CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2001

DateRun: 11/26/2001

Experimenters: Jason Marshall

ClientType: Electronics Manufacturer

ProjectNumber: Project #1

Substrates: Steel

PartType: Part

Contaminants: Films, Salts

Cleaning Methods: Immersion/Soak

Analytical Methods: Visual

Purpose: To evaluate cleaners using longer times and elevated temperature

Experimental Procedure: Three products from the previous trial were diluted to 20% using DI water in 1000 ml beakers. A fourth solution was used a full strength. All four products were heated to 140 F on a hot plate. One part was immersed half way into the solutions and cleaned for 20 minutes. At the end of cleaning the parts were rinsed with tap water at 120 F for 5 minutes. Parts were allowed to air dry. Observations were made at the 10 and 20 minutes. Contaminant: White powders (SiO2, NHCl, (NH4)2SiF6, or NH4HF2)

Results: Three of the four products were moderately successful after the 20 minute soaking. The DS 108 was not very effective. The following table lists observations made at T = 0, 10 and 20 minutes.

Table 1. Cleaning Observations

Cleaner	T = 0	T = 10	T = 20
1	Instantly cloudy	Very dark and cloudy. Still white powder in holes	White and crusty. Holes mostly clean
2	Slowly clouding up	Cloudy grey. Flat sides look clean. Round edges white	White and flaky. Good hole cleaning
3	Slowly clouding up	Cloudy. White still on part	White and crusty. Good hole cleaning
4	Slowly clouding up	Not very cloudy. White still on part	Lots of white still on part. OK hole cleaning

Summary:

Substrates:	Steel
Contaminants:	Films, Salts

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Buckeye International	Shopmaster	20	0.00	☑	
Innovative Organics Inc	Amberclean 527 L	20	0.00	☑	
Today & Beyond	Beyond 2001	20	0.00	☑	
Dysol	DS 108 Wipe Solvent	100	0.00	☐	

Conclusion: The three successful products will be evaluated in the next trial using ultrasonic energy.