

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008

DateRun: 05/21/2008

Experimenters: Ephraim Massawe

ClientType: Lab

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Coupon

Contaminants: Lubricating/Lapping Oils

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: removing preinco #47 lube of the surface of aluminum using non-toxic cleaners.

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 |
|-------------------------|------------|----------|-----------|
| Nab 9000                |            |          |           |
|                         | 0.4618     | 0.0618   | 86.62     |
|                         | 0.4430     | 0.0406   | 90.84     |
|                         | 0.4999     | 0.0343   | 93.14     |
| ozzy juice sw1          |            |          |           |
|                         | 0.5511     | 0.0294   | 94.67     |
|                         | 0.3082     | 0.0352   | 88.58     |
|                         | 0.3728     | 0.0329   | 91.17     |
| valtron sp2275          |            |          |           |
|                         | 0.3376     | 0.0066   | 98.05     |
|                         | 0.4096     | 0.0080   | 98.05     |
|                         | 0.4900     | 0.0169   | 96.55     |
| sea wash blue           |            |          |           |
|                         | 0.6640     | 0.0084   | 98.73     |
|                         | 0.7212     | 0.0062   | 99.14     |
|                         | 0.5934     | 0.0049   | 99.17     |
| ozzy juice sw3          |            |          |           |
|                         | 0.3304     | 0.0025   | 99.24     |
|                         | 0.4652     | 0.0025   | 99.46     |
|                         | 0.4105     | -0.0006  | 100.15    |
| california parts washer |            |          |           |
|                         | 0.7186     | 0.0409   | 94.31     |
|                         | 0.4873     | 0.0223   | 95.42     |
|                         | 0.4227     | 0.0208   | 95.08     |

Summary:

|                               |                          |               |                    |                                     |                      |
|-------------------------------|--------------------------|---------------|--------------------|-------------------------------------|----------------------|
| <b>Substrates:</b>            | Aluminum                 |               |                    |                                     |                      |
| <b>Contaminants:</b>          | Lubricating/Lapping Oils |               |                    |                                     |                      |
| <b>Company Name:</b>          | <b>Product Name:</b>     | <b>Conc.:</b> | <b>Efficiency:</b> | <b>Effective:</b>                   | <b>Observations:</b> |
| North Atlantic Bio Industries | NAB 9000                 | 5             | 90.20              | <input checked="" type="checkbox"/> |                      |
| Chem Free Corporation         | SW-1 Ozzy Juice          | 5             | 91.47              | <input checked="" type="checkbox"/> |                      |
| Valtech Corporation           | Valtron SP 2275          | 5             | 97.55              | <input type="checkbox"/>            |                      |
| Warren Chemical Company       | Sea Wash Blue            | 5             | 99.02              | <input checked="" type="checkbox"/> |                      |

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|                       |                                     |   |       |                                     |  |
|-----------------------|-------------------------------------|---|-------|-------------------------------------|--|
| Chem Free Corporation | SW-3 Ozzy Juice (Improved Low Odor) | 5 | 99.62 | <input checked="" type="checkbox"/> |  |
| Phase III Inc         | California Parts Washer Solution    | 5 | 94.94 | <input checked="" type="checkbox"/> |  |

Conclusion:

All products tested surpassed the approval removal rate of 85%.