

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2001
 DateRun: 06/11/2001
 Experimenters: Jason Marshall
 ClientType: Metal
 ProjectNumber: Project #1
 Substrates: Steel
 PartType: Coupon
 Contaminants: Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil
 Cleaning Methods: Ultrasonics
 Analytical Methods: Gravimetric
 Purpose: To evaluate successful cleaners on fourth contaminant

Experimental Procedure: The four successful cleaners from the previous trial were again diluted to 5% using DI water in 600 ml beakers and placed in a Crest 40 kHz ultrasonic tank model 4Ht 1014-6. Solutions were heated to 130 F. Twelve preweighed coupons were coated with Hubbard Hall Inc, Metal Guard 270 and reweighed. Three coupons were immersed into each solution and cleaned for five minutes. The coupons were rinsed in tap water at 120 F for 30 seconds and dried using a Master Appliance Corp, Hot-air gun model HG-301A at 500 F for 1 minute. Final clean" weights were recorded and efficiencies were calculated.

Results: All four solutions removed over 99% of the Metal Guard 270 from the coupons in less than one minute of ultrasonic cleaning. This contaminant made the cleaners cloudy, suggesting difficulty in treating the solutions. The following table lists the efficiencies for each coupon cleaned.

| Cleaner | Coupon 1 | Coupon 2 | Coupon 3 | Average | Std Dev |
|-------------|----------|----------|----------|---------|---------|
| Oakite | 100.00 | 99.81 | 99.92 | 99.910 | 0.10 |
| Daraclean | 100.25 | 99.89 | 100.16 | 100.10 | 0.19 |
| Green Stuff | 100.00 | 99.75 | 100.00 | 99.92 | 0.14 |
| Beyond | 99.53 | 99.39 | 99.33 | 99.42 | 0.10 |

Summary:

| Substrates: | | Steel | | | |
|----------------------|------------------|---|-------------|-------------------------------------|---------------|
| Contaminants: | | Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Bio Chem Systems | Green Stuff 6325 | 5 | 99.92 | <input checked="" type="checkbox"/> | |
| Today & Beyond | Beyond 2001 | 5 | 99.42 | <input checked="" type="checkbox"/> | |
| Oakite Products | Inproclean 3800 | 5 | 99.91 | <input checked="" type="checkbox"/> | |
| Magnaflux | Daraclean 283 | 5 | 100.10 | <input checked="" type="checkbox"/> | |

Conclusion: The four cleaners were effective in removing the Metal Guard.