

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2015
 DateRun: 09/17/2015
 Experimenters: Alicia Melvin
 ClientType: Cleaning Equipment Mfr
 ProjectNumber: Project #1
 Substrates: Stainless Steel
 PartType: Coupon
 Contaminants: Greases, Food
 Cleaning Methods: Manual Wipe
 Analytical Methods: Gravimetric
 Purpose: Abrasion Testing of Series 1

Experimental Procedure: The TURI Lab recently completed an evaluation on the life span of the ozone in a Series 1. Tersano Series 1 is reported to stabilize sanitation time for up to four hours, operating time for up to 3 days, and have a filter cartridge life of 1,600 gallons. It claims to replace all all-purpose cleaners, stainless steel cleaners, glass cleaners, neutral cleaners, and deodorizers.

Initial weights of stainless-steel coupons were recorded and then coated with 0.5 grams of DCC-17 soil. The coupons air dried overnight and dirty weights were recorded the next day. A clean 5-gallon bucket was filled to the 4-gallon marker 3 times with the ozone water. In a clean 1000ml glass beaker, ozone was collected to the 800ml marker. Three dirty coupons were placed on the abrasion machine at a time per abrasion trial. Using a spray nozzle, the ozone water was sprayed once on each dirty coupon and then once on a wyal towel. The machine was run for 20 cycles (30 seconds of cleaning), and then the clean coupons were removed to air dry overnight on a tray. This process was repeated for the 30min, 60min, 120min, and 240min mark for Series 1 with the same sample of ozone water per trial. Clean weights were recorded for percentage removal the next day.

DCC-17-33% vegetable shortening; 33% lard; 33% vegetable oil; 1% carbon lampblack.

Results: Cleaning levels were maintained over a 4-hour window.
 Trial 1

| Cleaner | Coupon # | Initial wt of cont. | Final wt of cont. | %Cont Removed |
|--------------|----------|---------------------|-------------------|---------------|
| 03 (0 Min) | 16 | 0.5015 | 0.0381 | 92.40 |
| 03 (0 Min) | 15 | 0.4997 | 0.0322 | 93.56 |
| 03 (0 Min) | 27 | 0.4497 | 0.0335 | 92.55 |
| 03 (30 Min) | 6 | 0.5055 | 0.0443 | 91.24 |
| 03 (30 Min) | 31 | 0.5032 | 0.0353 | 92.98 |
| 03 (30 Min) | 4 | 0.5001 | 0.0259 | 94.82 |
| 03 (60 Min) | 25 | 0.4984 | 0.0275 | 94.48 |
| 03 (60 Min) | 24 | 0.4999 | 0.0266 | 94.68 |
| 03 (60 Min) | 14 | 0.5024 | 0.0267 | 94.69 |
| 03 (120 Min) | 7 | -0.3990 | 0.0278 | 106.97 |
| 03 (120 Min) | 2 | 0.5405 | 0.0333 | 93.84 |
| 03 (120 Min) | 4 | 1.1476 | 0.0266 | 97.68 |
| 03 (240 Min) | 14 | 1.3192 | 0.0348 | 97.36 |
| 03 (240 Min) | 26 | 1.1809 | 0.0452 | 96.17 |

CLEANING LABORATORY EVALUATION SUMMARY

| | | | | |
|--------------|---|--------|--------|-------|
| 03 (240 Min) | 6 | 0.3776 | 0.0340 | 91.00 |
|--------------|---|--------|--------|-------|

Trial 2

| Trial 2 | | | | |
|--------------|----------|---------------------|-------------------|---------------|
| Cleaner | Coupon # | Initial wt of cont. | Final wt of cont. | %Cont Removed |
| 03 (0 Min) | 20 | 0.5044 | 0.0405 | 91.97 |
| 03 (0 Min) | 24 | 0.4265 | 0.0250 | 94.14 |
| 03 (0 Min) | 3 | 0.5213 | 0.0342 | 93.44 |
| 03 (30 Min) | 18 | 0.4989 | 0.0320 | 93.59 |
| 03 (30 Min) | 4 | 0.5091 | 0.0325 | 93.62 |
| 03 (30 Min) | 15 | 0.5052 | 0.0343 | 93.21 |
| 03 (60 Min) | 26 | 0.5057 | 0.0237 | 95.31 |
| 03 (60 Min) | 24 | 0.4926 | 0.0249 | 94.95 |
| 03 (60 Min) | 6 | 0.5038 | 0.0452 | 91.03 |
| 03 (120 Min) | 28 | 0.3610 | 0.0321 | 91.11 |
| 03 (120 Min) | 15 | 0.4761 | 0.0332 | 93.03 |
| 03 (120 Min) | 3 | 0.8423 | 0.0251 | 97.02 |
| 03 (240 Min) | 5 | 0.6752 | 0.0253 | 96.25 |
| 03 (240 Min) | 8 | 0.8218 | 0.0211 | 97.43 |
| 03 (240 Min) | 13 | 0.5740 | 0.0224 | 96.10 |

Trial 3

| Cleaner | Coupon # | Initial wt of cont. | Final wt of cont. | %Cont Removed |
|--------------|----------|---------------------|-------------------|---------------|
| 03 (0 Min) | 13 | 0.5129 | 0.0441 | 91.40 |
| 03 (0 Min) | 10 | 0.5837 | 0.0374 | 93.59 |
| 03 (0 Min) | 6 | 0.5309 | 0.0416 | 92.16 |
| 03 (30 Min) | 4 | 0.4779 | 0.0369 | 92.28 |
| 03 (30 Min) | 16 | 0.3281 | 0.0420 | 87.20 |
| 03 (30 Min) | 9 | 0.5738 | 0.0321 | 94.41 |
| 03 (60 Min) | 28 | 0.4151 | 0.0428 | 89.69 |
| 03 (60 Min) | 8 | 0.4793 | 0.0433 | 90.97 |
| 03 (60 Min) | 25 | 0.5699 | 0.0438 | 92.31 |
| 03 (120 Min) | 28 | 0.5843 | 0.0515 | 91.19 |
| 03 (120 Min) | 17 | 0.5306 | 0.0434 | 91.82 |
| 03 (120 Min) | 23 | 0.5183 | 0.0392 | 92.44 |

CLEANING LABORATORY EVALUATION SUMMARY

| | | | | |
|--------------|----|--------|--------|-------|
| 03 (240 Min) | 14 | 0.5005 | 0.0507 | 89.87 |
| 03 (240 Min) | 25 | 0.5517 | 0.0511 | 90.74 |
| 03 (240 Min) | 21 | 0.5463 | 0.0440 | 91.95 |

Summary:

| | | | | | |
|----------------------|---------------------------|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Stainless Steel | | | | |
| Contaminants: | Greases, Food | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Lotus Pro Tersano | Ozonated water Stabilized | 100 | 93.52 | <input checked="" type="checkbox"/> | Series 1 stabilzer |

Conclusion:

Cleaning levels remained fairly constant over a four-hour time frame.