CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008

DateRun: 12/08/2008

Experimenters: Jason Marshall

ClientType: Electronics Manufacturer

ProjectNumber: Project #1

Substrates: Ceramics

PartType: Part

Contaminants: Carbon Deposits

Cleaning Methods: Ultrasonics

Analytical Methods: Visual

Purpose: To evaluate ultrasonic cleaning on supplied ceramic parts

Experimental Procedure: Three products and water were selected for testing the effectiveness of ultrasonic cleaning. Products were selected based on classification, one acid, one alkaline and one solvent. Water was selected as the control. The two aqueous products were diluted to 10% using DI water. All products were heated to 105 F in a Branson 40 kHz ultrasonic unit and degassed for at least 5 minutes. A portion of the supplied ceramic ring was immersed in the cleaning solution. Parts were rinsed in a tap water spray for 10 seconds at 100 F followed by air blow off at room temperature for 30 seconds. Observations were made after 10 minutes. If any of the products were partially successful, additional cleaning times would be conducted at 60, 90, 120, 150 and 180 minutes.

Results: After the first 10 minutes, the alkaline aqueous product showed the most signs of removing the carbon deposits from the surface. All of the products showed some signs of cleaning, including water. The alkaline aqueous product and the solvent were tested at additional cleaning times.

Class	Product	Observations
Water		10 min - Some removal around the outer edge, dulling of coating color
Acid	Valtron SP 2275	10 min - Some removal that looked like scratches in the coating
Solvent	Smart Solve 605	10 min - Dulling of the coating
		30 min - No change; discontinue cleaning
Alkaline	Heavy Duty Answer	10 min - Splotchy removal, lighter color of the coating
		60 min - Starting to have good removal
		90 min - Still getting cleaner
		120 min - More removal
		150 min - Very clean
		180 min - Almost completely clean
		210 min - Very little deposits left on surface
		240 min - Over 98% cleaned

Summary:

Substrates:	Ceramics
Contaminants:	Carbon Deposits

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Environmental Care and Share	Heavy Duty Cleaner Answer	10	0.00	☑	
Valtech Corporation	Valtron SP 2275	10	0.00	☐	
United Laboratories International	Smart Solve 605	100	0.00	☐	

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Water	Water	100	0.00	☐	

Conclusion: Based on the success of the one alkaline aqueous product, additional testing could be performed on other alkaline aqueous products. Furthermore, other classifications not yet evaluated would be tested as well.