

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1995
 DateRun: 06/25/1995
 Experimenters: Donald Garlotta
 ClientType: Electrical Manufacturer
 ProjectNumber: Project #1
 Substrates: Aluminum, Gold
 PartType: Coupon
 Contaminants: Cutting/Tapping Fluids, Lubricating/Lapping Oils, Fingerprints, Oil
 Cleaning Methods: Ultrasonics
 Analytical Methods: Gravimetric, Visual
 Purpose: Evaluate ultrasonics to remove rosin solder flux

Experimental Procedure: The purpose of this trial is to determine the effectiveness of two cleaners using ultrasonics to remove rosin solder flux from some delicate circuit parts for Electrical Manufacturer. Cleaning will take place in the Crest Ultrasonic unit for 15 minutes at 130 F. Rinsing will be performed in a tap water rinse for 2 minutes and a DI rinse for a few seconds. The temperature both rinse baths was 140 F. The parts were weighed before and after cleaning to determine the amount of contaminant removed for each part. The parts were also visually inspected for any residual flux after cleaning.
 SUBSTRATE MATERIAL: Gold-Coated Aluminum
 CONTAMINANTS: Rosin solder flux
 CONTAMINATING PROCESS USED: received contaminated

Results: Trial #1- Some water spotting on part #2. Other than that, cleaning was excellent on both parts, all flux was removed.
 Trial #2- There was a small amount of flux on part #1 (before cleaning there was a lot of flux on this area, a longer cleaning time would do the trick). There was some water spotting on part #3. Both parts looked very clean.

GRAVIMETRIC ANALYSIS

sample #	mass with contamination (g)	mass after cleaning (g)	contaminant removed (g)
#1	133.9745	133.8088	0.1657
#3	17.3736	17.2805	0.0931
#2	133.8106	133.7233	0.0873
#4	17.3723	17.3076	0.0647

Summary:

Substrates:	Aluminum, Gold				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Fingerprints, Oil				
Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Kyzen Corporation	Ionox FCR (For Comparison Only)	100		<input checked="" type="checkbox"/>	
Calgon Corporation	Geo Guard 2215	4		<input checked="" type="checkbox"/>	

Conclusion: Both cleaners seemed to work alright. Might want to bump up the cleaning time by 5 minutes just in case the parts are heavily soiled like part #1 was. Slight problem of spotting. This could be solved by using just a DI rinse and drying the parts a little bit faster (high temperature in a convection oven).