

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2007  
 DateRun: 03/12/2007  
 Experimenters: Jason Marshall, Shweta Bansal  
 ClientType: Consultant  
 ProjectNumber: Project #1  
 Substrates: Aluminum  
 PartType: Coupon  
 Contaminants: Coatings, Oil  
 Cleaning Methods: Immersion/Soak  
 Analytical Methods: Gravimetric  
 Purpose: Retest one of the four azeotrope at the corrected concentration.

Experimental Procedure: The supplied solvent was mixed with DI water in 600 ml beakers to obtain a binary azeotrope. Methyl Acetate (MeOAc) was mixed with water (5% water) and heated to 56.1 C on a hot plate.

Three preweighed aluminum coupons were coated with Castrol Quench G oil (64742-55-8, 64742-65-0, 8052-42-4), three with Cargill Inc Canola Oil (120962-03-0), three with CP Hall Co Plasthall Eso oil (8013-07-8) and three with Soltex Polybutene 32 (9003-29-6) with a hand held swab. Coupons were weighed again to determine the amount of oil applied. The coupons were cleaned in the azeotrope for five minutes at the boiling point, rinsed for 15 seconds in 120 F tap water and dried for 30 seconds using compressed air at room temperature. Coupons were weighed a third time to determine the amount of oil remaining. Efficiencies were calculated and recorded.

Results: The methyl acetate mix at 95% worked well on all four soils. The lowest removal was for the fourth soil, removing just under 95%.

| Soil                 | Initial wt | Final wt | % Removed |
|----------------------|------------|----------|-----------|
| Quench G Oil         | 0.2824     | 0.0005   | 99.82     |
|                      | 0.2975     | 0.0004   | 99.87     |
|                      | 0.3315     | 0.0002   | 99.94     |
| Cannola Oil          | 0.2829     | 0.0029   | 98.97     |
|                      | 0.3391     | 0.0012   | 99.65     |
|                      | 0.4125     | 0.0011   | 99.73     |
| Plasthall Eso Oil    | 0.1600     | 0.0075   | 95.31     |
|                      | 0.7802     | 0.0043   | 99.45     |
|                      | 0.8637     | 0.0046   | 99.47     |
| Soltex Polybutene 32 | 1.2209     | 0.0781   | 93.60     |
|                      | 1.1483     | 0.1052   | 90.84     |
|                      | 0.9851     | 0.0114   | 98.84     |

Summary:

|                      |                      |               |                    |                                     |                      |
|----------------------|----------------------|---------------|--------------------|-------------------------------------|----------------------|
| <b>Substrates:</b>   | Aluminum             |               |                    |                                     |                      |
| <b>Contaminants:</b> | Coatings, Oil        |               |                    |                                     |                      |
| <b>Company Name:</b> | <b>Product Name:</b> | <b>Conc.:</b> | <b>Efficiency:</b> | <b>Effective:</b>                   | <b>Observations:</b> |
| No Specific Vendor   | Methyl Acetate-water | 95            | 97.96              | <input checked="" type="checkbox"/> |                      |

Conclusion: The methyl acetate mix boiled at the expected range and resulted in being effective for all four soils.