CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2001
DateRun:	05/29/2001
Experimenters:	Jason Marshall
ClientType:	Electronics Manufacturer
ProjectNumber:	Project #1
Substrates:	Alloys, Aluminum
PartType:	Coupon
Contaminants:	Fluxes, Dirt
Cleaning Methods:	Ultrasonics
Analytical Methods:	Visual, microscopic
Purpose:	To evaluate cleaners using ultrasonic energy.

Experimental Procedure:

Two cleaning solutions were diluted to 10% using DI water. Each solution was heated to 140 F. DI water was also used. One part was immersed into a Crest 40 kHz ultrasonic tank model 4Ht 1014-6 and cleaned for 5 minutes. The part was rinsed with a DI water spray for 30 seconds at room temperature and dried in an oven at 160 F for 25 minutes. The part was then observed under a microscope to determine the effectiveness of the cleaning.

Substrates: Aluminum;
CleaningMethods: Ultrasonics;
AnalyticalMethods: Microscopy

Results:

Tower Products 270 Cleaner Concentrate:
Under visual inspection the part looked clean. After inspection under the microscope, a small drop of the cleaning solution was applied to the part. Black bubbles were still surfacing out of the part's pin holes. This same part was cleaned for an additional 5 minutes (ten total). The black and white paints could easily be wiped off. Therefore an increase in time was not attempted for the other cleaners.

Today & Beyond: Beyond 2001
The solution started to take the yellow coating off of the part within the 5 minutes of cleaning. The surface had white splotches and did not look clean.

DI Water
The heated 5 minute cleaning did make the part look cleaner. There was some minor discoloration along the seam. Half of a part was then cleaned at room temperature for five minutes. There was less discoloration. The other half of the part was cleaned at room temperature for 2 minutes. This half did look clean and had no discoloration. Under the microscope, the seam appeared cleaner then it started. It is difficult to determine if the pin holes were completely free of contaminants.

Summary:

Substrates:	Alloys, Aluminum				
Contaminants:	Fluxes, Dirt				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Tower Products Inc	Tower 270 Cleaner Concentrate	100	0.00	☐	
Today & Beyond	Beyond 2001	100	0.00	☐	
Water	DI Water	100	0.00	☑	

Conclusion:

The two aqueous based cleaners were effective in removing the contaminant from the pin holes, but caused a lot of damage to the coating and paints. Using DI water at room temperature for two minutes in the ultrasonic tank appears to improve the cleanliness of the parts. A further analysis by the client needs to be conducted.