

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008  
 DateRun: 09/17/2008  
 Experimenters: Daniel Pina  
 ClientType: Lab  
 ProjectNumber: Project #1  
 Substrates: Stainless Steel  
 PartType: Coupon  
 Contaminants: Cutting/Tapping Fluids  
 Cleaning Methods: Immersion/Soak  
 Analytical Methods: Gravimetric

Purpose: To remove cutting fluid from stainless steel using immersion cleaning.

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 using compressed air is room temperature. Coupons were coated with Citgo cutting fluid 205. Using a handheld swab and allowed to dry for 24 hours at room temperature. The contaminated coupons were weighed again to determine the amount of soil added. After cleaning process, the final weights were recorded, efficiencies were calculated and recorded.

Results: Two products were able to reach the 85% or over effective rate while the other 5 failed to reach this success goal. The Table lists the amount of soil added, the amount remaining and the calculated efficiency for each coupon cleaned.

| Cleaner                        | Initial wt | Final wt | % Removed |
|--------------------------------|------------|----------|-----------|
| hurrisafe 9100 paint prep      | 0.0767     | 0.0308   | 59.84     |
|                                | 0.1712     | 0.0303   | 82.30     |
|                                | 0.1287     | 0.0252   | 80.42     |
| formula 815MX AA               | 0.0579     | 0.0267   | 53.89     |
|                                | 0.1095     | 0.0267   | 75.62     |
|                                | 0.1716     | 0.0309   | 81.99     |
| Heavyweight                    | 0.1395     | 0.0290   | 79.21     |
|                                | 0.1930     | 0.0309   | 83.99     |
|                                | 0.0938     | 0.0286   | 69.51     |
| BG Clean 648                   | 0.0676     | 0.0288   | 57.40     |
|                                | 0.0507     | 0.0292   | 42.41     |
|                                | 0.1949     | 0.0248   | 87.28     |
| SW6 Metals degreasing solution | 0.1304     | 0.0304   | 76.69     |
|                                | 0.1667     | 0.0321   | 80.74     |
|                                | 0.2079     | 0.0309   | 85.14     |
| SW Wash10 Aircraft Cleaner     | 0.2990     | 0.0294   | 90.17     |
|                                | 0.2963     | 0.0251   | 91.53     |
|                                | 0.2177     | 0.0264   | 87.87     |
| Aqua safe                      | 0.3048     | 0.0263   | 91.37     |
|                                | 0.2470     | 0.0266   | 89.23     |

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|  | 0.3297 | 0.0274 | 91.69 |
|--|--------|--------|-------|

Summary:

|                               |   |               |                    |                                     |                      |
|-------------------------------|---|---------------|--------------------|-------------------------------------|----------------------|
| <b>Substrates:</b>            | Stainless Steel                                   |               |                    |                                     |                      |
| <b>Contaminants:</b>          | Cutting/Tapping Fluids                            |               |                    |                                     |                      |
| <b>Company Name:</b>          | <b>Product Name:</b>                              | <b>Conc.:</b> | <b>Efficiency:</b> | <b>Effective:</b>                   | <b>Observations:</b> |
| PCI of America                | Hurrisafe 9100 Paint Prep                         | 5             | 74.19              | <input type="checkbox"/>            |                      |
| Brulin Corporation            | Formula 815MX AA                                  | 5             | 70.50              | <input type="checkbox"/>            |                      |
| EcoLink                       | Heavy Weight Non Butyl Detergent                  | 5             | 77.57              | <input type="checkbox"/>            |                      |
| BioGenesis Enterprises Inc    | BG Clean 648                                      | 5             | 62.36              | <input type="checkbox"/>            |                      |
| Chem Free Corporation         | SW-6 Ozzy Juice Select Metals Degreasing Solution | 5             | 89.86              | <input checked="" type="checkbox"/> |                      |
| A 1 Hydro Parke Hill Chemical | SW Wash 10 Aircraft Cleaner                       | 5             | 90.76              | <input checked="" type="checkbox"/> |                      |

Conclusion:

SW6 Metals degreasing solution from Chem free corporation and SW Wash 10 Aircraft Cleaner from A1 Hydro Parke Hill Chemical has passed the acceptable rate of 85 or higher percent.