

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1998
 DateRun: 02/28/1998
 Experimenters: Jason Marshall, Prashant Trivedi
 ClientType: Manufacturer of Ceramic Capacitors
 ProjectNumber: Project #1
 Substrates: Alumina
 PartType: Part
 Contaminants: Inks, Paints
 Cleaning Methods: Immersion/Soak
 Analytical Methods: Visual
 Purpose: Determine if temperature would aid cleaning
 Experimental Procedure: Five percent concentrations of the cleaners were used from the previous trial. The only alteration to the cleaning procedure included heating the cleaning solutions to 130 F.
 SUBSTRATE MATERIAL: Al2O3 beads
 CONTAMINANTS: Ink/paint

Results: After the parts were cleaned and rinsed, cleaning effectiveness was determined visual. Each cleaner was compared to the others as well as to the beads cleaned from the previous trial. Table 1 lists the rankings from this trial and how they initially and finally compared to the previous trial.

Table 1 Cleaning Efficiency and Comparison

CLEANER	RANKING	INITIAL COMPARISON	FINAL COMPARISON
Inpro-Clean	2	temp ³ w/o temp	temp£ w/o temp
De-Ox	3	temp < w/o temp	temp£ w/o temp
Daraclean	1	temp ³ w/o temp	temp£ w/o temp
ND-17	4	temp > w/o temp	temp£ w/o temp

Initially it appeared that De-Ox was the only cleaner negatively impacted by temperature increases. However, after a final examination of the beads, it was noted that all of the cleaners were less effective at the elevated temperatures. It was speculated that the results may have been due to inadequate rinsing instead. It was noted during rinsing of other cleaners that the pressure at which the rinse DI water was delivered had effects on rinsing quality. The greater the pressure the better the rinsing.

Summary:

Substrates:	Alumina				
Contaminants:	Inks, Paints				
Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Oakite Products	Inproclean 3800	5		<input type="checkbox"/>	
US Polychem Corporation	Polychem DEOX 007	5		<input type="checkbox"/>	
Magnaflux	Daraclean 282	5		<input type="checkbox"/>	
MacDermid Industrial Products	ND 17	5		<input type="checkbox"/>	

Conclusion:

Even though the rinsing of the parts raised questions about the effectiveness of some cleaners, Daraclean was by far the most effective chemistry selected. This cleaner along with Inpro-Clean 3800, will be used in the next phase of testing using ultrasonics. (The Inpro-Clean will be used because of wide range of substrate compatibility.)