

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2003  
 DateRun: 01/28/2003  
 Experimenters: Jason Marshall, Heidi Wilcox  
 ClientType: Manufactures parts for Semi-Conductor Industry  
 ProjectNumber: Project #1  
 Substrates: Ceramics  
 PartType: Coupon  
 Contaminants: Waxes  
 Cleaning Methods: Immersion/Soak  
 Analytical Methods: Gravimetric

Purpose: To reevaluate cleaners on fourth wax using longer cleaning time

Experimental Procedure: Five cleaners from the previous trial were used at full strength at 130 F in 600 ml beakers. Fifteen coupons from the previous trial were immersed into each beaker for 15 minutes. Coupons were then rinsed in tap water at 120 F for 15 seconds and dried using air blow off. A second final weight was recorded and efficiency at the extended cleaning times were calculated.

Results: The five cleaners all removed over 95% of the wax after the additional 15 minutes of soaking. The table below lists the amount of wax remaining after the first 5 minutes as well as how much was left after the 15 minutes of additional cleaning.

Table 1. Wax Removal

| Cleaner         | Initial wt | Final wt | % Removed |
|-----------------|------------|----------|-----------|
| Opti Clear      | 0.0113     | -0.0002  | 101.77    |
|                 | 0.0390     | -0.0011  | 102.82    |
|                 | 0.0322     | 0.0014   | 95.65     |
| Citrikleen XPC  | 0.1136     | 0.0022   | 98.06     |
|                 | 0.1422     | 0.0076   | 94.66     |
|                 | 0.1773     | 0.0018   | 98.98     |
| Bio T 200 A     | 0.1876     | 0.0049   | 97.39     |
|                 | 0.2119     | 0.0044   | 97.92     |
|                 | 0.1432     | 0.0076   | 94.69     |
| Citrus Burst 7  | 0.2523     | 0.0657   | 73.96     |
|                 | 0.1922     | 0.0013   | 99.32     |
|                 | 0.1982     | 0.0022   | 98.89     |
| D-Greeze 500 Lo | 0.1760     | -0.0007  | 100.40    |
|                 | 0.2098     | 0.0135   | 93.57     |
|                 | 0.2326     | 0.0038   | 98.37     |

Summary:

| <b>Substrates:</b>       |                 | Ceramics |             |                                     |               |
|--------------------------|-----------------|----------|-------------|-------------------------------------|---------------|
| <b>Contaminants:</b>     |                 | Waxes    |             |                                     |               |
| Company Name:            | Product Name:   | Conc.:   | Efficiency: | Effective:                          | Observations: |
| National Diagnostic      | Opti Clear      | 100      | 100.08      | <input checked="" type="checkbox"/> |               |
| Pentone Corporation      | Citrikleen XPC  | 100      | 97.23       | <input checked="" type="checkbox"/> |               |
| Bio Chem Systems         | Bio T 200 A     | 100      | 96.67       | <input checked="" type="checkbox"/> |               |
| Florida Chemical Company | Citrus Burst 7  | 100      | 90.72       | <input checked="" type="checkbox"/> |               |
| Transene Company, Inc.   | D Greeze 500 LO | 100      | 97.44       | <input checked="" type="checkbox"/> |               |

Conclusion: The extra cleaning time revealed that all five cleaners were capable of removing the wax. All five will be used on the fifth supplied wax.