

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2006  
 DateRun: 03/07/2006  
 Experimenters: Jason Marshall  
 ClientType: Manufacturers of Precision Parts and Assemblies  
 ProjectNumber: Project #1  
 Substrates: Aluminum  
 PartType: Coupon  
 Contaminants: Oil  
 Cleaning Methods: Low Pressure Spray  
 Analytical Methods: Gravimetric  
 Purpose: To evaluate spray cleaners on supplied soil.

**Experimental Procedure:** Six alternative cleaners were selected from the laboratory's inventory and past testing. Each product, including a seventh cleaner supplied by the client, was used at full strength at room temperature. Only two of the seven products were supplied to the lab in spray cans. The other products had to be applied using a modified air delivery spray.

Twenty-one preweighed 6061 aluminum coupons were coated with Fuch's Lubricants Renocut 6515 NC (mineral oil, vegetable oil) using a hand held swab. Coupons were allowed to sit for over an hour. A second set of weights were recorded to determine the amount of soil added.

Three coupons were sprayed with each contact cleaner for about 30 seconds and allowed to air dry. Final clean weights were recorded and efficiencies were calculated.

**Results:** Of the six alternatives tested, only one removed over 85% of the soil. However, this product also resulted in an odor that remained long after the cleaning process was completed. The table below lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

| Cleaner             | Initial wt | Final wt | % Removed |
|---------------------|------------|----------|-----------|
| Micro X             | 0.0955     | 0.0023   | 97.59     |
|                     | 0.1618     | 0.0018   | 98.89     |
|                     | 0.2249     | 0.0027   | 98.8      |
| Ionox HC2           | 0.0996     | 0.0977   | 1.91      |
|                     | 0.1584     | 0.1414   | 10.73     |
|                     | 0.232      | 0.1819   | 21.59     |
| Surface Cleanse 930 | 0.1397     | 0.1025   | 26.63     |
|                     | 0.2138     | 0.13     | 39.2      |
|                     | 0.2347     | 0.1502   | 36        |
| Mirachem 500 A      | 0.1877     | 0.104    | 44.59     |
|                     | 0.2166     | 0.1604   | 25.95     |
|                     | 0.2045     | 0.1059   | 48.22     |
| Citrus Pure Remover | 0.2836     | 0.0469   | 83.46     |
|                     | 0.2356     | 0.0354   | 84.97     |
|                     | 0.3575     | 0.0273   | 92.36     |
| D Greeze 500        | 0.1369     | 0.1021   | 25.42     |
|                     | 0.2641     | 0.082    | 68.95     |
|                     | 0.1553     | 0.0943   | 39.28     |
| No-Tox RTX9         | 0.2623     | 0.1423   | 45.75     |
|                     | 0.1712     | 0.1441   | 15.83     |
|                     | 0.1645     | 0.1323   | 19.57     |

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> |
| LPS Laboratories     | Micro X              | 100           | 98.43              | <input checked="" type="checkbox"/> |                      |
| Kyzen Corporation    | Ionox HC 2           | 100           | 11.41              | <input type="checkbox"/>            |                      |

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|                                    |  |     |       |                                     |                |
|------------------------------------|--|-----|-------|-------------------------------------|----------------|
| International Products Corporation | Surface Cleanse Concentrated Neutral 930 | 5   | 33.94 | <input type="checkbox"/>            |                |
| Mirachem Corporation               | Mirachem 500                             | 100 | 39.58 | <input type="checkbox"/>            |                |
| Abatement Technologies             | Citrus Pure AS850                        | 100 | 86.93 | <input checked="" type="checkbox"/> | lingering odor |
| Transene Company, Inc.             | D Greeze 500 LO                          | 100 | 44.35 | <input type="checkbox"/>            |                |
| Bradley's                          | No-Tox RTX 9                             | 100 | 27.05 | <input type="checkbox"/>            |                |

Conclusion:

Only one alternative was able to remove over 85% of the oil from the coupons.