

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:

| Substrates: | | Ceramics | | | |
|--------------------------|-----------------|----------|-------------|-------------------------------------|---------------|
| Contaminants: | | 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.