

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2004  
 DateRun: 05/26/2004  
 Experimenters: Jason Marshall  
 ClientType: Lab  
 ProjectNumber: Project #1  
 Substrates: Aluminum  
 PartType: Coupon  
 Contaminants: Oil  
 Cleaning Methods: Immersion/Soak  
 Analytical Methods: Gravimetric  
 Purpose: Laboratory evaluations of alternative cleaning products

Experimental Procedure: Basic cleaning performance testing was conducted using ASTM G122 as the bases for cleaning. Each product was used at full strength in a 250 ml beaker and heated to 96 F on a hot plate. Fifteen preweighed aluminum coupons were coated with the C.P. Hall Co. Plasthall ESO oil (8013-07-8) using a handheld swab. Coupons were weighed a second time to determine the amount of soil added to each coupon. Three coupons were cleaned in each solution for 5 minutes using stir-bar agitation. After cleaning parts were allowed to sit for 10 minutes for drying at room temperature. The coupons were weighed a final time and efficiencies were calculated.

|          |           |            |          |           |
|----------|-----------|------------|----------|-----------|
| Results: | Cleaner   | Initial wt | Final wt | % Removed |
|          | Solvon PB | 0.3112     | 0.0040   | 98.71     |
|          |           | 0.1351     | 0.0032   | 97.63     |
|          |           | 0.1060     | 0.0045   | 95.75     |
|          | Solvon IP | 0.0835     | 0.0031   | 96.29     |
|          |           | 0.2384     | 0.0050   | 97.90     |
|          |           | 0.1079     | 0.0057   | 94.72     |
|          | OS 10     | 0.5234     | 0.0338   | 93.54     |
|          |           | 0.1758     | 0.0393   | 77.65     |
|          |           | 0.3380     | 0.0368   | 89.11     |
|          | OS 20     | 0.1906     | 0.0659   | 65.42     |
|          |           | 0.3897     | 0.0626   | 83.94     |
|          |           | 0.1701     | 0.0683   | 59.85     |
|          | OS 30     | 0.3579     | 0.0891   | 75.10     |
|          |           | 0.2055     | 0.0783   | 61.90     |
|          |           | 0.3637     | 0.0742   | 79.60     |

|          |                      |                      |               |                    |                                     |                      |
|----------|----------------------|----------------------|---------------|--------------------|-------------------------------------|----------------------|
| Summary: | <b>Substrates:</b>   | Aluminum             |               |                    |                                     |                      |
|          | <b>Contaminants:</b> | Oil                  |               |                    |                                     |                      |
|          | <b>Company Name:</b> | <b>Product Name:</b> | <b>Conc.:</b> | <b>Efficiency:</b> | <b>Effective:</b>                   | <b>Observations:</b> |
|          | Poly Systems USA Inc | Solvon Kreussler PB  | 100           | 97.37              | <input checked="" type="checkbox"/> |                      |
|          | Poly Systems USA Inc | Solvon Kreussler IP  | 100           | 96.30              | <input checked="" type="checkbox"/> |                      |
|          | Dow Chemical Company | OS 10                | 100           | 86.77              | <input checked="" type="checkbox"/> |                      |
|          | Dow Chemical Company | OS 20                | 100           | 69.74              | <input type="checkbox"/>            |                      |
|          | Dow Chemical Company | OS 30                | 100           | 72.20              | <input type="checkbox"/>            |                      |

Conclusion: Three of the five products removed over 85%.