

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2005
 DateRun: 03/22/2005
 Experimenters: Jason Marshall
 ClientType: Medical Instrument Mfr
 ProjectNumber: Project #1
 Substrates: Alloys, Aluminum, Stainless Steel, Titanium, Chrome
 PartType: Coupon
 Contaminants: Inks
 Cleaning Methods:
 Analytical Methods:

Purpose: To generate a list of alternatives for replacing MEK in ink removal

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. In addition, reports from previous medical device companies were sent to client.

Results: The following four products were tested for Sharpie Ink removal.

| CompanyName | ProductName | Classification |
|------------------------|-----------------------------|------------------|
| Church & Dwight Co Inc | Armaklean M Aero | Alkaline Aqueous |
| Gemtek Products | SC Aircraft & Metal Cleaner | Alkaline Aqueous |
| International Products | Micro 90 | Alkaline Aqueous |
| Today & Beyond | Beyond 2004 | Alkaline Aqueous |

These products have been tested for other types of ink.

| Company | Product | Classification |
|---|-------------------|----------------------|
| AG Environmental Products Soy Gold 1000 | Organic | |
| Bio Chem Systems | Bio T Max | Terpene-Semi-Aqueous |
| Church & Dwight Co Inc | Armaklean M Aero | Alkaline Aqueous |
| Finger Lakes Chemical | 1/1/02 | Terpene |
| Florida Chemical Company | D-Limonene | Terpene |
| Gemtek Products | SC Aircraft&Metal | Alkaline Aqueous |
| Inland Technologies Inc | EP 921 | Organic |
| International Products | Micro 90 | Alkaline Aqueous |
| Loctite Corporation | 7360 | Ester |
| National Diagnostic | Opti Clear | Terpene |
| Nensco Supply | USA Wash | Petroleum Distillate |
| Prisco Printers Service | PES 320 | Ester |
| Tarksol Inc | Tarksol HTF 60 | Terpene |

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| Tarksol Inc | Tarksol HTF-50 | Semi- Aqueous |
| Twin Rivers Technologies | Methyl Ester 1618 | Ester |
| Vertec BioSolvents | Ink Zapper | Organic |

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.