CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002

DateRun: 11/17/2002

Experimenters: Jason Marshall

ClientType: Optical Manufacturer

ProjectNumber: Project #3

Substrates: Plastic

PartType: Coupon

Contaminants: Lubricating/Lapping Oils, Oil

Cleaning Methods:

Analytical Methods:

Purpose: To generate a list of products that can be used to remove oils, lubricants or mineral oil from polycarbonate surfaces

Experimental Procedure: Polycarbonate surfaces may be blooming (leaching mineral oil) over time, especially during normal injection molding conditions. Need to remove all residual mineral oil from the surface without damaging the polycarbonate material.

Table 1. Oil and Lubricant Removal

Total Trials	Company	Product	Classification	Cont
1	Calgon Corporation	AK 6215	Alkaline Aqueous	Lub
5	Calgon Corporation	AK 6215	Alkaline Aqueous	oil
4	Today & Beyond	Beyond-2001	Alkaline Aqueous	Lub
10	Today & Beyond	Beyond-2001	Alkaline Aqueous	oil
2	Magnaflux	Daraclean 282	Alkaline Aqueous	Lub
10	Magnaflux	Daraclean 282	Alkaline Aqueous	oil
1	Magnaflux	Daraclean 282 GF	Alkaline Aqueous	Lub
12	Magnaflux	Daraclean 282 GF	Alkaline Aqueous	oil
3	Magnaflux	Daraclean 283	Alkaline Aqueous	Lub
10	Magnaflux	Daraclean 283	Alkaline Aqueous	oil
2	Brulin Corporation	Formula 815 GD	Alkaline Aqueous	Lub
9	Brulin Corporation	Formula 815 GD	Alkaline Aqueous	oil
4	Bio Chem Systems	Green Stuff (6325)	Alkaline Aqueous	Lub
10	Bio Chem Systems	Green Stuff (6325)	Alkaline Aqueous	oil
14	Oakite Products	Inproclean 3800	Alkaline Aqueous	Lub
14	Oakite Products	Inproclean 3800	Alkaline Aqueous	oil
2	U.S. Polychem Corp.	Polychem A 2000 XS	Alkaline Aqueous	Lub
3	U.S. Polychem Corp.	Polychem A 2000 XS	Alkaline Aqueous	oil
2	Valtech Corporation	Valtron SP 2275	Neutral Aqueous	Lub

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4	Valtech Corporation	Valtron SP 2275	Neutral Aqueous	oil

Table 2. Vendor Recommended Products for Oil, Lubricant Removal From Plastics Using Ultrasonics

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 both oils and lubricants using ultrasonic cleaning. The second list contains products that meet client's required needs based on from vendor supplied information.

Company	Product	Classification
Abatement Technology	Bio Might 100	Alkaline Aqueous
AGA Chemical	AK 225	HCFC
Alconox, Inc.	Alconox	Powder Detergent
Alconox, Inc.	Citranox	Acidic Aqueous
Alconox, Inc.	Liquinox	Alkaline Aqueous
Ausimont USA Inc	Perfluorosolv PFS 1	HCFC
AW Chesterton	181 Low Alkaline Cleaner	Alkaline Aqueous
AW Chesterton	217 Pressure wash	Alkaline Aqueous
AW Chesterton	KPC 820 N	Alkaline Aqueous
Better Engineering	NAT-50 MS	Powder Detergent-Alkaline
Bio Chem Systems	Bio T 200 A	Terpene
Bio Chem Systems	Bio T V-50	Terpene
Bio Chem Systems	Green Stuff (6325)	Alkaline Aqueous
Bio Chem Systems	Neutral Green (8020)	Alkaline Aqueous
Bio Chem Systems	SOLSAFE 245	Petroleum Distillate
Blue Wave Ultrasonics, Inc.	25 I Detergent Concentrate	Neutral Aqueous
Brulin Corporation	815 QR	Alkaline Aqueous
Brulin Corporation	Brulin 1696 PNC	Neutral Aqueous
Brulin Corporation	Brulin 1990 GD	Alkaline Aqueous
Brulin Corporation	EXP 1400	Alkaline Aqueous
Brulin Corporation	Formula 815 GD	Alkaline Aqueous
Buckeye International	Immersion Cleaner	Alkaline Aqueous
Buckeye International	Shopmaster	Alkaline Aqueous
Chem Tech	CT 1 Multipurpose Cleaner	Alkaline Aqueous
Chemstation	Green Stuff Neutral	Neutral Aqueous
Chemtronics	Super Bio Wash	Semi-Aqueous
Church & Dwight	Armaklean E 2001	Alkaline Aqueous

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Church & Dwight	Armaklean E 2002	Alkaline Aqueous
Church & Dwight	Armaklean M Aero	Alkaline Aqueous
Church & Dwight	Armakleen M Auto	Alkaline Aqueous
Cleaning Systems	Release	Alkaline Aqueous
Delta Omega Technologies Ltd	DOT 111/113	Alkaline Aqueous
Du Pont	DBE 3	Ester
Ecolink	Bulldog	Alkaline Aqueous
Ecolink	Universal Steam Cleaner	Alkaline Aqueous
Environmental Technology	RB Degreaser Cleaner	Alkaline Aqueous
Gemtek Products	SC 1000	Alkaline Aqueous
Gemtek Products	SC Aircraft & Metal Cleaner	Alkaline Aqueous
Gemtek Products	SC Supersolve	Organic
Hurri Kleen	Hot Immersion Degreaser	Alkaline Aqueous
Hurri Kleen	Special Degreaser	Alkaline Aqueous
Innovative Organics Inc	Amber Clean SC 11	Neutral Aqueous
Innovative Organics Inc	Amberclean 527 L	Alkaline Aqueous
Innovative Organics Inc	Amberclean L 12	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
International Products Corp	Surface Cleanse 930	Neutral Aqueous
JDI, Inc.	Mirachem 500 RTU	Alkaline Aqueous
LPS Laboratories	LPS Precision Clean	Alkaline Aqueous
MacDermid	ND 17	Alkaline Aqueous
MacDermid	ND LF Supreme	Alkaline Aqueous
MacDermid	ND Supreme	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		

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	Daraclean 282 GF	Alkaline Aqueous
Magnaflux	Daraclean 283	Alkaline Aqueous
Mirachem Corporation	Mirachem 500	Alkaline Aqueous
Nensco	DT 600 Press Wash	Alkaline Aqueous
North Atlantic Bio Industries	NAB 9000	Neutral Aqueous
Oakite Products	Citradet	Semi-Aqueous
Oakite Products	Inproclean 2000	Alkaline Aqueous
Oakite Products	Inproclean 4000 T	Terpene-Organic
Phase III Ink	California Parts Washer Solution	Neutral Aqueous
Safe Science	Safe Science Concrete/ Graffiti (Industrial)	Alkaline Aqueous
Savogran	Dirtex Prepaint Cleaner	Alkaline Aqueous
Sky Products Co., Inc.	Cleaner #10	Alkaline Aqueous
Solvent Kleene, Inc.	D-Greeze 500 LO	Organic
SOQ Environmental Technology	Ecomate FN	Alkaline Aqueous
System One Technologies	QSOL-100	Petroleum Distillate
System One Technologies	QSOL-110	Petroleum Distillate
Tarksol, Inc.	Tarksol Aqua Kleen Citric	Terpene-Semi-Aqueous
Tarksol, Inc.	Tarksol HTF-40	Terpene-Semi-Aqueous
Tarksol, Inc.	Tarksol HTF-7	Terpene-Semi-Aqueous
Tarksol, Inc.	Tarksol Oilsolv	Terpene-Semi-Aqueous
Tarksol, Inc.	Tarksol Powergreen	Terpene-Semi-Aqueous
Tech Spray	Concentrated Aqueous Defluxer	Caustic
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

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U.S. Polychem Corp.	Polychem A 2000 XS	Alkaline Aqueous
U.S. Polychem Corp.	Polychem Acra Strip 600	Semi-Aqueous
U.S. Polychem Corp.	Polychem C-800	Neutral 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
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 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
United Laboratories	United 450 All Clear	Enzymatic/ Microbial
Valtech Corporation	Valtron DP 97031	Neutral Aqueous
Valtech Corporation	Valtron DP 98023	Caustic
Valtech Corporation	Valtron SP 2200	Alkaline Aqueous
Valtech Corporation	Valtron SP 2270	Alkaline Aqueous
Valtech Corporation	Valtron SP 2500	Alkaline Aqueous
Valtech Corporation	Valtron SP 2610	Neutral Aqueous
Valtech Corporation	Valtron SP 2700-KB	Acidic Aqueous
Warren Chemical Co	Sea Wash Neutral	Neutral 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.