

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2020
 DateRun: 07/22/2020
 Experimenters: Alicia McCarthy, Nicole Kebler
 ClientType: Metal Working
 ProjectNumber: Project #1
 Substrates: Aluminum, Copper
 PartType: Coupon
 Contaminants: Buffing/Polishing Compounds
 Cleaning Methods: Ultrasonics
 Analytical Methods: Gravimetric, Visual

Purpose: The purpose of this experiment was to test the effectiveness of heated ultrasonics in removing the red, white, and blue buffing compounds from aluminum and copper coupons using the cleaner Micro 90.

Experimental Procedure: Nine aluminum and nine copper coupons were obtained, three for each soil: the red, white, and blue buffing compounds. The Micro 90 cleaner was prepared as a 5% concentration solution and allowed to reach a temperature of 120°F in an ultrasonic bath. Coupons were soiled with their respective buffing compounds and a soiled weight was obtained. Coupons were then submerged into the heated ultrasonic bath for five minutes. After five minutes, coupons were allowed to air dry, and a clean weight was obtained. Effectiveness of Micro 90 in cleaning each of the buffing compounds was then determined.

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|----------|-----------|------------------|----------------------|--------------------|-----------------|---------------|------------|
| Results: | Substrate | Buffing Compound | Initial wt. of cont. | Final wt. of cont. | % Cont. Removed | %AVG per soil | %AVG total |
| | Aluminum | Red | 0.0297 | 0.012 | 59.6 | 72.65 | 77.40 |
| | | | 0.021 | 0.0066 | 68.57 | | |
| | | | 0.0284 | 0.0029 | 89.79 | | |
| | | White | 0.0329 | 0.0073 | 77.81 | 77.57 | |
| | | | 0.0383 | 0.0099 | 74.15 | | |
| | | | 0.0473 | 0.0091 | 80.76 | | |
| | | Blue | 0.0728 | 0.0128 | 82.42 | 81.97 | |
| | | | 0.0443 | 0.0097 | 78.1 | | |
| | | | 0.0473 | 0.0069 | 85.41 | | |
| | Copper | Red | 0.009 | -0.0025 | 127.78 | 110.76 | 106.09 |
| | | | 0.0122 | 0.0001 | 99.18 | | |
| | | | 0.0188 | -0.001 | 105.32 | | |
| | | White | 0.0093 | -0.0001 | 101.08 | 108.69 | |
| | | | 0.009 | -0.001 | 111.11 | | |
| | | | 0.0036 | -0.0005 | 113.89 | | |
| | | Blue | 0.0282 | 0.0034 | 87.94 | 98.81 | |
| | | | 0.0237 | -0.0012 | 105.06 | | |
| 0.0262 | | | -0.0009 | 103.43 | | | |

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|----------|--|---|----------------------|---------------|--------------------|-------------------------------------|
| Summary: | | Substrates: Aluminum, Copper | | | | |
| | | Contaminants: Buffing/Polishing Compounds | | | | |
| | | Company Name: | Product Name: | Conc.: | Efficiency: | Effective: |
| | | International Products Corporation | Micro 90 Conc. | 5% | 77.40 | <input type="checkbox"/> |
| | | International Products Corporation | Micro 90 Conc. | 5% | 106.09 | <input checked="" type="checkbox"/> |
| | | Observations: | | | | |
| | | For aluminum coupons, no visible residue left behind | | | | |
| | | For copper coupons, some visible residue left behind. | | | | |

Conclusion: Micro 90 at a 5% concentration in a 120°F ultrasonic bath removed all three buffing compounds at a higher average on copper substrates. Red buffing was removed at an average of 110.76%, white at 108.69%, and white at 98.81% for a total average removal of 106.09%. Averages over 100% means the cleaner removed excess soil still present on the coupons before experimentation.