

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2006
 DateRun: 09/12/2006
 Experimenters: Jason Marshall
 ClientType: Metal Working
 ProjectNumber: Project #1
 Substrates: Brass
 PartType: Coupon
 Contaminants: Buffing/Polishing Compounds
 Cleaning Methods: Ultrasonics
 Analytical Methods: Gravimetric

Purpose: To compare current cleaning alternative with other products.

Experimental Procedure: Four alternative products were selected from the lab's database of testing results based on supplied client information. Products were selected based on buffing compound removal potential and compatibility with brass metal substrates. Each product was diluted to 5% in 250 ml beakers using DI water and heated to 150 F in a Branson 3510 ultrasonic tank. The client's current cleaning product also was diluted to 5% and heated to 150F.

Fifteen preweighed coupons were coated with the brown buffing compound using a handheld swab. Coupons were weighed a second time to determine the amount of buffing compound added. Three coupons were cleaned in each solution for one minute using 40 kHz ultrasonic energy. Coupons were rinsed for 15 seconds in a tap water bath at 120 F and dried using heated air (300F) for 60 seconds. Once dry coupons were weighed a final time and product efficiencies were calculated.

Results: All four alternatives removed more than the current cleaning product being used to remove the brown buffing compound with ultrasonic energy. Three of the four removed over 98% of the compound. The following table lists the amount of buffing compound applied, the amount remaining and the efficiency for each coupon cleaned.

| Cleaner | Initial wt | Final wt | % Removed |
|----------------------|------------|----------|-----------|
| MC 132 | 0.2734 | -0.0001 | 100.04 |
| | 0.2659 | 0.0001 | 99.96 |
| | 0.4031 | 0.0000 | 100.00 |
| Polyspray Jet 790 XS | 0.2325 | 0.0010 | 99.57 |
| | 0.1683 | 0.0003 | 99.82 |
| | 0.1760 | -0.0002 | 100.11 |
| Daraclean 283 | 0.2834 | 0.0471 | 83.38 |
| | 0.1968 | 0.0004 | 99.80 |
| | 0.1581 | 0.0014 | 99.11 |
| Gillite 0650 Cl | 0.1153 | 0.0011 | 99.05 |
| | 0.2065 | 0.0045 | 97.82 |
| | 0.1750 | 0.0024 | 98.63 |
| Clean All 36 | 0.2610 | 0.0153 | 94.14 |
| | 0.1318 | 0.0089 | 93.25 |
| | 0.2100 | 0.0143 | 93.19 |

Summary:

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|--------------------------------|-----------------------------|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Brass | | | | |
| Contaminants: | Buffing/Polishing Compounds | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Matchless Metal Polish Company | MC 132 | 5 | 100.00 | <input checked="" type="checkbox"/> | |
| US Polychem Corporation | Polyspray Jet 790 XS | 5 | 99.84 | <input checked="" type="checkbox"/> | |
| Magnaflux | Daraclean 283 | 5 | 94.10 | <input checked="" type="checkbox"/> | |
| Man Gill Chemical Company | Gillite 0650 Cl | 5 | 98.50 | <input checked="" type="checkbox"/> | |
| JacksonLea | Cleanol CS 336 | 5 | 93.53 | <input checked="" type="checkbox"/> | |

Conclusion: With several of the products successful for the removal of the buffing compound, the next step will be to evaluate these cleaners on supplied parts at or after workshop.



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