

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2003  
 DateRun: 12/05/2003  
 Experimenters: Dave Hout  
 ClientType: Lab  
 ProjectNumber: Project #1  
 Substrates: Stainless Steel  
 PartType: Coupon  
 Contaminants: Greases  
 Cleaning Methods: Immersion/Soak  
 Analytical Methods: Gravimetric

Purpose: Laboratory evaluations of alternative cleaning products

Experimental Procedure: Basic cleaning performance testing was conducted using ASTM G122 as the bases for cleaning. Seven products were heated to 130 F on a hot plate and one product was used at full strength. Twenty-four preweighed coupons were coated with Grease - CRC Industries Multipurpose Super White Grease (647-41-96-4, 7620-77-1, 1314-13-2, 57885-77-3, 13463-67-7) and allowed to dry for a half an hour and reweighed. Three coupons were cleaned in each solution for 5 minutes using stir-bar-agitation, rinsed in a tap water bath for 15 seconds at 120 F and dried using air blow off for 30 seconds at 68 F. Coupons were allowed to dry for a half an hour and then reweighed a final time. Efficiencies were calculated.

Results:

Summary:

| <b>Substrates:</b>                 | Stainless Steel                     |               |                    |                                     |                      |
|------------------------------------|-------------------------------------|---------------|--------------------|-------------------------------------|----------------------|
| <b>Contaminants:</b>               | Greases                             |               |                    |                                     |                      |
| <b>Company Name:</b>               | <b>Product Name:</b>                | <b>Conc.:</b> | <b>Efficiency:</b> | <b>Effective:</b>                   | <b>Observations:</b> |
| BetzDearborne Laboratories Inc     | Custom Clean N CC 2278              | 100           | 94.59              | <input checked="" type="checkbox"/> |                      |
| Buckeye International              | Work Out                            | 5             | 99.35              | <input checked="" type="checkbox"/> |                      |
| Calgon Corporation                 | Geo Guard 3015                      | 5             | 5.11               | <input type="checkbox"/>            |                      |
| Delta Omega Technologies Ltd       | Attar D(R3)                         | 5             | 53.95              | <input type="checkbox"/>            |                      |
| Hurri Kleen Corportion             | HurriSafe - Hot Immersion Degreaser | 5             | 80.81              | <input type="checkbox"/>            |                      |
| Heatbath Corporation               | MultiKleen LX 1573                  | 5             | 98.72              | <input checked="" type="checkbox"/> |                      |
| International Products Corporation | Zymit                               | 5             | 8.08               | <input type="checkbox"/>            |                      |
| Magnaflux                          | Daraclean 235                       | 5             | 29.91              | <input type="checkbox"/>            |                      |

Conclusion: Three out of eight products were effective at an efficiency rate of over 94%