

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2005
DateRun: 08/24/2005
Experimenters: Jason Marshall
ClientType: Medical Instrument Mfr
ProjectNumber: Project #1
Substrates: Plastic, Rubber
PartType: Coupon
Contaminants: Waxes
Cleaning Methods: Immersion/Soak
Analytical Methods:

Purpose: To generate a list of alternatives that have been used to remove wax.

Experimental Procedure: Using the laboratory's database for solvent cleaning substitution, the lab generated the following lists of products. The first list contains products that have been evaluated at SSL under similar conditions to the client's criteria. The second list contains vendor suggested products based on client supplied data.

Results: Laboratory Tested Products

Contaminant: Wax
Substrate: Plastic
Equipment: Various

| CompanyName | ProductName |
|-----------------------------|---------------------------------|
| Bio Chem Systems | Bio T Max |
| DuPont | DBE 6 |
| Gemtek Products | SC Actisolv |
| Johnson Wax | Pro Strip |
| Pioneer Eclipse | EnviroStar Green Floor Stripper |
| PureTech International | Botanical Gold |
| Soysolv Industrial Products | Cornsolv |
| Soysolv Industrial Products | Soysolv |
| Soysolv Industrial Products | Soysolv II Plus |

Substrate: Any
Equipment: Any
Contaminant: Wax
Specifics

| Contaminant Specifics |
|--|
| Wax |
| Wax - Aremco Crystalbond 509 (25610-19-9, 107-21-1) |
| Wax - Beeswax |
| Wax - Blanchard Stacking Wax #5 |
| Wax - Johnson Wax Professional Show Place (40861-29-8, 78-51-3, 4590-94-8, 111-90-0) |
| Wax - Mobilewax 2305 |
| Wax - Roger Reed 6816 Wax, Naturally occurring organic and neutral materials |
| Wax - Roger Reed 93114 Wax, Hyrdocarbon waxes |
| Wax - Roger Reed 98033 Wax, Hyrdocarbon waxes |
| Wax - Roger Reed 98045 Wax, Hyrdocarbon waxes |
| Wax - Stacking wax |

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Wax - Stevenson Brothers and Co. Inc.
Petroleum Paraffin wax

| CompanyName | ProductName |
|-----------------------------|---------------------------------|
| AG Environmental Products | Canola Gold CE110 |
| AJ Associates | Dynadet |
| Alconox Inc | Alcojet |
| Bio Chem Systems | Bio T 200 A |
| Bio Chem Systems | Bio T Max |
| Bio Chem Systems | Solsafe 245 |
| Calgon Corporation | Geo Guard 2215 |
| DuPont | DBE 5 |
| DuPont | DBE 6 |
| Dynamold Solvents Inc | DS 108 |
| Florida Chemical Company | Citrus Burst 7 |
| Gemtek Products | SC Actisolv |
| Innovative Organics Inc | Amberclean 527 L |
| Johnson Wax | Pro Strip |
| Metabolix Inc | Metabolix E3HB |
| National Diagnostic | Histo Clear |
| National Diagnostic | Opti Clear |
| Oakite Products | Inproclean 2000 |
| Oakite Products | Inproclean 3800 |
| Pentone Corporation | Citrikleen XPC |
| Pioneer Eclipse | EnviroStar Green Floor Stripper |
| PureTech International | Botanical Gold |
| Solvent Kleene Inc | D Greeze 1000 |
| Solvent Kleene Inc | D Greeze 500 LO |
| Soysolv Industrial Products | Cornsolv |
| Soysolv Industrial Products | Soysolv |
| Soysolv Industrial Products | Soysolv II Plus |
| Texo Corporation | Texolite 1734 XL |
| Today & Beyond | Beyond 2006 |
| Universal Photonics | Uni Clear |
| Universal Photonics | Uni Clear II |
| US Polychem Corporation | Polyspray Jet 790 C |
| Water | Steam |

Vendor Recommended Products

Contaminant: Wax

Equipment: Ultrasonics

Substrate: Plastic and Rubber

| CompanyName | ProductName | ClassificationDescription |
|------------------|--------------------|---------------------------|
| Alconox Inc | Alcojet | Powder Detergent-Alkaline |
| Alconox Inc | Citranox | Acidic Aqueous |
| Alconox Inc | Terg-A-Zyme | Enzymatic/Microbial |
| Bio Chem Systems | Bio T 200 A | Terpene |
| Bio Chem Systems | Green Stuff (6325) | Alkaline Aqueous |

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| Bio Chem Systems | Neutral Green (8020) | Alkaline Aqueous |
| Bio Chem Systems | Solsafe 245 | Petroleum Distillate |
| Brulin Corporation | Aquavantage 1400 | Alkaline Aqueous |
| Chrisal USA Inc | Super CMF 240 | Alkaline Aqueous |
| Gemtek Products | SC 1000 | Alkaline Aqueous |
| Gemtek Products | SC Aircraft & Metal Cleaner | Alkaline Aqueous |
| Hotsy Cleaning Systems | Hotsy Detergents Tub & Pressure Wash | Alkaline Aqueous |
| Innovative Organics Inc | Amberclean Q3 | Alkaline Aqueous |
| Magnaflux | Daraclean 212 | Neutral Aqueous |
| Magnaflux | Daraclean 235 | Neutral Aqueous |
| Magnaflux | Daraclean 238 | Alkaline Aqueous |
| Magnaflux | Daraclean 257 | Alkaline Aqueous |
| Magnaflux | Daraclean 282 | Alkaline Aqueous |
| Magnaflux | Daraclean 282 GF | Alkaline Aqueous |
| Magnaflux | Daraclean 283 | Alkaline Aqueous |
| Phase III Inc | California Parts Washer Solution | Neutral Aqueous |
| Safe Science Inc | Safe Science Concrete/ Graffiti (Industrial) | Alkaline Aqueous |
| SOQ Environmental Technology | Ecomate FN | Alkaline Aqueous |
| System One Technologies | QSOL 100 | Petroleum Distillate |
| System One Technologies | QSOL 110 | Petroleum Distillate |
| Today & Beyond | Beyond 2001 | Alkaline Aqueous |
| Today & Beyond | Beyond 2002 | Alkaline Aqueous |
| Today & Beyond | Beyond 2003 | Alkaline Aqueous |
| Today & Beyond | Beyond 2004 | Alkaline Aqueous |
| Today & Beyond | Beyond 2005 | Alkaline Aqueous |
| Today & Beyond | Beyond 2006 | Alkaline Aqueous |
| Today & Beyond | Beyond 2007 | Alcohol |
| US Polychem Corporation | Hydropurge 36 | Alkaline Aqueous |
| US Polychem Corporation | Polychem 2000 P | Alkaline Aqueous |

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|-------------------------|----------------------------|------------------------------|
| US Polychem Corporation | Polychem A 2000 XS | Alkaline Aqueous |
| US Polychem Corporation | Polychem DE 144 | Petroleum Distillate |
| US Polychem Corporation | Polychem DEOX 007 | Alkaline Aqueous |
| US Polychem Corporation | Polychem Hydropurge 21 | Alkaline Aqueous |
| US Polychem Corporation | Polychem Hydropurge 36 XS | Alkaline Aqueous |
| US Polychem Corporation | Polychem Hydropurge 790 XS | Alkaline Aqueous |
| US Polychem Corporation | Polychem PW 147 | Alkaline Aqueous |
| US Polychem Corporation | Polychem RCC 25 | Terpene-Petroleum Distillate |
| US Polychem Corporation | Polyspray Jet 790 P | Alkaline Aqueous |
| US Polychem Corporation | Polyspray Jet 790 XS | Alkaline Aqueous |
| US Polychem Corporation | Polyspray Jet ST-21 | Alkaline Aqueous |
| Valtech Corporation | Valtron DP 97031 | Neutral Aqueous |

Contaminant: Waxes

Equipment: Immersion

Substrate: Plastic and Rubber

| CompanyName | ProductName | ClassificationDescription |
|-----------------------|------------------------------------|---------------------------|
| Alconox Inc | Alcojet | Powder Detergent-Alkaline |
| Alconox Inc | Citranox | Acidic Aqueous |
| Alconox Inc | Terg-A-Zyme | Enzymatic/Microbial |
| Bio Chem Systems | Bio T 200 A | Terpene |
| Bio Chem Systems | Bio T 300 B | Terpene-Semi-Aqueous |
| Bio Chem Systems | Bio T Max | Terpene-Semi-Aqueous |
| Bio Chem Systems | Bio T Parts Washer NR | Terpene |
| Bio Chem Systems | Green Stuff (6325) | Alkaline Aqueous |
| Bio Chem Systems | Neutral Green (8020) | Alkaline Aqueous |
| Bio Chem Systems | Solsafe 245 | Petroleum Distillate |
| Calgon Corporation | SC 844 | Organic |
| Chrisal USA Inc | Super CMF 240 | Alkaline Aqueous |
| Finger Lakes Chemical | 2-22 D Limonene Industrial Cleaner | Alkaline Aqueous |
| Gemtek Products | SC 1000 | Alkaline Aqueous |
| Gemtek Products | SC Aircraft & Metal Cleaner | Alkaline Aqueous |

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|------------------------------|--|----------------------|
| Hotsy Cleaning Systems | Hotsy Detergents Tub & Pressure Wash | Alkaline Aqueous |
| Innovative Organics Inc | Amberclean Q3 | Alkaline Aqueous |
| Magnaflux | Daraclean 212 | Neutral Aqueous |
| Magnaflux | Daraclean 235 | Neutral Aqueous |
| Magnaflux | Daraclean 282 | Alkaline Aqueous |
| Magnaflux | Daraclean 282 GF | Alkaline Aqueous |
| Magnaflux | Daraclean 283 | Alkaline Aqueous |
| PCI of America | Hurrisafe 9010 | Alkaline Aqueous |
| PCI of America | Hurrisafe 9575 | Alkaline Aqueous |
| Phase III Inc | California Parts Washer Solution | Neutral Aqueous |
| Safe Science Inc | Safe Science Concrete/ Graffiti (Industrial) | Alkaline Aqueous |
| SOQ Environmental Technology | Ecomate FN | Alkaline Aqueous |
| System One Technologies | QSOL 110 | Petroleum Distillate |
| Today & Beyond | Beyond 2001 | Alkaline Aqueous |
| Today & Beyond | Beyond 2002 | Alkaline Aqueous |
| Today & Beyond | Beyond 2003 | Alkaline Aqueous |
| Today & Beyond | Beyond 2004 | Alkaline Aqueous |
| Today & Beyond | Beyond 2005 | Alkaline Aqueous |
| Today & Beyond | Beyond 2006 | Alkaline Aqueous |
| Today & Beyond | Beyond 2007 | Alcohol |
| US Polychem Corporation | Hydropurge 36 | Alkaline Aqueous |
| US Polychem Corporation | Polychem 2000 P | Alkaline Aqueous |
| US Polychem Corporation | Polychem A 2000 XS | Alkaline Aqueous |
| US Polychem Corporation | Polychem DE 144 | Petroleum Distillate |
| US Polychem Corporation | Polychem DEOX 007 | Alkaline Aqueous |
| US Polychem Corporation | Polychem Hydropurge 21 | Alkaline Aqueous |
| US Polychem Corporation | Polychem Hydropurge 36 XS | Alkaline Aqueous |

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| | | |
|-------------------------|----------------------------|------------------------------|
| US Polychem Corporation | Polychem Hydropurge 790 XS | Alkaline Aqueous |
| US Polychem Corporation | Polychem PW 147 | Alkaline Aqueous |
| US Polychem Corporation | Polychem QS 85 LO | Terpene-Petroleum Distillate |
| US Polychem Corporation | Polychem RCC 25 | Terpene-Petroleum Distillate |
| US Polychem Corporation | Polyspray Jet 790 P | Alkaline Aqueous |
| US Polychem Corporation | Polyspray Jet 790 XS | Alkaline Aqueous |
| US Polychem Corporation | Polyspray Jet ST-21 | Alkaline Aqueous |

Summary:

Conclusion:

Cleaning varies from case to case. The SSL recommends process specific testing on potential replacement cleaning chemicals. If more information is needed on a particular product, or you are interested in conducting cleaning trials, please contact the lab at (978)934-3133.