

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002  
 DateRun: 04/01/2002  
 Experimenters: Jason Marshall  
 ClientType: Optical Manufacturer  
 ProjectNumber: Project #1  
 Substrates: Aluminum  
 PartType: Coupon  
 Contaminants: Waxes  
 Cleaning Methods: Ultrasonics  
 Analytical Methods: Gravimetric

Purpose: Evaluate effectiveness for three products at increased time and concentrations

Experimental Procedure: The three products that showed improvement in the previous trial were diluted to 10% using DI water in 600 ml beakers. Each solution was heated to 110 F and degassed for 5 minutes in a Crest 40 kHz Ultrasonic unit. Nine preweighed coupons were coated with the beeswax and weighed again. Three coupons were cleaned for 10 minutes followed by a tap water rinse at 120 F for 15 seconds and a heat gun drying at 300 F for 1 minute. Final weights were recorded and efficiencies were calculated.

Results: Increasing the cleaning time and concentrations increased the efficiency for the three products tested. Inproclean and Texolite removed over 95% of the wax in the 10 minutes. The Polyspray product increased from 73% to 80%.

| Cleaner    | Coupon 1 | Coupon 2 | Coupon 3 | Average | Std Dev |
|------------|----------|----------|----------|---------|---------|
| Inproclean | 97.74    | 101.01   | 98.73    | 99.16   | 1.68    |
| Texolite   | 98.23    | 98.47    | 94.07    | 96.92   | 2.47    |
| Polyspray  | 83.29    | 74.56    | 83.16    | 80.33   | 5.00    |

Summary:

| <b>Substrates:</b>      |  | Aluminum            |        |             |                                     |               |
|-------------------------|--|---------------------|--------|-------------|-------------------------------------|---------------|
| <b>Contaminants:</b>    |  | Waxes               |        |             |                                     |               |
| Company Name:           |  | Product Name:       | Conc.: | Efficiency: | Effective:                          | Observations: |
| Oakite Products         |  | Inproclean 3800     | 10     | 99.16       | <input checked="" type="checkbox"/> |               |
| Texo Corporation        |  | Texolite 1734 XL    | 10     | 96.92       | <input checked="" type="checkbox"/> |               |
| US Polychem Corporation |  | Polyspray Jet 790 P | 10     | 80.33       | <input type="checkbox"/>            |               |

Conclusion: The effective cleaners will be tested on wax removal from glass coupons using ultrasonic energy. Cleaners to be evaluated are: Inproclean 3800, Texolite 1734 XL, Bio T 200 A, Histo Clear and Opti Clear.