CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1998

DateRun: 04/01/1998

Experimenters: Jason Marshall

ClientType: Manufacturer of Ceramic Capacitors

ProjectNumber: Project #1

Substrates: Plastic

PartType: Part

Contaminants: Inks, Paints

Cleaning Methods: Immersion/Soak

Analytical Methods: Visual

Purpose: Find cleaner for plastic bottles.

Experimental Procedure: The excess Al2O3 beads were dumped out of the bottles. Four cleaners were selected from the lab's inventory based on compatibility with plastic. One hundred milliliters of each full-strength chemistry were poured into the bottles. The bottles were then shaken for two minutes. The solutions were then emptied out of the container. A fresh one hundred milliliters of cleaning chemistry were used for a second cleaning. Bottles were rinsed in tap water at 120 F for thirty seconds and air dried. The containers were observed visually for cleanliness.

SUBSTRATE MATERIAL: Nylon Bottles
CONTAMINANTS: Ink/paint

Results: Three of the four cleaners were effective in removing the ink/paint from the nylon containers. Oakite, Brulin and Chrisal cleaned the containers very well whereas the Nalge product only removed a portion of the contaminant. The four cleaned bottles subjected to the cleaning trial were sent back to the client to be compared to other bottles. The outsides of the bottles were not cleaned due to the nature of the test. If the bottles were to be submersed in a cleaning bath, the entire bottle would be cleaned.

Summary:

Substrates:	Plastic				
Contaminants:	Inks, Paints				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Oakite Products	Inproclean 3800	100		☑	
Brulin Corporation	Compliance	100		☑	
Nalge Company	Nalgene L 900	100		☐	
Chrisal USA Inc	Super CMF 240	100		☑	

Conclusion: Three products appeared to be able clean the ink from the nylon bottles.

The Oakite product had already been tested in cleaning the Al2O3 beads and can be used with a wide range of substrates. The Chrisal product has just recently been received by the lab and was not tested in the previous trials. Since the Chrisal product is compatible with many substrates (electronics, ferrous metals, plastics, rubber, precious metals, copper, brass, aluminum and aluminum alloys), and it was effective in removing the ink, it is another option for the client to consider. The other product is limited in the number of substrates it can be used with.

In order to compare the two effective cleaners more accurately, a gravimetric test can be implemented. To do this, clean bottles would be weighed before they are used, after the contaminant has been placed in the bottle and then finally after the bottles are cleaned. The difference between the first and last weighing will yield percent removal of the contaminant or cleaning efficiency.

MSDSs for the Oakite and Chrisal products have been included. If you need further information about the products, you can contact the lab.