

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002
 DateRun: 04/12/2002
 Experimenters: Jason Marshall
 ClientType: Cleaning Equipment Mfr
 ProjectNumber: Project #2
 Substrates: Stainless Steel
 PartType: Coupon
 Contaminants: Cutting/Tapping Fluids, Greases, Lubricating/Lapping Oils, Oil
 Cleaning Methods: Ultrasonics
 Analytical Methods:
 Purpose: Follow up evaluation of spray rinse.

Experimental Procedure: Fifteen preweighed coupons were coated with four contaminants from the previous trials. Three coupons were coated with the different contaminants. Bencyn B-5186 (64742-52-5, 9003-29-6, 39464-69-2, 63197-48-8), The Valvoline Co, Tectyl 505 (8052-41-3), C.A. Wood C-Eblis Cutting Fluid (64742-53-6, 64742-52-5) and ITW Devcon Safetap Stick grease. Coupons were reweighed. The fifteen coupons were hung on a metal stand and immersed into a Crest 40 kHz ultrasonic tank and cleaned for 1 minutes using ultrasonics at 92 F, removed and rinsed in a tap water bath and re-immersed into the ultrasonics for an additional 1 minute followed by a second 5 second rinse. The coupons were then dried using an air knife for 15 seconds.

Results: None of the contaminants were removed to any great extent under these cleaning/rinsing methods. Three of the four were removed between 70 and 80% of the contaminant. The Bencyn contaminant was only removed at 17%.

| Cleaner | Coupon 1 | Coupon 2 | Coupon 3 | Average | Std Dev |
|---------|----------|----------|----------|---------|---------|
| Bencyn | 29.62 | 16.95 | 3.99 | 16.85 | 12.82 |
| Tectyl | 74.97 | 65.82 | 71.53 | 70.77 | 4.62 |
| C-Eblis | 76.66 | 73.7 | 82.65 | 77.67 | 4.56 |
| Safetap | 89.47 | 69.41 | 79.29 | 79.39 | 10.03 |

Summary:

| Substrates: | | Stainless Steel | | | |
|----------------------|---------------|--|-------------|--------------------------|---------------|
| Contaminants: | | Cutting/Tapping Fluids, Greases, Lubricating/Lapping Oils, Oil | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Water | Water | 100 | 16.85 | <input type="checkbox"/> | Bencyn |
| Water | Water | 100 | 70.77 | <input type="checkbox"/> | Tectyl |
| Water | Water | 100 | 77.67 | <input type="checkbox"/> | C-Eblis |
| Water | Water | 100 | 79.39 | <input type="checkbox"/> | Safetap |

Conclusion: Using ultrasonic cleaning in conjunction without a spray rinse was shown not to be an effective cleaning process for the four contaminants.