

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002
DateRun: 11/18/2002
Experimenters: Jason Marshall
ClientType: Optical Manufacturer
ProjectNumber: Project #3
Substrates: Plastic
PartType: Coupon
Contaminants: Adhesive, Resins/Rosins
Cleaning Methods:
Analytical Methods:

Purpose: To generate a list of products that can be used to remove acrylic resin adhesives from polycarbonate surfaces

Experimental Procedure: The identified acrylic resin adhesive family identified crosslinks at or above 250 F which is less than the mold temperatures (265-275 F). Acids catalyze this reaction.

Results: Using SSL's Simple Solutions database, two lists of products were generated based on client input. The first are products that have been successfully used to remove adhesives. The second list contains products that meet client's required needs based on from vendor supplied information.

Table 1. Effective Products for Adhesive Cleaning

| Company | Product | Classification | Total Effective Trials | Parameters |
|-------------------------|---------------------|----------------------|------------------------|------------------------|
| Alconox, Inc. | Citranox | Acidic Aqueous | 4 | Adhesives |
| Aremco | Crystalbond 590 S | Powder Detergent | 1 | Adhesives |
| Bio Chem Systems | Bio T Max | Terpene-Semi-Aqueous | 2 | Plastic & Adhesive |
| Bio Chem Systems | Bio T Max | Terpene-Semi-Aqueous | 6 | Adhesives |
| Bio Chem Systems | SOLSAFE 245 | Petroleum Distillate | 2 | Adhesive & Ultrasonics |
| Bio Chem Systems | SOLSAFE 245 | Petroleum Distillate | 3 | Adhesives |
| CSA Inc | Bio Safe 1023 | Hydrocarbon | 1 | Adhesives |
| Du Pont | DBE | Ester | 1 | Adhesives |
| Dynamold Solvents, Inc. | DS-104 | Petroleum Distillate | 6 | Adhesives |
| Dynamold Solvents, Inc. | DS-108 | Petroleum Distillate | 1 | Adhesives |
| Ecolink | Positron | Organic | 1 | Plastic & Adhesive |
| Ecolink | Positron | Organic | 7 | Adhesives |
| Ecolink | Safe Strip | Organic | 1 | Adhesives |
| Ecolink | VG 151 | Terpene | 1 | Adhesives |
| Inland Technologies Inc | Citrasafe | Terpene | 4 | Adhesives |
| International Products | Surface Cleanse 930 | Neutral Aqueous | 3 | Adhesives |
| Loctite Corporation | 7360 | Ester | 1 | Plastic & Adhesive |
| Loctite Corporation | 7360 | Ester | 1 | Adhesives |

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|----------------------|--------------------|------------------|---|------------------------|
| MacDermid | ND Supreme | Alkaline Aqueous | 2 | Adhesive & Ultrasonics |
| MacDermid | ND Supreme | Alkaline Aqueous | 2 | Adhesives |
| Oakite Products | Inproclean 3800 | Alkaline Aqueous | 1 | Adhesive & Ultrasonics |
| Oakite Products | Inproclean 3800 | Alkaline Aqueous | 1 | Adhesives |
| Safe Science | All Purpose | Alkaline Aqueous | 2 | Adhesives |
| Safe Science | Concrete/ Graffiti | Alkaline Aqueous | 6 | Adhesives |
| Safe Science | Engine Degreaser | Terpene | 1 | Adhesives |
| Solvent Kleene, Inc. | D-Greeze 500 LO | Organic | 2 | Plastic & Adhesive |
| Solvent Kleene, Inc. | D-Greeze 500 LO | Organic | 2 | Adhesives |
| Tarksol, Inc. | Tarksol HTF-50 | Semi-Aqueous | 2 | Adhesives |
| Today & Beyond | Beyond-2009 | Organic | 2 | Adhesives |
| U.S. Polychem Corp. | Hydropurge HPL 790 | Caustic | 1 | Adhesives |

Table 2. Vendor Recommended Products for Adhesive Removal From Plastics Using Ultrasonics

| Company | Product | Classification |
|-----------------------------|--------------------------------------|----------------------|
| AGA Chemical | AK 225 | HCFC |
| Alconox, Inc. | Luminox | Neutral Aqueous |
| Bio Chem Systems | SOLSAFE 245 | Petroleum Distillate |
| Brulin Corporation | Brulin 1696 PNC | Neutral Aqueous |
| Brulin Corporation | EXP 1400 | Alkaline Aqueous |
| Buckeye International | Shopmaster | Alkaline Aqueous |
| Buckeye International | Shopmaster LPH | Alkaline Aqueous |
| Chrisal USA, Inc. | Super CMF 240 | Alkaline Aqueous |
| CSA Inc | Bio Safe 1024 | Hydrocarbon |
| Du Pont | DBE 3 | Ester |
| Ecolink | Bulldog | Alkaline Aqueous |
| Ecolink | Safe Strip | Organic |
| Gemtek Products | ODOR-EX | Alkaline Aqueous |
| Gemtek Products | SC Supersolve | Organic |
| Hotsy Cleaning Systems | Hotsy Detergents Tub & Pressure Wash | Alkaline Aqueous |
| Innovative Organics Inc | Amberclean Q3 | Alkaline Aqueous |
| International Products Corp | LF 2100 | Alkaline Aqueous |
| International Products Corp | Micro | Alkaline Aqueous |
| International Products Corp | Micro 90 | Alkaline Aqueous |

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| International Products Corp | Surface Cleanse 930 | Neutral Aqueous |
| Loctite Corporation | 7360 | Ester |
| Magnaflux | Daraclean 212 | Neutral Aqueous |
| Magnaflux | Daraclean 235 | Neutral Aqueous |
| Magnaflux | Daraclean 238 | Alkaline Aqueous |
| Magnaflux | Daraclean 257 | Alkaline Aqueous |
| Northern Products, Inc. | Necco Super Cleaner | Alcohol-Semi Aqueous |
| Oakite Products | Citradet | Semi-Aqueous |
| Oakite Products | Inproclean 4000 T | Terpene-Organic |
| Safe Science | Safe Science Concrete/ Graffiti (Industrial) | Alkaline Aqueous |
| Smart Sonic | 440-R SMT Detergent | Alkaline Aqueous |
| Solvent Kleene, Inc. | D-Greeze 500 LO | Organic |
| System One Technologies | QSOL-100 | Petroleum Distillate |
| System One Technologies | QSOL-110 | Petroleum Distillate |
| Tarksol, Inc. | Tarksol HTF-40 | Terpene-Semi-Aqueous |
| Tarksol, Inc. | Tarksol HTF-7 | Terpene-Semi-Aqueous |
| 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 |
| U.S. Polychem Corp. | Hydropurge 36 | Alkaline Aqueous |
| U.S. Polychem Corp. | Polychem 2000 P | Alkaline Aqueous |
| U.S. Polychem Corp. | Polychem A 2000 XS | Alkaline Aqueous |
| U.S. Polychem Corp. | Polychem A-2000 C | Caustic |
| U.S. Polychem Corp. | Polychem Acra Strip 600 | Semi-Aqueous |
| U.S. Polychem Corp. | Polychem DE-144 | Petroleum Distillate |
| U.S. Polychem Corp. | Polychem DEOX 007 | Alkaline Aqueous |
| U.S. Polychem Corp. | Polychem Hydropurge 21 | Alkaline Aqueous |

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| U.S. Polychem Corp. | Polychem Hydropurge 36 XS | Alkaline Aqueous |
| U.S. Polychem Corp. | Polychem Hydropurge XS-790 | Alkaline Aqueous |
| U.S. Polychem Corp. | Polychem PW-147 | Alkaline Aqueous |
| U.S. Polychem Corp. | Polychem RCC-25 | Terpene-Petroleum Distillate |
| U.S. Polychem Corp. | Polyspray Jet 790 P | Alkaline Aqueous |
| U.S. Polychem Corp. | Polyspray Jet 790 XS | Alkaline Aqueous |
| U.S. Polychem Corp. | Polyspray Jet ST-21 | Alkaline Aqueous |
| Universal Photonics | Uni Clear | Terpene |
| Valtech Corporation | Valtron DP 98023 | Caustic |
| Valtech Corporation | Valtron SP 2500 | Alkaline Aqueous |

Summary:

Conclusion:

Cleaning projects vary from case-to-case. To obtain more detailed information about any of the products listed, contact the lab at (978)934-3133.

Please note: The Toxics Use Reduction Institute's Surface Cleaning Laboratory can supply MSDSs and any available Technical Data Sheets for all chemical cleaners tested. Not all cleaners tested are ranked equally for environmental, health and safety considerations; some are selected for comparative purposes only. The most accurate, up-to-date information concerning cleaning chemistries can be obtained at the Institute's T.H.E Library using Database TOMES: Toxicological, Occupational, Medical and Environmental Series.