

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008  
 DateRun: 05/08/2008  
 Experimenters: Ephraim Massawe  
 ClientType: Lab  
 ProjectNumber: Project #1  
 Substrates: Aluminum  
 PartType: Coupon  
 Contaminants: Oil  
 Cleaning Methods: Immersion/Soak  
 Analytical Methods: Gravimetric

Purpose: Removing moxoline 75 off of the surfaces of aluminum by using non-toxic cleaning products.

Experimental Procedure: Basic cleaning performance testing was conducted using ASTM G122 as the bases for cleaning. Products were based on the compatibility of substrate and removal of foreign substance. Used 5% concentration and heated the samples at 135F. The coupons were immersed in a product for 5 minutes, rinsed for 30 seconds in tap water at 120F and dried in 30 seconds.

| Cleaner                 | Initial wt | Final wt | % Removed |
|-------------------------|------------|----------|-----------|
| ozzy sw-3               |            |          |           |
|                         | 0.4427     | 0.0221   | 95.01     |
|                         | 0.2433     | 0.0276   | 88.66     |
|                         | 0.3277     | 0.0382   | 88.34     |
| sea wash blue           |            |          |           |
|                         | 0.4979     | 0.0092   | 98.15     |
|                         | 0.4785     | 0.0165   | 96.55     |
|                         | 0.3594     | 0.0184   | 94.88     |
| ozzy sw-1               |            |          |           |
|                         | 0.3148     | 0.0576   | 81.70     |
|                         | 0.4314     | 0.0521   | 87.92     |
|                         | 0.3486     | 0.0475   | 86.37     |
| nab 9000                |            |          |           |
|                         | 0.5169     | 0.0864   | 83.28     |
|                         | 0.3653     | 0.0444   | 87.85     |
|                         | 0.4019     | 0.0272   | 93.23     |
| california parts washer |            |          |           |
|                         | 0.4907     | 0.0051   | 98.96     |
|                         | 0.7297     | 0.0049   | 99.33     |
|                         | 0.4705     | 0.0064   | 98.64     |
| valtron sp 2275         |            |          |           |
|                         | 0.3918     | 0.0847   | 78.38     |
|                         | 0.3723     | 0.0998   | 73.19     |
|                         | 0.6877     | 0.0554   | 91.94     |

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> |
| Chem Free Corporation         | SW-3 Ozzy Juice (Improved Low Odor) | 5             | 90.67              | <input checked="" type="checkbox"/> |                      |
| Warren Chemical Company       | Sea Wash Blue                       | 5             | 96.53              | <input checked="" type="checkbox"/> |                      |
| Chem Free Corporation         | SW-1 Ozzy Juice                     | 5             | 85.33              | <input checked="" type="checkbox"/> |                      |
| North Atlantic Bio Industries | NAB 9000                            | 5             | 88.12              | <input checked="" type="checkbox"/> |                      |

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|                     |                                  |   |       |                                     |  |
|---------------------|----------------------------------|---|-------|-------------------------------------|--|
| Phase III Inc       | California Parts Washer Solution | 5 | 98.98 | <input checked="" type="checkbox"/> |  |
| Valtech Corporation | Valtron SP 2275                  | 5 | 81.17 | <input checked="" type="checkbox"/> |  |

Conclusion: All products in this lab surpassed the passing removal rate of 85% or higher.