

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2004
 DateRun: 08/17/2004
 Experimenters: Jason Marshall
 ClientType: Jewelry Mfr
 ProjectNumber: Project #1
 Substrates: Brass
 PartType: Coupon
 Contaminants: Buffing/Polishing Compounds
 Cleaning Methods: Ultrasonics
 Analytical Methods: Gravimetric

Purpose: To evaluate products from previous trial using ultrasonic cleaning equipment

Experimental Procedure: Four products from the previous trial were diluted to 5% using DI water in 600 ml beakers and heated to 130F in a Crest 40 kHz ultrasonic tank. The four products were degassed for 10 minutes in the ultrasonic tank.

Twelve preweighed CDA260 brass coupons were contaminated with the Matchless Metal Polishing Company K55-278 Liquid Tripoli buffing compound (1317-85-8) using a hand held swab. Coupons were allowed to sit over night and reweighed to determine the amount of soil added. Three coupons were cleaned in each product for 5 minutes using ultrasonic energy. Coupons were rinsed in tap water for 15 seconds at 120F and dried using air blow off for 30 seconds at 68F. Once the coupons were dry, final weights were recorded and efficiencies were calculated.

Results: Two of the products removed over 85% of the buffing compound using ultrasonic energy. The other two products removed under 70% with the addition of the mechanical energy. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

| Cleaner | Initial wt | Final wt | % Removed |
|---------------------|------------|----------|-----------|
| Aquavantage 1440 Gd | 0.4298 | 0.1825 | 57.54 |
| | 0.3664 | 0.0719 | 80.38 |
| | 0.6614 | 0.3804 | 42.49 |
| Inproclean 3800 | 0.2743 | 0.0227 | 91.72 |
| | 0.2431 | 0.0177 | 92.72 |
| | 0.2240 | 0.0256 | 88.57 |
| Beyond 2003 | 0.3246 | 0.0596 | 81.64 |
| | 0.2077 | 0.0297 | 85.70 |
| | 0.1549 | 0.0004 | 99.74 |
| Polyspray Jet 790 P | 0.3228 | 0.1861 | 42.35 |
| | 0.2187 | 0.1270 | 41.93 |
| | 0.3236 | 0.1585 | 51.02 |

Summary:

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|-------------------------|-----------------------------|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Brass | | | | |
| Contaminants: | Buffing/Polishing Compounds | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Brulin Corporation | Aquavantage 1400 | 5 | 60.13 | <input type="checkbox"/> | |
| Oakite Products | Inproclean 3800 | 5 | 91.00 | <input checked="" type="checkbox"/> | |
| Today & Beyond | Beyond 2003 | 5 | 89.03 | <input checked="" type="checkbox"/> | |
| US Polychem Corporation | Polyspray Jet 790 P | 5 | 45.10 | <input type="checkbox"/> | |

Conclusion: The effective products will be used on the second supplied contaminant.