CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002

DateRun: 04/02/2002

Experimenters: Jason Marshall

ClientType: Chemical Company

ProjectNumber: Project #1

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Adhesive, Coatings, Paints, Resins/Rosins

Cleaning Methods:

Analytical Methods:

Purpose: To identify possible replacement cleaners for methylene chloride

Experimental Procedure:

Results: The first list contained products that have been used for resin removal. The second lists contained products that have been used for adhesive removal. The final list was for products used specifically to replace Methylene Chloride in resin/adhesive removal.

Products that have been used for Resin Removal				
Company Name:	Product Name:	Classification:	Substrate:	Trials
Bio Chem Systems	Bio T 300 B	Semi-Aqueous	Stainless Steel	2
Bio Chem Systems	Bio T 300 B	Terpene	Stainless Steel	2
Bio Chem Systems	Bio T Max	Terpene	Aluminum	5
Bio Chem Systems	Bio T Max	Terpene	Plastic	2
Bio Chem Systems	Bio T Max	Terpene	Stainless Steel	2
Brulin Corporation	Compliance	Caustic	Aluminum	2
Calgon Corporation	Geo Guard 2215	Alkaline Aqueous	Aluminum	1
Chrisal USA, Inc.	Super CMF 240	Alkaline Aqueous	Stainless Steel	1
Church & Dwight	Armaklean E 2002	Alkaline Aqueous	Brass	4
Fine Organic Corporation	FO 2085 M	Alkaline Aqueous	Aluminum	1
Finger Lakes Chemicals	Resineater	Terpene	Copper	1
Finger Lakes Chemicals	Resineater	Terpene	Nickel	1
Finger Lakes Chemicals	Resineater	Terpene	Stainless Steel	1
Gemtek Products	SC 1000	Alkaline Aqueous	Stainless Steel	1
ISP Technologies	Ship Shape Resin Cleaner	Organic	Stainless Steel	1
Kyzen Corporation	Ionox FCR	Semi-Aqueous	Aluminum	1
Kyzen Corporation	Ionox HC 2	Alcohol	Plastic	1
Loctite Corporation	7360	Ester	Aluminum	1
				1

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Oakite Products	Inproclean 3800	Alkaline Aqueous	Stainless Steel	
Oakite Products	Inproclean 4000 T	Organic Terpene	Aluminum	1
Oakite Products	Inproclean 4000 T	Organic Terpene	Brass	3
Solvent Kleene, Inc.	D-Greeze 500 LO	Organic	Stainless Steel	1
Tarksol, Inc.	Tarksol HTF-50	Semi-Aqueous	Aluminum	2
Tarksol, Inc.	Tarksol HTF-50	Semi-Aqueous	Stainless Steel	1
U.S. Polychem Corp.	Polychem A 2000 XS	Alkaline Aqueous	Stainless Steel	1
W.R. Grace & Co.	Daraclean 232	Alkaline Aqueous	Stainless Steel	1
W.R. Grace & Co.	Daraclean 282	Alkaline Aqueous	Stainless Steel	1
Warren Chemical Co	Sea Wash 8	Neutral Aqueous	Aluminum	4

Products that have been used for Adhesive Removal

CompanyName:	ProductName:	Classification	Substrate	Trials
Alconox, Inc.	Citranox	Acidic Aqueous	Glass/ Quartz	4
Aremco	Crystalbond 590 S	Powder Detergent	Ceramics	1
Bio Chem Systems	Bio T 200 A	Terpene	Aluminum	2
Bio Chem Systems	Bio T 200 A	Terpene	Brass	2
Bio Chem Systems	Bio T 200 A	Terpene	Copper	2
Bio Chem Systems	Bio T 200 A	Terpene	Nickel	2
Bio Chem Systems	Bio T 200 A	Terpene	Plastic	2
Bio Chem Systems	Bio T 200 A	Terpene	Stainless Steel	2
Bio Chem Systems	Bio T 300 B	Semi-Aqueous Terpene	Aluminum	1
Bio Chem Systems	Bio T 300 B	Semi-Aqueous Terpene	Brass	1
Bio Chem Systems	Bio T 300 B	Semi-Aqueous Terpene	Copper	1
Bio Chem Systems	Bio T 300 B	Semi-Aqueous Terpene	Nickel	1
Bio Chem Systems	Bio T 300 B	Semi-Aqueous Terpene	Plastic	1
Bio Chem Systems	Bio T 300 B	Semi-Aqueous Terpene	Stainless Steel	2
Bio Chem Systems	Bio T Max	Semi-Aqueous Terpene	Plastic	2
Bio Chem Systems	Bio T Max	Semi-Aqueous Terpene	Stainless Steel	2
Bio Chem Systems	Bio T Parts Washer NR	Terpene	Aluminum	3
		Terpene	Brass	3

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Bio Chem Systems	Bio T Parts Washer NR			
Bio Chem Systems	Bio T Parts Washer NR	Terpene	Copper	3
Bio Chem Systems	Bio T Parts Washer NR	Terpene	Nickel	3
Bio Chem Systems	Bio T Parts Washer NR	Terpene	Stainless Steel	3
Bio Chem Systems	Bio T Parts Washer NR	Terpene	Steel	3
Bio Chem Systems	Green Stuff (6325)	Alkaline Aqueous	Aluminum	3
Bio Chem Systems	Green Stuff (6325)	Alkaline Aqueous	Brass	3
Bio Chem Systems	Green Stuff (6325)	Alkaline Aqueous	Copper	3
Bio Chem Systems	Green Stuff (6325)	Alkaline Aqueous	Nickel	3
Bio Chem Systems	Green Stuff (6325)	Alkaline Aqueous	Plastic	3
Bio Chem Systems	Green Stuff (6325)	Alkaline Aqueous	Stainless Steel	3
Buckeye International	Shopmaster RC	Ester	Aluminum	1
Buckeye International	Shopmaster RC	Ester	Brass	1
Buckeye International	Shopmaster RC	Ester	Copper	1
Buckeye International	Shopmaster RC	Ester	Stainless Steel	1
Church & Dwight	Armaklean E 2001	Alkaline Aqueous	Aluminum	1
Church & Dwight	Armaklean E 2001	Alkaline Aqueous	Stainless Steel	1
CSA Inc	Bio Safe 1023	Hydrocarbon	Stainless Steel	1
Dynamold Solvents, Inc.	DS-104	Petroleum Distillate	Aluminum	1
Dynamold Solvents, Inc.	DS-104	Petroleum Distillate	Brass	1
Dynamold Solvents, Inc.	DS-104	Petroleum Distillate	Copper	1
Dynamold Solvents, Inc.	DS-104	Petroleum Distillate	Nickel	1
Dynamold Solvents, Inc.	DS-104	Petroleum Distillate	Stainless Steel	4
Dynamold Solvents, Inc.	DS-108	Petroleum Distillate	Aluminum	1
Dynamold Solvents, Inc.	DS-108	Petroleum Distillate	Brass	1
Dynamold Solvents, Inc.	DS-108	Petroleum Distillate	Ceramics	1
Dynamold Solvents, Inc.	DS-108	Petroleum Distillate	Copper	1
Dynamold Solvents, Inc.	DS-108	Petroleum Distillate	Nickel	1
Dynamold Solvents, Inc.	DS-108	Petroleum Distillate	Stainless Steel	1
Ecolink	2005	HCFC	Electronics	1
Ecolink	2005	HCFC	Plastic	1
Ecolink	Heavy Weight Non Butyl Detergent	Alkaline Aqueous	Aluminum	2
Ecolink	Heavy Weight Non Butyl Detergent	Alkaline Aqueous	Glass/ Quartz	2

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Ecolink	Heavy Weight Non Butyl Detergent	Alkaline Aqueous	Stainless Steel	2
Ecolink	Positron	Organic	Aluminum	1
Ecolink	Positron	Organic	Brass	1
Ecolink	Positron	Organic	Ceramics	1
Ecolink	Positron	Organic	Copper	1
Ecolink	Positron	Organic	Nickel	1
Ecolink	Positron	Organic	Plastic	1
Ecolink	Positron	Organic	Stainless Steel	1
Ecolink	Safe Strip	Organic	Stainless Steel	2
Ecolink	VG 151	Terpene	Stainless Steel	1
EMKAY Chemical Co	Safety Wash CRC	Alkaline Aqueous	Aluminum	3
EMKAY Chemical Co	Safety Wash CRC	Alkaline Aqueous	Brass	3
EMKAY Chemical Co	Safety Wash CRC	Alkaline Aqueous	Stainless Steel	3
Finger Lakes Chemicals	1/1/02	Terpene	Glass/ Quartz	1
Finger Lakes Chemicals	1/1/02	Terpene	Stainless Steel	1
Finger Lakes Chemicals	Resineater	Terpene	Stainless Steel	1
Finish Line Technologies Inc	Bio Degradable Degreaser	Semi-Aqueous	Aluminum	1
Finish Line Technologies Inc	Bio Degradable Degreaser	Semi-Aqueous	Brass	1
Finish Line Technologies Inc	Bio Degradable Degreaser	Semi-Aqueous	Stainless Steel	1
Gemtek Products	ODOR-EX	Alkaline Aqueous	Alloys	1
Gemtek Products	ODOR-EX	Alkaline Aqueous	Brass	1
Gemtek Products	ODOR-EX	Alkaline Aqueous	Copper	1
Gemtek Products	ODOR-EX	Alkaline Aqueous	Nickel	1
Gemtek Products	ODOR-EX	Alkaline Aqueous	Stainless Steel	1
General Chemical Corporation	Aluminex 5834	Alkaline Aqueous	Aluminum	1
General Chemical Corporation	Aluminex 5834	Alkaline Aqueous	Brass	1
General Chemical Corporation	Aluminex 5834	Alkaline Aqueous	Copper	1
General Chemical Corporation	Aluminex 5834	Alkaline Aqueous	Nickel	1
General Chemical Corporation	Aluminex 5834	Alkaline Aqueous	Stainless Steel	1
General Chemical Corporation	Aquaclean 4784	Caustic	Aluminum	1
	Aquaclean 4784	Caustic	Brass	1

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General Chemical Corporation				
General Chemical Corporation	Aquaclean 4784	Caustic	Copper	1
General Chemical Corporation	Aquaclean 4784	Caustic	Stainless Steel	1
Heatbath Corporation	Alu-Kleen 36	Acidic Aqueous	Aluminum	2
Heatbath Corporation	Alu-Kleen 36	Acidic Aqueous	Stainless Steel	2
Heatbath Corporation	Multi-Kleen LX 1573	Alkaline Aqueous	Stainless Steel	1
Heatbath Corporation	Power Wash Cleaner BCR	Alkaline Aqueous	Aluminum	3
Heatbath Corporation	Power Wash Cleaner BCR	Alkaline Aqueous	Brass	3
Heatbath Corporation	Power Wash Cleaner BCR	Alkaline Aqueous	Copper	3
Heatbath Corporation	Power Wash Cleaner BCR	Alkaline Aqueous	Stainless Steel	3
Inland Technologies Inc	Citrasafe	Terpene	Aluminum	2
Inland Technologies Inc	Citrasafe	Terpene	Brass	2
Inland Technologies Inc	Citrasafe	Terpene	Copper	2
Inland Technologies Inc	Citrasafe	Terpene	Stainless Steel	2
Innovative Organics Inc	Amber Clean SC 11	Neutral Aqueous	Stainless Steel	1
International Products Corp	LF 2100	Alkaline Aqueous	Alloys	1
International Products Corp	LF 2100	Alkaline Aqueous	Brass	1
International Products Corp	LF 2100	Alkaline Aqueous	Copper	1
International Products Corp	LF 2100	Alkaline Aqueous	Nickel	1
International Products Corp	LF 2100	Alkaline Aqueous	Stainless Steel	1
ISP Technologies	Ship Shape Resin Cleaner	Organic	Stainless Steel	1
Loctite Corporation	7360	Ester	Plastic	1
MacDermid	ND Supreme	Alkaline Aqueous	Aluminum	1
MacDermid	ND Supreme	Alkaline Aqueous	Stainless Steel	1
Safe Science	Safe Science All Purpose (Industrial)	Alkaline Aqueous	Stainless Steel	4
Safe Science	Safe Science Concrete/ Graffiti	Alkaline Aqueous	Copper	6
Safe Science	Safe Science Concrete/ Graffiti	Alkaline Aqueous	Nickel	6
Safe Science	Safe Science Concrete/ Graffiti	Alkaline Aqueous	Stainless Steel	6

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Safe Science	Safe Science Engine Degreaser	Terpene	Stainless Steel	4
Smart Sonic	440-R SMT Detergent	Alkaline Aqueous	Aluminum	1
Smart Sonic	440-R SMT Detergent	Alkaline Aqueous	Brass	1
Smart Sonic	440-R SMT Detergent	Alkaline Aqueous	Copper	1
Smart Sonic	440-R SMT Detergent	Alkaline Aqueous	Nickel	1
Smart Sonic	440-R SMT Detergent	Alkaline Aqueous	Stainless Steel	1
Smart Sonic	440-R SMT Detergent	Alkaline Aqueous	Steel	1
Solvent Kleene, Inc.	D-Greeze 1000	Petroleum Distillate	Aluminum	2
Solvent Kleene, Inc.	D-Greeze 1000	Petroleum Distillate	Brass	2
Solvent Kleene, Inc.	D-Greeze 1000	Petroleum Distillate	Copper	2
Solvent Kleene, Inc.	D-Greeze 1000	Petroleum Distillate	Stainless Steel	2
Solvent Kleene, Inc.	D-Greeze 500 LO	Organic	Plastic	2
Solvent Kleene, Inc.	D-Greeze 500 LO	Organic	Stainless Steel	1
Solvent Kleene, Inc.	D-Greeze GL 55	Alkaline Aqueous	Aluminum	1
Solvent Kleene, Inc.	D-Greeze GL 55	Alkaline Aqueous	Stainless Steel	1
Today & Beyond	Beyond-2001	Alkaline Aqueous	Aluminum	3
Today & Beyond	Beyond-2001	Alkaline Aqueous	Brass	3
Today & Beyond	Beyond-2001	Alkaline Aqueous	Copper	3
Today & Beyond	Beyond-2001	Alkaline Aqueous	Nickel	3
Today & Beyond	Beyond-2001	Alkaline Aqueous	Plastic	3
Today & Beyond	Beyond-2001	Alkaline Aqueous	Stainless Steel	3
Today & Beyond	Beyond-2002	Alkaline Aqueous	Aluminum	3
Today & Beyond	Beyond-2002	Alkaline Aqueous	Brass	3
Today & Beyond	Beyond-2002	Alkaline Aqueous	Copper	3
Today & Beyond	Beyond-2002	Alkaline Aqueous	Nickel	3
Today & Beyond	Beyond-2002	Alkaline Aqueous	Plastic	3
Today & Beyond	Beyond-2002	Alkaline Aqueous	Stainless Steel	3
Today & Beyond	Beyond-2003	Alkaline Aqueous	Aluminum	3
Today & Beyond	Beyond-2003	Alkaline Aqueous	Brass	3
Today & Beyond	Beyond-2003	Alkaline Aqueous	Copper	3
Today & Beyond	Beyond-2003	Alkaline Aqueous	Nickel	3
Today & Beyond	Beyond-2003	Alkaline Aqueous	Plastic	3

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Today & Beyond	Beyond-2003	Alkaline Aqueous	Stainless Steel	3
Today & Beyond	Beyond-2004	Alkaline Aqueous	Aluminum	3
Today & Beyond	Beyond-2004	Alkaline Aqueous	Brass	3
Today & Beyond	Beyond-2004	Alkaline Aqueous	Copper	3
Today & Beyond	Beyond-2004	Alkaline Aqueous	Nickel	3
Today & Beyond	Beyond-2004	Alkaline Aqueous	Plastic	3
Today & Beyond	Beyond-2004	Alkaline Aqueous	Stainless Steel	3
Today & Beyond	Beyond-2005	Alkaline Aqueous	Aluminum	3
Today & Beyond	Beyond-2005	Alkaline Aqueous	Brass	3
Today & Beyond	Beyond-2005	Alkaline Aqueous	Copper	3
Today & Beyond	Beyond-2005	Alkaline Aqueous	Nickel	3
Today & Beyond	Beyond-2005	Alkaline Aqueous	Plastic	3
Today & Beyond	Beyond-2005	Alkaline Aqueous	Stainless Steel	3
Today & Beyond	Beyond-2009	Organic	Stainless Steel	4
Tower Products, Inc	Tower 270 Cleaner Concentrate	Alkaline Aqueous	Nickel	1
Tower Products, Inc	Tower 270 Cleaner Concentrate	Alkaline Aqueous	Stainless Steel	1
Tower Products, Inc	Tower 270 Cleaner Concentrate	Alkaline Aqueous	Steel	1
Turco Products Inc	Turco 5948 DPM	Alkaline Aqueous	Aluminum	3
Turco Products Inc	Turco 5948 DPM	Alkaline Aqueous	Copper	3
Turco Products Inc	Turco 5948 DPM	Alkaline Aqueous	Plastic	3
Turco Products Inc	Turco 5948 DPM	Alkaline Aqueous	Stainless Steel	3
U.S. Polychem Corp.	87 RB	Hydrocarbon	Aluminum	1
U.S. Polychem Corp.	87 RB	Hydrocarbon	Brass	1
U.S. Polychem Corp.	87 RB	Hydrocarbon	Copper	1
U.S. Polychem Corp.	87 RB	Hydrocarbon	Nickel	1
U.S. Polychem Corp.	87 RB	Hydrocarbon	Stainless Steel	1
U.S. Polychem Corp.	Hydropurge HPL 790	Caustic	Stainless Steel	2
U.S. Polychem Corp.	Product 69 MC	Alcohol	Stainless Steel	3
Universal Photonics	Uni Clear	Terpene	Ceramics	2
Valtech Corporation	Valtron SP 2250-2LF	Alkaline Aqueous	Stainless Steel	3
W.R. Grace & Co.	Daraclean 200	Alkaline Aqueous	Aluminum	1
			Brass	1

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W.R. Grace & Co.	Daraclean 200	Alkaline Aqueous		
W.R. Grace & Co.	Daraclean 200	Alkaline Aqueous	Copper	1
W.R. Grace & Co.	Daraclean 200	Alkaline Aqueous	Nickel	1
W.R. Grace & Co.	Daraclean 200	Alkaline Aqueous	Stainless Steel	1
Warren Chemical Co	Sea Wash 8	Neutral Aqueous	Aluminum	4
Westford Chemical Corporation	Biosolve	Neutral Aqueous	Aluminum	6
Westford Chemical Corporation	Biosolve	Neutral Aqueous	Ceramics	3
Westford Chemical Corporation	Biosolve	Neutral Aqueous	Copper	6
Westford Chemical Corporation	Biosolve	Neutral Aqueous	Nickel	6
Westford Chemical Corporation	Biosolve	Neutral Aqueous	Stainless Steel	6
Westford Chemical Corporation	Biosolve	Neutral Aqueous	Steel	3

Products Used Specifically to replace Methylene Chloride in resin/adhesive removal

Cleaner Mfr	Cleaning Chem
AG Environmental Products	Soy Gold 2000
Buckeye International Inc	Shopmaster
Chrisal USA Inc	Super CMF 240
Delta Omega Technologies Ltd	DOT 111/113
Dynamold Solvents Inc	DS 104
Ecolink Inc	Safe Strip
Bio Systems	Solsafe 245
Bio Systems	Bio T 300 B
Bio Systems	Bio T Max
Finger Lakes Chemicals	Resineater
Gemtek Products	SC 1000
Gemtek Products	SC Supersolve
ISP Technologies	Safe Strip Resin Cleaner
Mix	Rochester Midland Split
Safe CleanUp	Super Neutral
Safe Science	Safe Science All Purpose (Industrial)
Savogran Company	SI # 4 Coating Remover
Savogran Company	SI # 8 Coating Remover
Savogran Company	HD 34 Cleaner Degreaser
Savogran Company	SI # 4 Coating Remover
Solvent Kleene Inc	D Greeze 500 LO
Tarksol Incorporated	HTF 50
Today & Beyond	Beyond 2009
WR Grace & Co Conn	Daraclean 232

Summary:

Conclusion:

CLEANING LABORATORY EVALUATION SUMMARY

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 Technology Transfer Center (TTC) using Database TOMES: Toxicological, Occupational, Medical and Environmental Series.