

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2016

DateRun: 10/17/2016

Experimenters: John Truong, Sabrina Apel

ClientType: Cleaning Equipment Mfr

ProjectNumber: Project #1

Substrates: Plastic, White Board

PartType: Coupon

Contaminants: Greases, Oil, Food

Cleaning Methods: Manual Wipe

Analytical Methods: Gravimetric

Purpose: To evaluate three supplied cleaning products for DCC-17 removal from plastic and painted steel surfaces.

Experimental Procedure: Three cleaners, Catholyte NaOH, Anolyte Hypochlorous, and 409 All Purpose Cleaner, were received "Ready to Use" (RTU). Pre-weighed coupons (three plastic, three painted steel) per cleaner were coated with one half gram of DCC-17, at room temperature, using a hand held swab. The contaminated coupons were air dried for 24 hours at room temperature and weighed again to determine the amount of soil added the following day. Three coupons of each substrate were placed in the SLW unit and a KC Wypal reinforced paper towel was attached to the cleaning sled and treated with two sprays of cleaning solution. Each coupon was sprayed twice with the same cleaning solution. The cleaning unit was run for 20 cycles (equivalent of 30 seconds of cleaning). Coupons were dried and final weights were recorded. Efficiencies were calculated and recorded.

Results: The three supplied products removed over 90% of the DCC-17 on each substrate using the manual wipe unit.

| Substrate | | | | |
|-------------------------|------------|----------|-----------|-----------|
| Cleaner | Initial wt | Final wt | % Removed | % Average |
| Plastic | | | | |
| Catholyte | | | | |
| | 0.4956 | 0.0397 | 91.99 | 92.31 |
| | 0.5056 | 0.0338 | 93.31 | |
| | 0.5052 | 0.0423 | 91.63 | |
| Anolyte | | | | |
| | 0.5109 | 0.0585 | 88.55 | 90.04 |
| | 0.5058 | 0.0501 | 90.09 | |
| | 0.5114 | 0.0436 | 91.47 | |
| 409 All Purpose Cleaner | | | | |
| | 0.4844 | 0.0317 | 93.46 | 93.81 |
| | 0.5063 | 0.0327 | 93.54 | |
| | 0.5128 | 0.0285 | 94.44 | |
| Painted Steel | | | | |
| Catholyte | | | | |
| | 0.4900 | 0.0320 | 93.47 | 93.06 |
| | 0.5190 | 0.0372 | 92.83 | |
| | 0.4812 | 0.0342 | 92.89 | |
| Anolyte | | | | |
| | 0.4997 | 0.0328 | 93.44 | 92.99 |
| | 0.5107 | 0.0405 | 92.07 | |
| | 0.5070 | 0.0331 | 93.47 | |
| 409 All Purpose Cleaner | | | | |
| | 0.5042 | 0.0283 | 94.39 | 94.44 |

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|--|--------|--------|-------|--|
| | 0.5003 | 0.0368 | 92.64 | |
| | 0.5187 | 0.0193 | 96.28 | |

Summary:

| | | | | | |
|----------------------|------------------------------------|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Plastic, White Board | | | | |
| Contaminants: | Greases, Oil, Food | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Fisher Scientific | Absolute Ethanol | 100 | | <input type="checkbox"/> | |
| Fisher Scientific | Absolute Ethanol | 100 | | <input type="checkbox"/> | |
| Clorox Company | Formula 409 All Purpose Cleaner | 100 | 94.13 | <input checked="" type="checkbox"/> | |
| Annihilare | Free (Catholyte) | 100 | 91.52 | <input checked="" type="checkbox"/> | |
| Annihilare | Annihilyte General Purpose Cleaner | 100 | 92.69 | <input checked="" type="checkbox"/> | |

Conclusion:

Free Catholyte NaOH, Anolyte Hypochlorous General Purpose, and 409 All Purpose Cleaner efficiently removed DCC-17 on ceramic and chrome using the Manual SLW Unit.