

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1998

DateRun: 04/29/1998

Experimenters: Jason Marshall

ClientType: Recycling

ProjectNumber: Project #2

Substrates: Glass/Quartz

PartType: Part

Contaminants: Adhesive

Cleaning Methods: Immersion/Soak

Analytical Methods: Visual

Purpose: Separate leaded & unleaded glass w/o using HNO<sub>3</sub>

Experimental Procedure: The back tip of the monitor was broken off to release the vacuum. The monitor was then filled with tap water at 120°F. Next the monitor was placed into a tap water bath also at 120 F for four minutes. Tap water was dumped out of the monitor. A 2% solution of Citrinex solution (pH ~3) was poured into the monitor. The part was placed into a bath of Citrinex (2%). Both solutions of Citrinex were at 130 F. The monitor was left in the heated bath for four minutes. At the end of this cycle, the Citrinex solution was emptied from the inside of the monitor. The monitor was placed into a tap water bath at room temperature for two minutes. From here, the part was returned to the first Citrinex bath for another four minutes, this time with out the Citrinex inside the monitor. The hot acid~cool water cycle was repeated for four times.  
SUBSTRATE MATERIAL: Monitor screens with leaded and unleaded glass  
CONTAMINANTS: Frit and adhesive

Results: After the third Citrinex heated bath, a popping sound was noted. This was the screen face separating from the back of the monitor. More cracking was heard when the monitor was placed into the cool bath. At the very beginning of the fourth Citrinex bath, the front of the monitor fell off and sank to the bottom of the tank.

Summary:

<b>Substrates:</b>	Glass/Quartz				
<b>Contaminants:</b>	Adhesive				
<b>Company Name:</b>	<b>Product Name:</b>	<b>Conc.:</b>	<b>Efficiency:</b>	<b>Effective:</b>	<b>Observations:</b>
Alconox Inc	Citrinox	2		<input checked="" type="checkbox"/>	

Conclusion: The hot acidic Citrinex bath ~ cool tap water cycle proved to be a possible way to separate the two types of glass.  
A second monitor was also put through this method. The only difference in the test was that the second monitor did not have the vacuum seal broken. Therefore, no liquids were poured into the inside of the monitor. During this attempt, the popping sound was not observed until the fourth Citrinex bath. The crack that resulted went from the front of the screen to the back of the monitor, not around the screen as in the first case.  
More testing of the process will include two variations of the broken tip method. The first would be to pour solution into the monitor during every step (pre-warm, Citrinex baths, and cool water baths). The second would be to not pour any solution into the monitor.