

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1997
 DateRun: 06/05/1997
 Experimenters: Andrew Bray
 ClientType: Aluminum Anodizing Job Shop
 ProjectNumber: Project #1
 Substrates: Aluminum
 PartType: Part
 Contaminants: Waxes
 Cleaning Methods:
 Analytical Methods: Goniometry
 Purpose: Is electrostatic charge causing high contact angle

Experimental Procedure: The purpose of this trial was to determine if an electrostatic charge was responsible for the high contact angles measured in the goniometry test performed on June 4. The cleaning process used is described in the previous report. In this test the bars were rinsed in deionized water and dried in an oven at 120 F for fifteen minutes prior to measuring the contact angle. The bars were allowed to sit overnight so they would return to ambient temperature. The contact angle was again measured at three sites on each bar using the procedure described in the previous log entry.

SUBSTRATE MATERIAL: 0.5"x0.25x12" Aluminum 6062 Bars

CONTAMINANTS: Mobilewax 2305

CONTAMINATING PROCESS USED: Bars contaminated at Aluminum Anodizing Job Shop by dipping into vat of masking wax

Results:

| Contact Angle Goniometry | | | |
|--------------------------|-------------------------|--------|-------|
| | Contact Angle (degrees) | | |
| Bar | Bottom | Middle | Top |
| A | 83.63 | 90.31 | 91.00 |
| B | 96.69 | 96.22 | 90.28 |
| C | 94.22 | 94.31 | 92.88 |
| D | 86.91 | 93.53 | 94.59 |
| E | 80.94 | 94.34 | 92.75 |

Summary:

| | | | | | |
|----------------------|------------------------------------|---------------|--------------------|--------------------------|----------------------|
| Substrates: | Aluminum | | | | |
| Contaminants: | Waxes | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Don Garland Inc | Super Blue Non Ammoniated Stripper | 100 | | <input type="checkbox"/> | |
| Don Garland Inc | Zap Ammoniated Stripper | 100 | | <input type="checkbox"/> | |

Conclusion:

The results of this test did not indicate a significant difference in the cleanliness between the test bars. The difference in contact angles for the bottom of the bars shows some difference in cleanliness. However, the high contact angles indicate the presence of significant microscopic contamination on all bars in all areas. This test eliminated the possibility of an electrostatic charge being responsible for the high contact angles. Laser goniometry was not able to show differences in cleanliness between test bars. It is possible that the coupons were cross contaminated during packaging and shipping, therefore resulting in microscopic contamination over the entire surface of the bars. Further testing will be done to attempt to eliminate variables from the test procedure. Cleaning trials will be performed in the Surface Cleaning Lab on aluminum coupons contaminated at Aluminum Anodizing Job Shop.