CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2003
DateRun:	08/24/2003
Experimenters:	Jason Marshall
ClientType:	Microelectronics Mfr
ProjectNumber:	Project #1
Substrates:	Aluminum, Ceramics, Rubber, Stainless Steel
PartType:	Coupon
Contaminants:	Buffing/Polishing Compounds, Carbon Deposits, Cutting/Tapping Fluids, Greases, Inks, Lubricating/Lapping Oils, Oil
Cleaning Methods:	
Analytical Methods:	
Purpose:	To identify a list of products that could be used to remove various metal working fluids from vacuum chambers.
Experimental Procedure:	Using the laboratory's database for solvent cleaning substitution, the lab generated the following lists of products. The products have been evaluated at SSL under similar conditions to the client's criteria.
Results:	The table below lists the metal working fluids and inks that have been cleaned from aluminum, stainless steel or ceramic surfaces. Contaminant Specifics Info Cutting Fluid - CRC (64742-52-5, 64742-65-0, 74-98-6, 75-28-5, 6474-26-0) Cutting Fluid - Steco Corp, Tap Magic Protap (112-80-1, 112-62-9) Cutting Fluid - Winfield Brooks Alumtap (64742-53-6, 127-18-6, 111-63-7) Lubricating Oil (64742-54-7, 64742-57-0) Oil Oil - 380 Machinery Coolant Oil - Blasser Swisslube Inc. Blasocut 2000 (64742-52-5, 68608-26-4, 61790-44-1, 61791-12-6, 61788-76-9, 8016-28-2, 61788-66-7) Oil - Castrol GTX SAE 10W40 (64742-41-2, 64741-88-4, 64742-01-4, 64742-46-7, 64742-54-7, 64742-56-9, 64742-57-0, 64742-62-7, 64742-65-0, 72623-83-7, 72623-84-8, 72623-85-9, 72623-86-0, 72623-87-1) Oil - Castrol Ilocut-5721 Oil - C-Eblis cutting oil (64742-53-6, 64742-52-5) Oil - Citco cutting oil NC-425 (64742-65-0, 64741-88-4, 64741-89-5, 64742-54-7) Oil - CITGO cutting oil Oil - Citgo Cutting Oils 120 Oil - Citgo NC 400 (64742-53-6, 64741-89-5, 64741-44-2) Oil - Coolant Oil - Cutting fluid Oil - Cutting fluid (112-62-9) Oil - Die Coolant Oil (64741-44-2, 64742-53-6, 64742-52-5) Oil - East Falls Co. Hydraulic Oil (64742-65-0) Oil - Hangsterfer's S-500 CF-US Metal working fluid Oil - Heat treat quench oil Oil - Hydraulic (67-63-0) Oil - Hydraulic oil with silicone Oil - ITW Safetap Oil - Machining fluids Oil - Machining oil Oil - Metal Perserving Oil Oil - Metal working fluids Oil - Milacron Marketing Company CIMTECH® 310 metal working fluid concentrate (102-71-6, 78-96-6, 26896-20-8) Oil - Non silicone machining oil Oil - Park Chemical Corporation Haze Quench Oil Oil - Quenching oil (64742-54-7, 64742-56-9, 8052-42-4) Oil - Rust inhibiting oil Oil - Speedfam #210 Oil-Based Vehicle Oil - Tap Magic Cutting fluid (112-62-9) Oil - Texaco Lubricant Company, Cleartex D (64742-65-0, 68527-02-6) Oil (64741-89-5) Oil (64741-89-5, 64742-53-6, 64741-44-2) Oil (64741-89-5, 8052-42-4) Oil (8052-42-4, 64741-89-5, 64742-52-5) Grease Grease - Castrol Inc. Braycote 601 Perfluoropolyether High Temperature lubricating grease. Grease - Cello-Seal grease

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Grease - Elf Lubricants, Keystone KSL-111 Synthetic Tacky Grease (64742-478, 8052-42-4)
Grease - Formax Manufacturing Corp F-26 grease stick polishing lubricant (68815-16-7, 67701-27-3, 64742-52-5, 102-71-6)
Grease - Multi Purpose Super White grease CRC Industries (64741-96-4, 7620-77-1, 1314-13-2, 57885-77-3, 13463-67-7)
Grease - Selmar Tuning Slide and Cork Grease No 2942 petroleum distillates
Grease - Snowden Pencer F-26 Grease Stick Polishing Lubricant (64742-52-5, 68815-16-7, 67701-27-3, 102-71-6)
Grease - Teflon grease
Grease (64742-47-8)
Grease (64742-47-8, 64742-52-5)

The products that have been used to remove these contaminants are listed in the following table. The table contains the manufacturer of the product, the product name, the product classification, the a number which represents the number of times the product has been used and the contaminants they have cleaned.

Company Name	Product Name	Total	Contaminant Description
Abatement Technology	Bio Might 100	4	Oil
Accurate Manufactured Products	Safety Layout Blue Remover	1	Inks
AG Environmental Products	Soy Gold 1000	1	Inks
Alconox Inc	Alcojet	2	Greases
Alconox Inc	Detergent 8	1	Greases
Alconox Inc	Citranox	5	Oil
Alconox Inc	Detergent 8	1	Oil
Alconox Inc	Det-O-Jet	2	Oil
Alconox Inc	Liquinox	1	Oil
Armex	Sodium Bicarbonate	1	Greases
Armex	Sodium Bicarbonate	1	Oil
Armex	Sodium Bicarbonate	3	Inks
AW Chesterton	278 Super Solv	1	Greases
AW Chesterton	KPC 820 N	3	Oil
AW Chesterton	181 Low Alkaline Cleaner	1	Inks
Baum's Castorine Company Inc	EZE Oil-Grease Cleaner	1	Oil
Bio Chem Systems	Bio T 200 A	2	Greases
Bio Chem Systems	Bio T Parts Washer NR	4	Greases
Bio Chem Systems	Green Stuff (6325)	4	Greases
Bio Chem Systems	Solsafe 245	1	Greases
Bio Chem Systems	Bio T 200 A	2	Oil
Bio Chem Systems	Bio T 300 B	2	Oil
Bio Chem Systems	Bio T Parts Washer NR	2	Oil
Bio Chem Systems	Bio T V 50	9	Oil
Bio Chem Systems	Green Stuff (6325)	4	Oil
	Bio T Max	4	Inks

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Bio Chem Systems			
Branson	GP	2	Oil
Brulin Corporation	EXP 1400	2	Greases
Brulin Corporation	EXP 1400	1	Oil
Brulin Corporation	Formula 815 GD	14	Oil
Buckeye International	Shopmaster	1	Greases
Buckeye International	Shopmaster	1	Oil
CAE Cleaning Technologies	Evercycle UCI	1	Oil
Calgon Corporation	Geo Guard 4017	1	Greases
Calgon Corporation	RT 806	2	Greases
Calgon Corporation	AK 6215	6	Oil
Calgon Corporation	Geo Guard 2215	3	Oil
Calgon Corporation	RT 806	2	Oil
Calgon Corporation	Geo Guard 4017	1	Inks
Chem Free Corporation	Ozzy Juice SW 3	6	Greases
Chem Free Corporation	Ozzy Juice SW 1	2	Oil
Chem Free Corporation	Ozzy Juice SW 3	6	Oil
Chem Tech Solutions	Westech CT 1550	1	Greases
Chemical Technologies	Green Thunder	4	Greases
Chemical Technologies	Green Thunder	12	Oil
Chemstation	Green Stuff Neutral	4	Oil
Chemtronics	Super Bio Wash	1	Greases
Church & Dwight	Armakleen M Auto	2	Oil
EnviroSan Products	Solution 2000	4	Greases
EnviroSan Products	Solution 2000	4	Oil
CRC Industries	Complex Blue	1	Greases
Diversey	Dusqueeze	1	Greases
Diversey	Gangbusters	1	Greases
Diversey	Twist	2	Oil
Dow Chemical Company	XUS 40579 Development Solvent	1	Greases
Drummond American	Clout	4	Greases
Drummond American	Keynote	4	Greases
Drummond American	Clout	8	Oil
Drummond American	Keynote	10	Oil

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Drummond American	Keynote	2	Inks
Ecolink	Bulldog	1	Greases
Ecolink	Heavy Weight Non Butyl Detergent	5	Greases
Ecolink	Universal Steam Cleaner	8	Greases
Ecolink	Vortex	1	Greases
Ecolink	Heavy Weight Non Butyl Detergent	4	Oil
Ecolink	Safe Strip	2	Oil
Ecolink	Vortex	3	Oil
Ecolink	Safe Strip	1	Inks
Emkay Chemical Company	Safety Wash CRC	2	Greases
Emkay Chemical Company	Safety Wash Clear	9	Oil
Emkay Chemical Company	Safety Wash CRC	2	Oil
Ensolve Biosystems Inc	Grease Feast Plus	5	Greases
Ensolve Biosystems Inc	Grease Feast Plus	8	Oil
Environmental Services	TASC	2	Oil
Environmental Technology	RB Degreaser Cleaner	2	Oil
Equinox	Natural Solutions	1	Oil
Exxon Chemical	Aromatic 100 Solvent	1	Inks
Fine Organic Corporation	FO 2085 M	1	Greases
Fine Organic Corporation	FO 2085 M	2	Oil
Finger Lakes Chemicals	1/1/02	1	Greases
Finger Lakes Chemicals	Resineater	1	Greases
Finger Lakes Chemicals	1/1/02	1	Oil
Finger Lakes Chemicals	Resineater	1	Oil
Finger Lakes Chemicals	1/1/02	1	Inks
Finger Lakes Chemicals	Resineater	1	Inks
Finish Line Technologies Inc	Bio Degradable Degreaser	2	Oil
Florida Chemical Company	D-Limonene	1	Inks
Gemtek Products	EZ Solv	1	Greases

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Gemtek Products	ODOR-EX	1	Greases
Gemtek Products	SC 1000	1	Greases
Gemtek Products	SC Aircraft & Metal Cleaner	2	Greases
Gemtek Products	SC 1000	2	Oil
Gemtek Products	SC Aircraft & Metal Cleaner	2	Oil
Gemtek Products	SC Supersolve	5	Oil
Gemtek Products	SC 1000	1	Inks
General Chemical Corporation	Aluminex 5834	2	Greases
General Chemical Corporation	Aquaclean 4784	2	Oil
Heatbath Corporation	Alu-Kleen 36	4	Greases
Heatbath Corporation	Multi-Kleen 1568	1	Greases
Heatbath Corporation	Power Wash Cleaner BCR	2	Greases
Heatbath Corporation	Uni Kleen 10	1	Greases
Heatbath Corporation	Alu-Kleen 36	6	Oil
Heatbath Corporation	Multi-Kleen 1568	2	Oil
Heatbath Corporation	MultiKleen LX 1573	1	Oil
Heatbath Corporation	Power Wash Cleaner BCR	10	Oil
Heatbath Corporation	Uni Kleen 10	2	Oil
Hubbard Hall Inc	Aquasonic 201	6	Oil
Hubbard Hall Inc	Ram Charger	2	Oil
Hurri Kleen	Parts Washer Degreaser	4	Oil
Inland Technologies Inc	Citrasafe	2	Greases
Inland Technologies Inc	EP 921	1	Inks
Inland Technologies Inc	Teksol	1	Inks
Innovative Organics Inc	Amber Clean SC 11	1	Greases
Innovative Organics Inc	Amberclean L 12	6	Greases
Innovative Organics Inc	Amber Clean SC 11	1	Oil
Innovative Organics Inc	Amberclean L 12	16	Oil
International Bio System	Bio Z	1	Greases
	Bio Z	1	Oil

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International Bio System			
International Products Corporation	LF 2100	3	Greases
International Products Corporation	Micro 90	2	Greases
International Products Corporation	Surface Cleanse 930	2	Greases
International Products Corporation	Micro 90	2	Oil
ITW Fluid Products Group	AccuClean	6	Greases
ITW Fluid Products Group	AccuClean	14	Oil
JDI Inc	Mirachem 500 RTU	4	Greases
JDI Inc	Mirachem 500 RTU	4	Oil
Kleer Flo Company	Grease Off 2	2	Greases
Kyzen Corporation	Ionox FCR	2	Greases
Kyzen Corporation	Ionox HC 2	1	Greases
Kyzen Corporation	Ionox FCR	2	Oil
Kyzen Corporation	Ionox HC 2	1	Oil
Loctite Corporation	7360	2	Inks
MacDermid	ND LF Supreme	1	Greases
MacDermid	ND 17	2	Oil
MacDermid	ND LF Supreme	2	Oil
Magnaflux	Daraclean 121	1	Greases
Magnaflux	Daraclean 212	2	Greases
Magnaflux	Daraclean 282 GF	4	Greases
Magnaflux	Daraclean 212	5	Oil
Magnaflux	Daraclean 235	2	Oil
Magnaflux	Daraclean 282	8	Oil
Magnaflux	Daraclean 282 GF	10	Oil
Magnaflux	Daraclean 283	2	Oil
Magnum Research	Aluminum Aerowash	1	Greases
Magnum Research	Aluminum Aerowash	3	Oil
Man Gill Chemical	Gillite 1156	2	Greases
Man Gill Chemical	Gillite 160 X	1	Greases
		4	Oil

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Man Gill Chemical	Gillite 0650 Cl		
Master Chemical Corporation	Trim Rinse 200	1	Oil
Master Chemical Corporation	Trim Rinse 100	4	Inks
Matchless Metal Polish Company	MC 132	2	Oil
Matchless Metal Polish Company	MC 580	5	Oil
Metabolix Inc	Metabolix E3HB	1	Inks
Mirachem Corporation	Mirachem 500	2	Greases
Mirachem Corporation	Mirachem 500	10	Oil
Nensco	DT 600 Press Wash	1	Inks
Nensco Supply	USA Wash	2	Inks
New Pig Corporation	New Pig Degreaser	2	Greases
New Pig Corporation	New Pig Degreaser	8	Oil
North Atlantic Bio Industries	NAB 9000	5	Oil
Novamax Technologies Inc	Spectrum APC	1	Greases
Oakite Products	Fisan Versaclean	1	Greases
Oakite Products	Inproclean 3800	4	Greases
Oakite Products	Inproclean 4000 T	1	Greases
Oakite Products	Oakite Low Heat Cleaner 1	2	Greases
Oakite Products	Citradet	4	Oil
Oakite Products	Inproclean 2000	3	Oil
Oakite Products	Inproclean 2500	2	Oil
Oakite Products	Inproclean 3800	7	Oil
Oakite Products	Inproclean 4000 T	2	Oil
Oakite Products	Oakite 77	10	Oil
Oakite Products	Okemclean	1	Oil
Oakite Products	Inproclean 4000 T	1	Inks
PCI of America	Hurrisafe 9575	1	Greases
Permatex Industrial Corporation	Natural Blue	1	Greases
Permatex Industrial Corporation	Natural Blue	2	Oil

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Phase III Ink	California Parts Washer Solution	1	Greases
Phase III Ink	California Parts Washer Solution	1	Inks
Prisco Printers Service	PES 320	1	Inks
Safe CleanUp	Super Neutral	3	Oil
Safe Science	Safe Science All Purpose (Industrial)	2	Greases
Safe Science	Safe Science Engine Degreaser (Industrial)	8	Greases
Safe Science	Safe Science Concrete/ Graffiti (Industrial)	4	Oil
Safe Science	Safe Science Engine Degreaser (Industrial)	1	Oil
Savogran	Dirtex Prepaint Cleaner	1	Greases
Savogran	Dirtex Prepaint Cleaner	1	Oil
Simple Green	Crystal Simple Green Industrial Cleaner	1	Greases
Simple Green	Simple Green D	1	Greases
Simple Green	Crystal Simple Green Industrial Cleaner	1	Inks
Smart Sonic	440 R SMT Detergent	4	Greases
Solvent Kleene Inc	D Greeze 500 LO	1	Greases
Solvent Kleene Inc	D Greeze 1000	4	Oil
Solvent Kleene Inc	D Greeze 500 LO	2	Oil
Solvent Kleene Inc	D-Greeze GL 55	4	Oil
Solvent Kleene Inc	D Greeze 500 LO	1	Inks
SWR Corporation	SWR One	1	Oil
SWR Corporation	SWR One	2	Inks
Tarksol Inc	Tarksol HTF 60	2	Inks
Texo Corporation	Texolite 1734 XL	1	Greases
Texo Corporation	Texolite 1734 XL	3	Oil
Today & Beyond	Beyond 2001	6	Greases

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Today & Beyond	Beyond 2002	1	Greases
Today & Beyond	Beyond 2004	4	Greases
Today & Beyond	Beyond 2005	2	Greases
Today & Beyond	Beyond 2006	1	Greases
Today & Beyond	Beyond 2001	4	Oil
Today & Beyond	Beyond 2002	4	Oil
Today & Beyond	Beyond 2003	4	Oil
Today & Beyond	Beyond 2004	2	Oil
Today & Beyond	Beyond 2005	6	Oil
Today & Beyond	Beyond 2009	3	Oil
Tower Products Inc	Tower 270 Cleaner Concentrate	1	Oil
Turco Products Inc	Turco 5948 DPM	2	Greases
Turco Products Inc	Turco 5948 DPM	4	Oil
Twin Rivers Corp	Methyl Ester 1618	1	Greases
Twin Rivers Corp	Methyl Ester 1618	3	Oil
United Laboratories	United 450 All Clear	6	Greases
United Laboratories	United 450 All Clear	8	Oil
US Polychem Corporation	87 RB	2	Greases
US Polychem Corporation	Polychem A 2000 XS	2	Greases
US Polychem Corporation	Polychem PW 147	1	Greases
US Polychem Corporation	Polychem A 2000 XS	2	Oil
US Polychem Corporation	Polyspray Jet 790 C	1	Oil
US Polychem Corporation	Polyspray Jet 790 P	4	Oil
Valtech Corporation	Valtron SP 2200	2	Greases
Valtech Corporation	Valtron SP 2250 2LF	6	Greases
Valtech Corporation	Valtron SP 2200	1	Oil
Valtech Corporation	Valtron SP 2250 2LF	5	Oil
Vertec BioSolvents	Ink Zapper	3	Inks
Vertec BioSolvents	VertecBio Gold 2	1	Inks
Warren Chemical Company	Sea Wash 700 New	2	Greases
Warren Chemical Company	Sea Wash 700 Old	2	Greases
		1	Greases

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Warren Chemical Company	Sea Wash Neutral		
Warren Chemical Company	Sea Wash 700 New	16	Oil
Warren Chemical Company	Sea Wash 700 Old	5	Oil
Warren Chemical Company	Sea Wash 8 New	6	Oil
Warren Chemical Company	Sea Wash Neutral	5	Oil
Warren Chemical Company	Sea Wash Neutral	2	Inks
Warren Chemical Compnay	Sea Wash 8 No Force	5	Greases
Warren Chemical Compnay	Sea Wash 8 No Force	7	Oil
Watson Technical Associates	Watson Formula 7300	2	Greases
Watson Technical Associates	Watson Formula 9000	2	Greases
Watson Technical Associates	Watson Formula 7300	5	Oil
Watson Technical Associates	Watson Formula 9000	2	Oil
Westford Chemical Corporation	Biosolve	4	Greases
Westford Chemical Corporation	Biosolve	8	Oil

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.