

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008

DateRun: 09/19/2008

Experimenters: Jason Marshall

ClientType: Electronics Manufacturer

ProjectNumber: Project #1

Substrates: Ceramics

PartType: Part

Contaminants: Carbon Deposits

Cleaning Methods: Immersion/Soak

Analytical Methods: Visual

Purpose: To screen potential alternative cleaning products

Experimental Procedure: Sixteen products were selected from the lab's on-line database of testing results, [www.cleansolutions.org](http://www.cleansolutions.org), based on client supplied information and past testing results. All products were used at room temperature and full strength. A 1 milliliter sample of fourteen of the products was applied onto the surface of the part and allowed to sit for about one minute and then was wiped off to determine if there was any effect on the carbon deposit. Observations were recorded on the effectiveness of the solutions.  
The last two products utilized media blasting using baking soda and carbon dioxide as the medium. A portion of the ceramic part was cleaned for under 1 minute to determine the potential cleaning of the blasting.

Results: Five of the liquid products showed some to little signs of removing the oxide layer. The other 10 had no effect. The baking soda blasting was the only process that was effective in removing the contaminant. The table lists the observations made for each of the 16 products.

| Manufacturer                | Product                                | Concentration | Observations       |
|-----------------------------|--|---------------|--------------------|
| Bi-o-kleen                  | Citrus Soy Solvent Cleaner & Degreaser | 100           | Possible - residue |
| Bi-o-kleen                  | Soy Cream Cleaner Kitchen & Bath       | 100           | Possible           |
| Gemtek                      | SC Omnibrite                           | 100           | Possible           |
| Valtech Corp                | Valtron SP 2700 KB                     | 10            | No                 |
| Alconox                     | Citranox                               | 3             | No                 |
| Clorox                      | Green Works All Purpose Cleaner        | 100           | No                 |
| Chem Sciences               | Green Power Metal Bright               | 100           | Possible           |
| Chemspec                    | Phosphoric Acid Cleaner #1             | 100           | Possible           |
|                             | CO2 Snow                               | 100           | No                 |
| Brulin                      | Aquavantage 1400                       | 100           | No                 |
| United Labs                 | Smart Solve 605                        | 100           | Possible - residue |
| Cogent                      | DFC 30 Mold Release                    | 100           | Possible           |
| Church & Dwight             | Armakleen M Aero NS                    | 100           | Possible           |
| International Products Corp | Surface Cleanse 930                    | 100           | Possible           |

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|                      |  |     |          |
|----------------------|--|-----|----------|
| Clean Environment Co | The Natural Citric Acid Bathroom Cleaner | 100 | Possible |
|                      | Baking Soda                              | 100 | Yes      |

Summary:

| <b>Substrates:</b>                         |  | Ceramics        |             |                                     |               |  |
|--|--|-----------------|-------------|-------------------------------------|---------------|--|
| <b>Contaminants:</b>                       |  | Carbon Deposits |             |                                     |               |  |
| Company Name:                              | Product Name:                              | Conc.:          | Efficiency: | Effective:                          | Observations: |  |
| Bi-O-Kleen Industries                      | Citrus Soy Solvent Cleaner & Degreaser     | 100             |             | <input checked="" type="checkbox"/> |               |  |
| Bi-O-Kleen Industries                      | Soy Cream Cleaner                          | 100             |             | <input checked="" type="checkbox"/> |               |  |
| Gemtek Products                            | SC OmniBrite Acid                          | 100             |             | <input checked="" type="checkbox"/> |               |  |
| Valtech Corporation                        | Valtron SP 2700 KB                         | 100             |             | <input type="checkbox"/>            |               |  |
| Alconox Inc                                | Citranox                                   | 100             |             | <input type="checkbox"/>            |               |  |
| Clorox Company                             | Green Works Multi-Surface Cleaner          | 100             |             | <input type="checkbox"/>            |               |  |
| Green Power                                | Metal Bright                               | 100             |             | <input checked="" type="checkbox"/> |               |  |
| Chemspec                                   | Phosphoric Acid Cleaner #1                 | 100             |             | <input checked="" type="checkbox"/> |               |  |
| Brulin Corporation                         | Aquavantage 1400                           | 100             |             | <input type="checkbox"/>            |               |  |
| United Laboratories International          | Smart Solve 605                            | 100             |             | <input checked="" type="checkbox"/> |               |  |
| Cogent Environmental Solutions             | DFC 30 Mold Release                        | 100             |             | <input checked="" type="checkbox"/> |               |  |
| Church & Dwight Co Inc.                    | Armakleen M Aero                           | 100             |             | <input type="checkbox"/>            |               |  |
| International Products Corporation         | Surface Cleanse Concentrated Neutral 930   | 100             |             | <input type="checkbox"/>            |               |  |
| The Clean Environment Co                   | The Natural - Citric Acid Bathroom Cleaner | 100             |             | <input type="checkbox"/>            |               |  |
| Applied Surface Technologies               | CO2 Snowflakes, Medium Flow                | 100             |             | <input type="checkbox"/>            |               |  |
| Armex Cleaning and Coating Removal Systems | Sodium Bicarbonate                         | 100             |             | <input checked="" type="checkbox"/> |               |  |

Conclusion:

Baking soda blasting was the only option found to have definite cleaning of the carbon deposit from the ceramic parts.