# CLEANING LABORATORY EVALUATION SUMMARY

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| SCL #: | 2007 |
| DateRun: | 05/29/2007 |
| Experimenters: | Jason Marshall, Heidi Wilcox, Shweta Bansal, Andrea Cheeseman |
| ClientType: | General |
| ProjectNumber: | Project #2 |
| Substrates: | Fiberglass |
| PartType: | Coupon |
| Contaminants: | Waxes |
| Cleaning Methods: | Manual Wipe |
| Analytical Methods: | Visual |
| Purpose: | To conduct a screening of in-house biobased products for removing floor coating/wax. |
| Experimental Procedure: | A search of the lab's on-line database at www.cleanersolutions.org was conducted to identify all products that were considered to contain some level of bio-based materials. From this this, 39 products were selected for screen testing.<br>Fiberglass coupons were coated with a layer of Johnson Show Place floor wax and allowed to dry for 30 minutes. During the 30 minutes, a Master Appliance Heat gun was used to speed up the drying process. Two subsequent coating layers were applied follow the same drying process. After application of the third coating, the coupons were allowed to sit overnight for continued drying.<br>Each bio-based product was applied at full strength to a separate coupon using a plastic squeeze bulb. Approximately, 3 ml of product was applied to the contaminated coupon. The product was allowed to sit for 10 minutes. At the end of this period, the coupons were wiped with a paper towel and the surface was observed for any signs of change resulting from the bio-based product. Successful products were then compared to each other to determine which products performed the best. |
| Results: | Several of the products were found to have some effect on the wax coating after soaking for 10 minutes. The first table below lists the products, observations made and the ranking of the most effective products. The second table list the observations for the ineffective products. |

Effective Products (1=most efficient)

| Rank | Solvent | *Coupon # | Descriptions and Comments |
|---|---|---|---|
| 1 | **Green Products, LLC: Amazing Biobased Solvent and Stripper | 6 | Thick, spreads evenly and easily, does not dry well, filmy, removes wax very well, peels wax off, leaves no residual |
| 2 | Inland Technologies Inc.: EP 921 | 27 | Very strong chemical odor, spreads evenly and easily, dries fast, cloudy discoloration, sticky at first, but removes wax very well, peels wax off, leaves no residual (cloudiness gone) |
| 3 | Finger Lakes Chemical: Resineater | 42 | Spreads evenly and easily, cloudy discoloration, but removes wax easily, leaves no residual (cloudiness gone) |

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| 4 | Ecolink: Safe Strip | 39 | Very watery, does not spread as easy, leaves a thin layer over wax, sticky at first, but removes wax easily, leaves no residual |
| 5 | Gemtek: SC-Maxi Solve | 16 | Very watery, spreads evenly and easily, cloudy discoloration, removes wax easily, leaves no residual |
| 6 | Finger Lakes Chemical: Pine Strip | 43 | Thick, spreads evenly and easily, does not dry well, removes wax easily, some residual |
| 7 | Finger Lakes Chemical: Graffiti Remover | 9 | Strong citrus odor, spreads evenly and easily, slimy, removes wax easily, clumps when removing wax, leaves filmy residual on surface that clears-up within a short period of time (minutes) |
| 8 | 1st Envirosafety: Industrial Cleaner/ Degreaser | 1 | Spreads evenly and easily, cloudy discoloration, softened wax to be scraped off with fingernail, some residual |

Ineffective Products

| Coupon # | Solvent | Descriptions and Comments |
|---|---|---|
| 2 | AG Environmental Products: Canola gold CE110 | Some cloudy discoloration, did not remove wax |
| 3 | AG Environmental Products: Soyclear 1500 | Did not spread well, some cloudy discoloration, did not remove wax |
| 4 | AG Environmental Products: Soygold 1000 | Thick, did not spread well, tacky, did not remove wax |
| 5 | AG Environmental Products: Soygold 1100 | Some cloudy discoloration, did not remove wax |
| 6 | AG Environmental Products: Soygold 2000 | Spreads easily and evenly, some cloudy discoloration, did not remove wax |

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| 7 | Bio Chem Systems: Bio T Max | Very strong citrus odor, spreads easily and evenly, cloudy discoloration, filmy residual, tacky and sticky, did not remove wax |
| 47 | Bi-O-Kleen: Citrus Soy | Spreads easily and evenly, very cloudy discoloration, filmy residual, tacky and sticky, did not remove wax |
| 11 | Florida Chemical Company: Citrus Burst 7 | Strong citrus/ chemical odor, thick, spreads well but not evenly, filmy residual, removes wax if scraped hard, but very sticky and messy, not workable |
| 13 | Florida Chemical Company: D-limonene | Very strong citrus odor, thick, spreads well but not evenly, very cloudy discoloration, filmy residual, removes wax if scraped very hard |
| 15 | Gemtek Products: EZ Solv | Spreads easily and evenly, completely hardened over wax, cloudy discoloration, filmy residual, removes wax if scraped hard |
| 17 | Gemtek Products: SC 1000 | Watery, spreads easily and evenly, bubbles on surface, cloudy discoloration, filmy residual, removes wax if scraped hard (residual gone) |
| 18 | Gemtek Products: SC-Aircraft and Metal Cleaner | Watery, spreads easily and evenly, bubbles on surface, very cloudy discoloration, filmy residual, does not remove wax |
| 19 | Gemtek Products: SC Supersolve | Spreads easily and evenly, some cloudy discoloration, very tacky and sticky, did not remove wax |
| 24 | Inland Technologies, Inc: Citra-Safe | Watery, did not spread well, cloudy discoloration, filmy residual, removes wax if scraped very hard |
| 28 | Oakite Products: Inproclean 4000T | Strong citrus/pine odor, thick, spreads easily and evenly, some cloudy discoloration, filmy residual, tacky and sticky, removes wax if scraped very hard |

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| 29 | Soysolv Industrial Products: Soysolv | Did not spread at all, some cloudy discoloration, removes wax if scraped very hard |
| 31 | Soysolv Industrial Products: Soysolv II Plus | Oily and watery, spreads easily and evenly, did not dry, some cloudy discoloration, filmy residual, tacky and sticky, does not remove wax |
| 32 | Sysco: Soy Cleaner Formula 180D | Spreads easily and somewhat evenly, bubbles on surface, did not dry,cloudy discoloration, filmy residual, removes wax if scraped very hard |
| 35 | United Labs International: United 2002 Harvest Gold | Did not spread well, some cloudy discoloration, filmy residual, did not remove wax |
| 44 | Finger Lakes: Pinene | Pine odor, spreads easily and evenly, did not dry well, cloudy discoloration, filmy residual, did not remove wax |
| 45 | Finger Lakes: 3-D Degreaser | Thick, spreads easily and evenly, very cloudy discoloration, removes wax if scraped very hard |
| 8 | Bi-O-Kleen: Citrus Soy Cleaner and Degreaser | Citrus odor,thick, glue-like consistency, spreads easily, very cloudy discoloration, filmy residual, did not dry well, did not remove wax |
| 48 | Orison Marketing: Eco Natural Floor Stripper | Thick, spreads easily and evenly, very cloudy discoloration, filmy residual, did not remove wax |
| 55 | Globalbiobased Asia: All Purpose 102 Concentration | Very thick, glue-like consistency, bubbles on surface, did not dry well, cloudy discoloration, filmy residual, did not remove wax |
| 57 | Globalbiobased Asia: Floor Wax Stripper 101 Concentration | Did not spread well, separates, did not dry well, very filmy residual, tacky and sticky, did not remove wax |
| *57 | Bi-O-Kleen: Soycream Cleaner | Spreads easily and evenly, did not dry well, cloudy discoloration, filmy residual, removes wax and other solvent if scraped |

| Coupon # | Solvent | Descriptions and Comments |
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| *2 | 1st Envirosafety: Organic Cleaner/ Degreaser | Watery, spreads easily and evenly, very cloudy discoloration, filmy residual, did not remove wax and other solvent |
| *3 | Bi-O-Kleen: SL-100 | Spreads easily and evenly, some cloudy discoloration, filmy residual, removes wax and other solvent if scraped very hard |
| *4 | EnvirOx LLC: Grout-Safe | Spreads easily and evenly, some cloudy discoloration, filmy residual, removes wax and other solvent if scraped very hard |
| *5 | EnvirOx LLC: H2Orange2 | Spreads easily and evenly, some cloudy discoloration, filmy residual, did not remove wax and other solvent |
| *7 | Garden Guys: Degreaser (Organic Products) | Spreads easily and evenly, some cloudy discoloration, filmy residual, tacky and sticky, did not remove wax and other solvent |

Summary:

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| **Substrates:** | Fiberglass |
| **Contaminants:** | Waxes |

| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
|---|---|---|---|---|---|
| AG Environmental Products | Canola Gold CE110 | 100 | | ☐ | |
| AG Environmental Products | Soy Clear 1500 | 100 | | ☐ | |
| AG Environmental Products | Soy Gold 1000 | 100 | | ☐ | |
| AG Environmental Products | Soy Gold 1100 | 100 | | ☐ | |
| AG Environmental Products | Soy Gold 2000 | 100 | | ☐ | |
| Bio Chem Systems | Bio T Max | 100 | | ☐ | |
| Bi-O-Kleen Industries | Citrus Soy Solvent Cleaner & Degreaser | 100 | | ☐ | |
| Florida Chemical Company | Citrus Burst 7 | 100 | | ☐ | |
| Florida Chemical Company | D-Limonene | 100 | | ☐ | |
| Gemtek Products | SC EZ Solv Safety Solvent | 100 | | ☐ | |
| Gemtek Products | SC 1000 Aqueous Cleaner Concentrate | 100 | | ☐ | |
| Gemtek Products | SC Aircraft & Metal Cleaner Super Concentrate | 100 | | ☐ | |
| Gemtek Products | SC Supersolve Safety Solvent | 100 | | ☐ | |
| Inland Technologies Inc | Citrasafe | 100 | | ☐ | |
| Oakite Products | Inproclean 4000 T | 100 | | ☐ | |
| Soysolv Industrial Products | Soysolv industrial solvent | 100 | | ☐ | |

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| Soysolv Industrial Products | Soysolv II sovent Plus | 100 | | ☐ | |
| Sysco Corporation | Soy Cleaner 180 D | 100 | | ☐ | |
| United Laboratories International | United 2002 Harvest Gold | 100 | | ☐ | |
| Finger Lakes Chemical | FLSC-31 Pinene All Purpose Cleaner | 100 | | ☐ | |
| Finger Lakes Chemical | 3 D Degreaser | 100 | | ☐ | |
| Bi-O-Kleen Industries | Citrus Soy Solvent Cleaner & Degreaser | 100 | | ☐ | |
| Orison Marketing | Eco Natural Floor Stripper | 100 | | ☐ | |
| Globalbiobased Asia | All Purpose 102 | 100 | | ☐ | |
| Globalbiobased Asia | Floor Wax Stripper 101 | 100 | | ☐ | |
| Bi-O-Kleen Industries | Soy Cream Cleaner | 100 | | ☐ | |
| 1st Envirosafety Inc. - No Longer Exists | Organic Cleaner/Degreaser - For Comparison Purposes Only | 100 | | ☐ | |
| Bi-O-Kleen Industries | Soy Lube- SL 100 | 100 | | ☐ | |
| EnvirOx LLC | Grout Safe | 100 | | ☐ | |
| EnvirOx LLC | H2Orange2 | 100 | | ☐ | |
| Garden Guys | Organic Products Degreaser | 100 | | ☐ | |
| Green Products | aMAIZEing biobased solvent and stripper | 100 | | ☑ | |
| Inland Technologies Inc | EP 921 | 100 | | ☑ | |
| Finger Lakes Chemical | FLSC-12 Resineater Sample | 100 | | ☑ | |
| EcoLink | Safe Strip | 100 | | ☑ | |
| Gemtek Products | Safe Care (SC) Maxi Solv | 100 | | ☑ | |
| Finger Lakes Chemical | FLSC-47 Pine Strip | 100 | | ☑ | |
| Twin Rivers Technologies | Graffiti Remover | 100 | | ☑ | |
| Globalbiobased Asia | All Purpose 102 | 100 | | ☑ | |
| 1st Envirosafety Inc. - No Longer Exists | Ecco Commercial Cleaner - For Comparison Purposes Only | 100 | | ☑ | |

Conclusion: The bio-based products that were determined to show signs of effectiveness will be tested under expanded conditions on the current floor coating/wax. Additional bio-based products will be screened when they arrive in the lab.