



CERTIFICATE OF TESTING

CLIENT: 051
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REPORT DATE: 07Oct13
REPORT NUMBER: RP04170 Rev. 1
P.O. NUMBER: TBD
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STUDY SUMMARY:

A study was performed to determine the efficacy of UV light fixture used potentially for sanitization of wood barrel tanks used in the wine making process. The study was performed by inoculating the surface of wood barrel coupons (in triplicate) with a suspension of *Pseudomonas aeruginosa*. The coupons were then exposed to UV light.

UV light Study:

The study was performed as follows: Three coupons (per time point) were spiked with the *Pseudomonas aeruginosa* suspension to give a final concentration of 1.9×10^7 CFU/ coupon. The coupons were placed at three different locations within the tank and exposed to the UV light source for five (5) timepoints: 2 minutes, 4 minutes, 6 minutes, 8 minutes and 12 minutes. After each exposure time was performed, the coupons were immersed into 10 ml Tryptic Soy Broth to perform the enumeration/recovery process. Three additional stainless steel coupons were spiked and used as positive controls (no exposure to UV light).

RESULTS:

UV Light Study:

The wood barrel coupons used were spiked with 1.9×10^7 CFU/coupon of *Pseudomonas aeruginosa*.

Refer to Table 1 and Graph 1 for recovery and log reduction on the coupons.

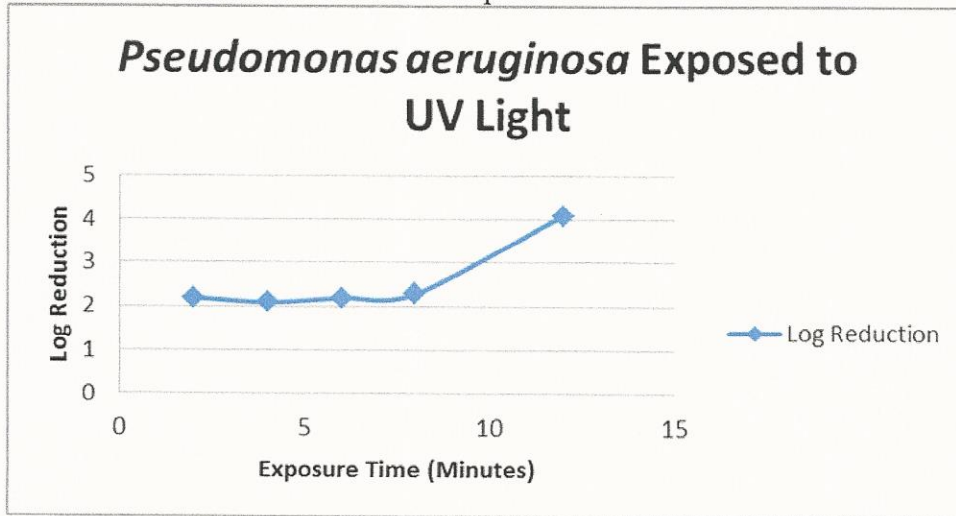
Table 1

| Exposure Time (minutes) | Concentration Recovered CFU/ Coupon | Log Reduction |
|-------------------------|-------------------------------------|---------------|
| 2 | 1.3×10^5 | 2.2 |
| 4 | 1.5×10^5 | 2.1 |
| 6 | 1.1×10^5 | 2.2 |
| 8 | 9.1×10^4 | 2.3 |
| 12 | 1.4×10^3 | 4.1 |

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Graph 1



CONCLUSION:

Based on the results it can be concluded that the UV light source tested is effective in reducing the organism population by ≥ 4.1 logs at an exposure time of 12 minutes

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