix for an image of solid and fin parts).

Parts were immersed, one at a time, in a heated beaker (80 F) filled with Fluosolv NC-786 and repeated for the Honeywell products at room temperature (68 F) for five minutes. The clean contact angles were measured shortly after cleaning, and the intact fin parts were flattened to compare both sides of the part to ensure more complex geometries were cleaned.

Results: TCE Cleaned Parts:

Solid		Fin	
Part#	Contact Angle°	Part#	Contact Angle°
1	79.44	7	72.42
2	66.52	8	66.23
3	70.65	9	79.36
4	63.7	10	76.23
5	65.52	11	89.25
6	71.67	12	72.43
Average	69.58	Average	75.99

Solid Part

Cleaner	Fluosolv NC 786	Solstice PF	Solstice PF-2A
Contact Angle° Before	54.55	34.7	33.65
Contact Angle° After	85.64	93.52	88.83
Fin Part			
Cleaner	Fluosolv NC 786	Solstice PF	Solstice PF-2A
Contact Angle° Before	59.25	44.23	57.34
Contact Angle° After	73.53	70.68	82.58
Contact Angle° Intact After	76.34	77.05	70.73

Summary:

Substrates:	Aluminum				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
NuGeneration Technologies, LLC	FluoSolv NC 786	100	0.00	☑	
Honeywell	Solstice PF with N2	100	0.00	☑	

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Honeywell	Solstice PF-2A with N2	100	0.00	☑	

Conclusion: All three alternatives are as effective at removing Oak 7a from both solid and fin parts as TCE.