CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2007

DateRun: 09/03/2007

Experimenters: Jason Marshall

ClientType: Aerospace Industry

ProjectNumber: Project #1

Substrates: Alloys, Aluminum, Stainless Steel

PartType: Coupon

Contaminants: Carbon Deposits

Cleaning Methods:

Analytical Methods:

Purpose: To generate a list of alternatives for replacing PCE in removing carbon deposits from AL, SS and Inconel aircraft parts

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

Results: Laboratory Tested for Carbon removal

Company Name	ProductName
AG Environmental Products	Soy Gold 1000
AG Environmental Products	Soy Gold 2000
AW Chesterton	278 Super Solv
Barnes	Non-Chlorinated Brake Washer
Bio Chem Systems	BioBrake
Bio Chem Systems	Solsafe 245
Bi-O-Kleen Industries	Citrus Soy Solvent Cleaner & Degreaser
Bi-O-Kleen Industries	SL 100
Brulin Corporation	Aquavantage 1400
Brulin Corporation	Formula 815 GD
CRC Industries	Brakleen
Delta Omega Technologies Ltd	DOT 111/113
Dynamold Solvents Inc	DS 104
Gemtek Products	Maxi Solv
LPS Laboratories	Micro X
Magnaflux	Daraclean 232
Magnaflux	Daraclean 282
Mirachem Corporation	Mirachem 500 A
Oakite Products	Inproclean 3800
Phase III Inc	California Parts Washer Solution
Phase III Inc	Eliminator
Solvent Kleene Inc	D Greeze 500 LO
United Laboratories International	United 2002 Harvest Gold
Warren Chemical Company	Sea Wash Blue
WD 40 Company	Heavy Duty Cleaner-Degreaser

Vendor Recommended for Carbon removal from Al and SS using Ultrasonic cleaning

Company Name	ProductName	Classification
3M	HFE 71DE	HFE

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3M	HFE 7100	HFE
3M	HFE 7200	HFE
Abatement Technology	Bio Might 100	Alkaline Aqueous
Albemarle Corporation	Abzol Cleaners	Organic
Alconox Inc	Alcojet	Powder Detergent-Alkaline
AW Chesterton	KPC 820 N	Alkaline Aqueous
Bio Chem Systems	Solsafe 245	Petroleum Distillate
Bio Chem Systems	Green Stuff (6325)	Alkaline Aqueous
Bio Chem Systems	Neutral Green (8020)	Alkaline Aqueous
Bio Chem Systems	Bio T Foam Plus	Terpene
Bi-O-Kleen Industries	Citrus Soy Solvent Cleaner & Degreaser	Ester
Brulin Corporation	Formula 815 GD	Alkaline Aqueous
Brulin Corporation	Brulin 1990 GD	Alkaline Aqueous
Brulin Corporation	815 QR	Alkaline Aqueous
Brulin Corporation	Brulin 1696 PNC	Neutral Aqueous
Brulin Corporation	Aquavantage 1400	Alkaline Aqueous
Buckeye International	Shopmaster	Alkaline Aqueous
Buckeye International	Shopmaster LPH	Alkaline Aqueous
Buckeye International	XL 100	Alkaline Aqueous
By-Pas and Star Products	Star Cleaning Miracle # 50	Alkaline Aqueous
By-Pas and Star Products	By*Pas #1500	Alkaline Aqueous
CAE Cleaning Technologies	Evercycle 2000	Neutral Aqueous
Calgon Corporation	SCN 9194	Neutral Aqueous
Calgon Corporation	SMS 206 K	Alkaline Aqueous
Chrisal USA Inc	Super CMF 240	Alkaline Aqueous
Church & Dwight Co Inc	Armakleen M Auto	Alkaline Aqueous
Church & Dwight Co Inc	Armaklean M Aero	Alkaline Aqueous
Cleaning Systems	Release	Alkaline Aqueous
CRC Industries	Hydroforce All Purpose Cleaner/ Degreaser	Alkaline Aqueous
Dow Chemical Company	OS 10	Volatile Methyl Siloxanes
Dow Chemical Company	OS 20	

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		Volatile Methyl Siloxanes
Dow Chemical Company	OS 30	Volatile Methyl Siloxanes
DuPont	Vertrel CCA	HFE
DuPont	Vertrel MCA	HFE
Dynamold Solvents Inc	DS 108	Petroleum Distillate
Dynamold Solvents Inc	DS 104	Petroleum Distillate
Ecolink	Positron	Biobased
Ecolink	Bulldog	Alkaline Aqueous
Enviro Tech International Inc	Ensolv	nPB
Enviro Tech International Inc	Ensolv A	nPB
EnviroSafe Services Inc	Neutral Rust Remover 232	Neutral Aqueous
EnviroSafe Services Inc	Aluminum De-Oxidizer 662	Neutral Aqueous
EnviroSafe Services Inc	Yellow Metal De-Tarnish 170	Neutral Aqueous
Fine Organic Corporation	FO 2085 M	Alkaline Aqueous
Gemtek Products	SC 1000	Alkaline Aqueous
Gemtek Products	SC Supersolve	Biobased
Gemtek Products	SC Aircraft & Metal Cleaner	Alkaline Aqueous
Gemtek Products	EZ Solv	Biobased
Hotsy Cleaning Systems	Hotsy Detergents Tub & Pressure Wash	Alkaline Aqueous
Hubbard Hall Inc	Ram Charger	Alkaline Aqueous
Hurri Kleen Corportion	Special Degreaser	Alkaline Aqueous
Hurri Kleen Corportion	Hot Immersion Degreaser	Alkaline Aqueous
International Products Corporation	LF 2100	Alkaline Aqueous
JDI Inc	Mirachem 500 RTU	Alkaline Aqueous
Kyzen Corporation	Metalnox 6304	Alkaline Aqueous
Kyzen Corporation	Metalnox M6960	nPB
LPS Laboratories	LPS Precision Clean	Alkaline Aqueous
Magnaflux	Daraclean 257	Alkaline Aqueous
Man Gill Chemical Company	Gillite 0650 Cl	Alkaline Aqueous
Micro Care	Flux Remover C	HFE
Micro Care	Heavy Duty Degreaser C	HFE

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Mirachem Corporation	Mirachem 500	Alkaline Aqueous
Oakite Products	Inproclean 2000	Alkaline Aqueous
Oakite Products	Okemclean	Caustic
Phase III Inc	California Parts Washer Solution	Neutral Aqueous
Phase III Inc	Nature Solve AC	Alkaline Aqueous
Poly Systems USA Inc	Solvon PB	nPB
Poly Systems USA Inc	Solvon IP	nPB
Solvent Systems	Grease Gator	Alkaline Aqueous
SOQ Environmental Technology	Ecomate FN	Alkaline Aqueous
System One Technologies	QSOL 100	Petroleum Distillate
System One Technologies	QSOL 110	Petroleum Distillate
System One Technologies	QSOL 200	Organic
System One Technologies	QSOL 220	Organic
Tarksol Inc	Tarksol NPB	Biobased
Tarksol Inc	Tarksol HTF 40	Terpene-Semi-Aqueous
Tarksol Inc	Tarksol Powergreen	Terpene-Semi-Aqueous
Tarksol Inc	Tarksol Oilsolv	Terpene-Semi-Aqueous
Tech Spray Inc	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
US Polychem Corporation	Polychem Hydropurge 36 XS	Alkaline Aqueous
US Polychem Corporation	Polychem Hydropurge 790 XS	Alkaline Aqueous
US Polychem Corporation	Polyspray Jet 790 XS	Alkaline Aqueous
US Polychem Corporation	Polyspray Jet ST-21	Alkaline Aqueous
US Polychem Corporation	Polychem Hydropurge 21	Alkaline Aqueous
US Polychem Corporation	Hydropurge 36	Alkaline Aqueous

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US Polychem Corporation	Polychem PW 147	Alkaline Aqueous
US Polychem Corporation	Polychem 2000 P	Alkaline Aqueous
US Polychem Corporation	Polychem A 2000 XS	Alkaline Aqueous
US Polychem Corporation	Polyspray Jet 790 P	Alkaline Aqueous
US Polychem Corporation	Polychem DEOX 007	Alkaline Aqueous
US Polychem Corporation	Polychem DE 144	Petroleum Distillate
US Polychem Corporation	Polychem Acra Strip 600	Semi-Aqueous
US Polychem Corporation	Polychem RCC 25	Terpene-Petroleum Distillate
Valtech Corporation	Valtron SP 2610	Neutral Aqueous
Vertec BioSolvents	VertecBio Gold 2	Biobased
Warren Chemical Company	Sea Wash 700 New	Neutral Aqueous
Warren Chemical Company	Sea Wash 700 Old	Neutral Aqueous
Westford Chemical Corporation	Biosolve	Neutral Aqueous

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.