

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008  
 DateRun: 05/15/2008  
 Experimenters: Ephraim Massawe  
 ClientType: Lab  
 ProjectNumber: Project #1  
 Substrates: Aluminum  
 PartType: Coupon  
 Contaminants: Cutting/Tapping Fluids  
 Cleaning Methods: Immersion/Soak  
 Analytical Methods: Gravimetric

Purpose: removing cool tool II from the surfaces of aluminum by 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 |
|-------------------------|------------|----------|-----------|
| ozzy juice sw-1         |            |          |           |
|                         | 0.4615     | 0.0614   | 86.70     |
|                         | 0.4426     | 0.0329   | 92.57     |
|                         | 0.5022     | 0.0333   | 93.37     |
| nab 9500                |            |          |           |
|                         | 0.5507     | 0.0304   | 94.48     |
|                         | 0.3106     | 0.0379   | 87.80     |
|                         | 0.3721     | 0.0319   | 91.43     |
| ozzy juice sw-3         |            |          |           |
|                         | 0.3395     | 0.0056   | 98.35     |
|                         | 0.4073     | 0.0076   | 98.13     |
|                         | 0.4919     | 0.0188   | 96.18     |
| sea wash blue           |            |          |           |
|                         | 0.6668     | 0.0074   | 98.89     |
|                         | 0.7217     | 0.0067   | 99.07     |
|                         | 0.5959     | 0.0055   | 99.08     |
| california parts washer |            |          |           |
|                         | 0.2690     | 0.0030   | 98.88     |
|                         | 0.4694     | 0.0043   | 99.08     |
|                         | 0.4032     | 0.0020   | 99.50     |
| valtron sp 2275         |            |          |           |
|                         | 0.7191     | 0.0420   | 94.16     |
|                         | 0.4876     | 0.0229   | 95.30     |
|                         | 0.4230     | 0.0222   | 94.75     |

Summary:

|                               |                                     |        |             |                                     |               |
|-------------------------------|-------------------------------------|--------|-------------|-------------------------------------|---------------|
| Substrates:                   | Aluminum                            |        |             |                                     |               |
| Contaminants:                 | Cutting/Tapping Fluids              |        |             |                                     |               |
| Company Name:                 | Product Name:                       | Conc.: | Efficiency: | Effective:                          | Observations: |
| Chem Free Corporation         | SW-1 Ozzy Juice                     | 5      | 90.88       | <input checked="" type="checkbox"/> |               |
| North Atlantic Bio Industries | NAB 9000                            | 5      | 91.23       | <input checked="" type="checkbox"/> |               |
| Chem Free Corporation         | SW-3 Ozzy Juice (Improved Low Odor) | 5      | 97.55       | <input checked="" type="checkbox"/> |               |
| Warren Chemical Company       | Sea Wash Blue                       | 5      | 99.01       | <input checked="" type="checkbox"/> |               |

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|                     |                                  |   |       |                                     |  |
|---------------------|----------------------------------|---|-------|-------------------------------------|--|
| Phase III Inc       | California Parts Washer Solution | 5 | 99.16 | <input checked="" type="checkbox"/> |  |
| Valtech Corporation | Valtron SP 2275                  | 5 | 94.74 | <input checked="" type="checkbox"/> |  |

Conclusion:

All products surpassed the removal rate of 85% or higher.