

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2003

DateRun: 09/09/2003

Experimenters: Jason Marshall

ClientType: Manufacturing

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Coupon

Contaminants: Coatings, Cutting/Tapping Fluids, Greases, Inks, Lubricating/Lapping Oils, Waxes, Dirt, Oil

Cleaning Methods: Ultrasonics

Analytical Methods:

Purpose: To generate a list of products that could be used to replace alcohol in various cleaning operations.

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 lab generated two lists of products that have been used to remove various contaminants using ultrasonic cleaning. The first table is a list of the metal working fluids and the second table is the products used to remove inks, coatings and waxes.

| Contaminant | Company Name | Product Name | Total |
|------------------------|-----------------------------|-----------------------------------------|-------|
| Cutting/Tapping Fluids | AW Chesterton | 181 Low Alkaline Cleaner | 1 |
| Cutting/Tapping Fluids | DA Stuart Company | Dasco Kleen 3250 | 2 |
| Cutting/Tapping Fluids | Ecolink | Bulldog | 1 |
| Cutting/Tapping Fluids | Heatbath Corporation | Multi-Kleen 1568 | 1 |
| Cutting/Tapping Fluids | Houghton International | Certa Kleen 5387 | 1 |
| Cutting/Tapping Fluids | Innovative Organics Inc | Amberclean Q3 | 1 |
| Cutting/Tapping Fluids | Metabolix Inc | Metabolix E3HB | 4 |
| Cutting/Tapping Fluids | Oakite Products | Inproclean 3800 | 2 |
| Cutting/Tapping Fluids | Phase III Ink | California Parts Washer Solution | 1 |
| Cutting/Tapping Fluids | Simple Green | Crystal Simple Green Industrial Cleaner | 1 |
| Cutting/Tapping Fluids | Today & Beyond | Beyond 2001 | 2 |
| Cutting/Tapping Fluids | Watson Technical Associates | Watson Formula 7300 | 2 |
| Greases | Bio Chem Systems | Green Stuff (6325) | 1 |
| Greases | Burlin Corporation | EXP 1400 | 2 |

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| | | | |
|---------|------------------------------------|-----------------------------------------|----|
| Greases | Brulin Corporation | Formula 815 GD | 3 |
| Greases | Gemtek Products | SC Aircraft & Metal Cleaner | 1 |
| Greases | International Products Corporation | Micro 90 | 1 |
| Greases | International Products Corporation | Surface Cleanse 930 | 1 |
| Greases | Magnaflux | Daraclean 282 GF | 2 |
| Greases | Matchless Metal Polish Company | MC 132 | 2 |
| Greases | Metabolix Inc | Metabolix E3HB | 2 |
| Greases | Oakite Products | Inproclean 3800 | 3 |
| Greases | Simple Green | Crystal Simple Green Industrial Cleaner | 2 |
| Greases | Texo Corporation | Texolite 1734 XL | 1 |
| Greases | Today & Beyond | Beyond 2001 | 2 |
| Greases | Today & Beyond | Beyond 2005 | 1 |
| Greases | Tomah Products | Tomadyne Mix | 1 |
| Greases | United Laboratories | United 450 All Clear | 2 |
| Greases | US Polychem Corporation | Polychem A 2000 XS | 1 |
| Greases | Valtech Corporation | Valtron SP 2250 2LF | 5 |
| Greases | Watson Technical Associates | Watson Formula 7300 | 2 |
| Oil | Alconox Inc | Citranox | 4 |
| Oil | Alconox Inc | Det-O-Jet | 1 |
| Oil | Alconox Inc | Liquinox | 1 |
| Oil | AW Chesterton | KPC 820 N | 1 |
| Oil | Bio Chem Systems | Green Stuff (6325) | 10 |
| Oil | Brulin Corporation | Formula 815 GD | 9 |
| Oil | CAE Cleaning Technologies | Evercycle UCI | 1 |
| Oil | Calgon Corporation | AK 6215 | 5 |
| Oil | Carroll Company | Blue Gold Industrial Cleaner | 2 |
| Oil | Church & Dwight | Armakleen M Auto | 2 |
| Oil | Fine Organic Corporation | FO 2085 M | 1 |
| Oil | Gemtek Products | SC Supersolve | 1 |
| Oil | Heatbath Corporation | Uni Kleen 10 | 1 |

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|-----|--------------------------------|-------------------------|----|
| Oil | Kyzen Corporation | Ionox HC 2 | 1 |
| Oil | MacDermid | ND 17 | 2 |
| Oil | MacDermid | ND LF Supreme | 1 |
| Oil | Magnaflux | Daraclean 212 | 1 |
| Oil | Magnaflux | Daraclean 232 | 2 |
| Oil | Magnaflux | Daraclean 235 | 2 |
| Oil | Magnaflux | Daraclean 282 | 12 |
| Oil | Magnaflux | Daraclean 282 GF | 12 |
| Oil | Magnaflux | Daraclean 283 | 10 |
| Oil | Magnaflux | Zyglo Emulsifier ZR 10B | 4 |
| Oil | Man Gill Chemical | Gillite 0650 Cl | 1 |
| Oil | Matchless Metal Polish Company | MC 580 | 2 |
| Oil | Metabolix Inc | Metabolix E3HB | 4 |
| Oil | Oakite Products | Inproclean 3800 | 14 |
| Oil | Oakite Products | Inproclean 4000 T | 1 |
| Oil | Sky Products Company Inc. | Cleaner #10 | 2 |
| Oil | Today & Beyond | Beyond 2001 | 10 |
| Oil | US Polychem Corporation | Polychem A 2000 XS | 3 |
| Oil | Valtech Corporation | Valtron SP 2200 | 3 |
| Oil | Valtech Corporation | Valtron SP 2275 | 4 |
| Oil | Warren Chemical Company | Sea Wash 700 New | 1 |
| Oil | Warren Chemical Company | Sea Wash Neutral | 2 |

Other Contaminants

| Contaminant | Company Name | Product Name | Total |
|-------------|--------------------------|------------------|-------|
| Coatings | Bio Chem Systems | Solsafe 245 | 2 |
| Coatings | Chrisal USA Inc | Super CMF 240 | 1 |
| Coatings | DA Stuart Company | Dasco Kleen 3250 | 11 |
| Coatings | Dynamold Solvents Inc | DS 108 | 1 |
| Coatings | Ecolink | Safe Strip | 2 |
| Coatings | Florida Chemical Company | Citrus Burst 7 | 1 |
| Coatings | Heatbath Corporation | Multi-Kleen 1568 | 7 |

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|----------|-------------------------|-----------------------------------------|----|
| Coatings | Houghton International | Certa Kleen 5387 | 10 |
| Coatings | Innovative Organics Inc | Amberclean 527 L | 1 |
| Coatings | Kyzen Corporation | Ionox FCR | 1 |
| Coatings | Kyzen Corporation | Ionox HC 2 | 2 |
| Coatings | Oakite Products | Inproclean 3800 | 11 |
| Coatings | Today & Beyond | Beyond 2001 | 14 |
| Coatings | Univar USA Inc | Pot Ash Liquid | 1 |
| Coatings | Vertec BioSolvents | VertecBio Gold 2 | 1 |
| Inks | AW Chesterton | 181 Low Alkaline Cleaner | 1 |
| Inks | Gemtek Products | SC 1000 | 1 |
| Inks | Loctite Corporation | 7360 | 1 |
| Inks | Metabolix Inc | Metabolix E3HB | 4 |
| Inks | Simple Green | Crystal Simple Green Industrial Cleaner | 1 |
| Inks | Solvent Kleene Inc | D Greeze 500 LO | 1 |
| Waxes | Alconox Inc | Alcojet | 1 |
| Waxes | Bio Chem Systems | Bio T 200 A | 1 |
| Waxes | Metabolix Inc | Metabolix E3HB | 2 |
| Waxes | National Diagnostic | Histo Clear | 1 |
| Waxes | National Diagnostic | Opti Clear | 1 |
| Waxes | Oakite Products | Inproclean 3800 | 1 |
| Waxes | Texo Corporation | Texolite 1734 XL | 2 |

Summary:

| | | | | | |
|----------------------|---------------------------------------------------------------------------------------------|---------------|--------------------|--------------------------|----------------------|
| Substrates: | Aluminum | | | | |
| Contaminants: | Coatings, Cutting/Tapping Fluids, Greases, Inks, Lubricating/Lapping Oils, Waxes, Dirt, Oil | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| No Specific Vendor | Supplied alternatives list | | | <input type="checkbox"/> | |

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.