

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008

DateRun: 01/22/2008

Experimenters: Jason Marshall

ClientType: General

ProjectNumber: Project #1

Substrates: Plastic

PartType: Coupon

Contaminants: Adhesive

Cleaning Methods: Manual Wipe

Analytical Methods: Visual

Purpose: To generate a list of alternatives that can be used to manual clean plastic surfaces covered with various adhesives

Experimental Procedure: Using the laboratory's database for solvent cleaning substitution, the lab generated a list of products that have been used to replace TCE in adhesive removal. In addition, vendor supplied data was searched for the same parameters.

Results: Several lists were identified for adhesive removal from plastic surfaces using manual wiping. The first two lists are based on laboratory testing for general situation. Manual wiping of plastic parts for adhesive removal

| Company | Product | Classification |
|-----------------------------|---------------------|----------------------|
| Brulin Corporation | Compliance | Caustic |
| Loctite Corporation | 7360 | Ester |
| Fisher Scientific | Isopropanol | Alcohol |
| Eastern Color & Chemical Co | Ecobrite Cleaner AK | Alkaline Aqueous |
| Tarksol Inc | Tarksol HTF 85 B | Alcohol-Organic |
| Bio Chem Systems | Bio T Max | Terpene-Semi-Aqueous |
| Inland Technologies Inc | Safety Prep | Terpene |
| Oakite Products | Fisan Versaclean | Alkaline Aqueous |
| Solvent Kleene Inc | D Greeze 500 LO | Organic |

Any process for plastic parts cleaning of adhesive

| Company | Product | Classification |
|-----------------------------|---|----------------------|
| 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 | Green Stuff-6325 | Alkaline Aqueous |
| Brulin Corporation | Compliance | Caustic |
| Eastern Color & Chemical Co | Ecobrite Cleaner AK | Alkaline Aqueous |
| Ecolink | Heavy Weight Non Butyl Alkaline Aqueous | |

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|-------------------------|---|------------------|
| Ecolink | Positron | Biobased |
| Fisher Scientific | Isopropanol | Alcohol |
| Heatbath Corporation | Alu-Kleen 36 | Acidic Aqueous |
| Heatbath Corporation | Power Wash Cleaner BCR Alkaline Aqueous | |
| Inland Technologies Inc | Citrasafe | Terpene |
| Inland Technologies Inc | Safety Prep | Terpene |
| Loctite Corporation | 7360 | Ester |
| Oakite Products | Fisan Versaclean | Alkaline Aqueous |
| Solvent Kleene Inc | D Greeze 500 LO | Organic |
| Tarksol Inc | Tarksol HTF 85 B | Alcohol-Organic |
| 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 2009 | Organic |
| Turco Products Inc | Turco 5948 DPM | Alkaline Aqueous |
| US Polychem Corporation | 87 RB | Hydrocarbon |
| US Polychem Corporation | Hydropurge HPL 790 | Caustic |
| Valtech Corporation | Valtron SP 2250 2LF | Alkaline Aqueous |

The following products were found to be successful on more than one of the CAS#s provided for the adhesives currently being cleaned.

| Company | Product |
|------------------------------|--------------------------|
| General Chemical Corporation | Aluminex 5834 |
| Innovative Organics Inc | Amber Clean SC 11 |
| General Chemical Corporation | Aquaclean 4784 |
| Today & Beyond | Beyond 2009 |
| Finish Line Technologies Inc | Bio Degradable Degreaser |
| Bio Chem Systems | Bio T 300 B |
| Bio Chem Systems | Bio T Max |
| AG Environmental Products | Canola Gold CE110 |
| Inland Technologies Inc | Citrasafe |
| Pentone Corporation | Citrikleen XPC |
| Florida Chemical Company | Citrus Burst 7 |
| Crest Ultrasonics | Crest 14 |
| Solvent Kleene Inc | D Greeze 1000 |

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|------------------------------------|-----------------------------|
| Solvent Kleene Inc | D Greeze 500 LO |
| DuPont | DBE 5 |
| DuPont | DBE 6 |
| Florida Chemical Company | D-Limonene |
| Dynamold Solvents Inc | DS 104 |
| Dynamold Solvents Inc | DS 108 |
| Enviro Tech International Inc | Ensolv |
| Oakite Products | Inproclean 3800 |
| Kyzen Corporation | Ionox HC 2 |
| Petroferm Inc | Lenium ES |
| Gemtek Products | Maxi Solv |
| Metabolix Inc | Metabolix E3HB |
| Kyzen Corporation | Metalnox M6960 |
| Twin Rivers Technologies | Methyl Ester 1618 |
| International Products Corporation | Micro 90 |
| Brulin Corporation | Natural Sol 100 |
| Gemtek Products | SC Aircraft & Metal Cleaner |
| Poly Systems USA Inc | Solvon IP |
| Poly Systems USA Inc | Solvon PB |
| Soysolv Industrial Products | Soysolv II |

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.