

SAO™ PATHOGEN SUMMARY

TESTING SPONSORED BY TERSANO, INC.

Updated: April 20, 2020

| MICRO-ORGANISM | GROUP | STANDARD | REDUCTION | TIME |
|--|-------------------------------|------------------|-----------|------------|
| CLAIM: For use as a food-contact sanitizer on hard, non-porous surfaces. Testing conducted at Microchem Laboratory, Round Rock, TX 12/15/17 | | | | |
| Escherichia coli (E.coli) ATCC 11 229 | Bacteria | AOAC 960.09 | > 99.999% | 30 secs |
| Staphylococcus aureus (Staph) ATCC 6 538 | Bacteria | AOAC 960.09 | > 99.999% | 30 secs |
| CLAIM: For use as a non-food-contact sanitizer on hard, non-porous surfaces. Testing conducted at MycoScience Labs, Wilmington, CT 4/13/17 | | | | |
| Listeria monocytogenes ATCC 19 115 | Bacteria | AOAC 960.09 | > 99.999% | 30 secs |
| CLAIM: For use as a non-food-contact sanitizer on hard, non-porous surfaces. Testing conducted at Lapuck Labs, Canton, MA 3/17/16 and 2/26/16. | | | | |
| Escherichia coli (E.coli) ATCC 11 229 | Bacteria | ASTM E1153 | > 99.9% | 30 secs |
| Salmonella typhimurium (Salmonella) ATCC 1 428 | Bacteria | ASTM E1153 | > 99.9% | 30 secs |
| CLAIM: For use as a non-food-contact sanitizer on hard, non-porous surfaces. Testing conducted at Lapuck Labs, Canton, MA 4/4/17. | | | | |
| Enterococcus hirae ATCC 10 541 | Bacteria | BS EN 13697:2015 | > 99.99% | 5 minutes |
| Escherichia coli (E. coli) ATCC 10 536 | Bacteria | BS EN 13697:2015 | > 99.99% | 5 minutes |
| Pseudomonas aeruginosa ATCC 15 442 | Bacteria | BS EN 13697:2015 | > 99.99% | 5 minutes |
| Staphylococcus aureus (Staph) ATCC 6 538 | Bacteria | BS EN 13697:2015 | > 99.99% | 5 minutes |
| Candida albicans ATCC 10 231 | Yeast | BS EN 13697:2015 | > 99.9% | 30 minutes |
| Aspergillus niger (A. niger) ATCC 16 404 | Mould | BS EN 13697:2015 | > 99.9% | 30 minutes |
| CLAIM: For use as a food-contact sanitizer on hard, non-porous surfaces. Testing conducted at Lapuck Labs, Canton, MA 9/22/17. | | | | |
| Enterococcus hirae ATCC 10 541 | Bacteria | EN 1276 | 99.999% | 5 minutes |
| Escherichia coli (E. coli) ATCC 10 536 | Bacteria | EN 1276 | > 99.999% | 5 minutes |
| Pseudomonas aeruginosa ATCC 15 442 | Bacteria | EN 1276 | 99.999% | 5 minutes |
| Staphylococcus aureus (Staph) ATCC 6 538 | Bacteria | EN 1276 | > 99.999% | 5 minutes |
| CLAIM: Determination of the antiviral effectiveness of SAO using a suspension time-kill procedure against Canine Parvovirus. Testing conducted at Microchem Laboratory, Round Rock, TX. | | | | |
| Canine Parvovirus ATCC VR-2016 | Small, non-enveloped virus | ASTM E1052 | 99.44% | 5 minutes |
| CLAIM: Virucidal Activity Test. | | | | |
| Coronavirus MHV-3 (Murine Hepatitis Virus) | Enveloped Virus | EN 14476 | > 99.99% | 1 minute |
| Influenza A Virus (HINI) | Enveloped Virus | EN 14476 | > 99.99% | 1 minute |
| Measles Virus | Enveloped Virus | EN 14476 | > 99.99% | 1 minute |
| Syncytial Respiratory Virus | Enveloped Virus | EN 14476 | > 99.99% | 1 minute |

NOTE: All standard protocols are modified. BS EN 13697:2015, EN 1276 & EN 14476 standards were done under clean condition protocol.

Tested to meet or exceed TUV, UL and CSA standards. Tersano's aqueous ozone is created by a dispenser regulated as a pesticide device manufactured at EPA Establishment No. 089093-CAN-001.

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1-800-727-8835
www.tersano.com

AQUEOUS OZONE PATHOGEN SUMMARY

TESTING SPONSORED BY TERSANO, INC.

Results from Tersano testing showing the power of aqueous ozone and the time required to destroy various bacteria at a strength of 2 ppm or less.

| MICRO-ORGANISM | GROUP | STANDARD | REDUCTION | TIME |
|--|----------|---|-----------|---------|
| ODOR TEST RESULTS Testing conducted at Microbiotest Inc. | | | | |
| Proteus mirabilis ATCC 7002 | Bacteria | Fabric Surface Sanitizer Method | >99% | 30 secs |
| BACTERIA TEST RESULTS Testing conducted at Microbiotest Inc. | | | | |
| Escherichia coli (E.coli) ATCC 11 229 | Bacteria | Fruit and Vegetable Antibacterial Wash Test | > 99.99% | 30 secs |
| Listeria monocytogenesi (L. monocytogenes) ATCC 19 111 | Bacteria | Fruit and Vegetable Antibacterial Wash Test | > 99.99% | 30 secs |
| Escherichia coli (S. choleraesuis) ATCC 10 708 | Bacteria | Fruit and Vegetable Antibacterial Wash Test | > 99.99% | 30 secs |

TESTING RESULTS BELOW SPONSORED BY 3RD PARTY ORGANIZATIONS

Results of Aqueous Ozone Tested For Use As a Sanitizer on Non-Porous Surfaces

| MICROBE | REDUCTION | TIME | REPORTING ORGANIZATION |
|-----------------------------------|-----------|-----------------|--|
| Bacteriophage F2 | 99.9999% | Instantaneously | Journal of Food Sciences |
| E. faecalis | 99.9% | Instantaneously | American Society for Microbiology |
| Mycobacterium avium | 99.9% | Instantaneously | Virginia Tech |
| Hepatitis A | 99% | Instantaneously | Journal of Food Sciences |
| Rotovirus (HRV) | 99.9% | 6 seconds | Applied and Environmental Microbiology |
| Tricophyton Mentagrophytes | 99.9999% | 30 seconds | Water Quality Products, Inc |
| Enteric Adenovirus | 99.9% | 30 seconds | Elsevier Water Research |
| Feline calicivirus | 99.9% | 30 seconds | Elsevier Water Research |
| Norwalk virus | 99.9% | 30 seconds | Applied and Environmental Microbiology |

Aqueous Ozone is approved by the EPA, FDA, USDA, is considered GRAS, and is compliant with the EPA Organic Program as a natural and effective cleaner and sanitizer.



Nonfood Compounds Program listed on White List as a no-rinse sanitizer and cleaner



Awarded Maximum 10 Points



GRAS and compliant with the EPA Organic Program



Aqueous ozone approved as antimicrobial agent June 26, 2001



Recognized as environmentally preferable



USDA/National Organic Program (NOP) Ozone Approval

Data compiled from third party independent industry and academic sources, and is for general information purpose only. Kill rates vary with temperature, surface texture, pH and other factors. For more detailed kill rate data along with a more thorough and complete list of microbes, please contact your Tersano Customer Representative. lotus is a registered trade mark of Tersano Inc. All other marks are property of their respective owners.



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