CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2020

DateRun: 01/04/2020

Experimenters: Nicole Kebler, Julie Nguyen

ClientType: Electroplating Company

ProjectNumber: Project #2

Substrates:

PartType: Part

Contaminants: Graphite

Cleaning Methods: Immersion/Soak

Analytical Methods:

Purpose: To evaluate cleaners effectiveness at removing flux on graphite fixtures.

Experimental Procedure: Pre-contaminated graphite fixtures were provided by the company. Each of the four cells on one fixture was rated based on how contaminated they were initially and rated again after drying. The following visual rating keys were used:

Initial Visual Rating Key

#	Description
1	No contamination
2	Minimal contamination
3	Partially contaminated
4	Mostly contaminated
5	Completely contaminated

Clean Visual Rating Key

#	Description
1	Completely removed
2	Mostly removed
3	Partially removed
4	Minimal removal
5	No removal

One fixture was immersed either heated or unheated based on vendor recommendations and dilutions for fifteen minutes. Fixtures with more than 0.5 difference in rating was considered effective and would be tested further to improve effectiveness.

Results:

Cleaner	Initial Rating	Clean Rating	Average Initial Rating	Average Clean Rating	Difference
1	3.5	3	4.3	3.8	0.5
	3.5	3			
	5	4.5			
	5	4.5			
2	3.5	3	3.8	3.0	0.8
	3.5	3			
	4.5	3			
	3.5	3			
3	4	4	4.1	4.1	0.0
	4	4			
	4.5	4.5			
	4	4			

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4	5	4	5.0	4.0	1.0
	5	4			
	5	4			
	5	4			
5	4.5	4	4.5	4.0	0.5
	4.5	4			
	4.5	4			
	4.5	4			
6	4.5	3	4.5	3.0	1.5
	4.5	3			
	4.5	3			
	4.5	3			
7	5	4.5	5.0	4.5	0.5
	5	4.5			
	5	4.5			
	5	4.5			
8	5	4.5	5.0	4.5	0.5
	5	4.5			
	5	4.5			
	5	4.5			
9	5	5	5.0	4.9	0.1
	5	5			
	5	5			
	5	4.5			
10	3.5	3	3.1	2.6	0.5
	3	2.5			
	3	2.5			
	3	2.5			

Summary:

Substrates:					
Contaminants:	Graphite				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Alconox Inc	Liquinox	1%	0.00	☐	
Brulin Corporation	Aquavantage 1400	5%	0.00	☑	
International Products Corporation	Micro 90 Conc.	2%	0.00	☐	
JR Hess & Co., Inc.	Sta-Sol ESS 160	100%	0.00	☑	
Gemtek Products	SC-1000 Super Concentrate /SC Supersolve Mixture	95%/ 5%	0.00	☐	
Gemtek Products	Safe Care (SC) Maxi Solv	100%	0.00	☑	
Gemtek Products	SC Actisolv Safety Solvent	100%	0.00	☐	
Gemtek Products	SC-1000 Super Concentrate /SC Supersolve Mixture	95%/ 5%	0.00	☐	
Gemtek Products	Safe Care (SC) Maxi Solv	100%	0.00	☐	
Gemtek Products	SC Actisolv Safety Solvent	100%	0.00	☐	

Conclusion:

Aquavantage 1400GD, Sta-Sol ESS 160, and SC MaxiSolv (unheated) were considered the most effective out of the cleaners at removing flux from graphite fixtures. SC MaxiSolv heated will be run again to confirm the results during the next round of testing. The next step will be to increase the concentration of Aquavantage 1400 GD based on vendor recommendations and there will be an increase in temperature for Sta-Sol ESS 160.