

# TECHNICAL BULLETIN

## PURELL® Professional Surface Disinfectant

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### Product Description:

EPA-Registered PURELL Professional Surface Disinfectant is a one-step disinfectant and cleaner designed to kill the most relevant pathogens at work, schools, daycare centers and gyms. The 29.4% Ethyl alcohol based formula is effective against 37 microorganisms, with efficacy against 27 of those organisms in 30 seconds. Ideal for disinfecting hard, non-porous surfaces as well as sanitizing soft surfaces.

*Please read product label for usage instructions.*

Physical Properties	
Appearance	Colorless
Fragrance	Citrus
Form	Liquid

Formula Ingredients	
<b>Active Ingredient</b>	
Ethyl Alcohol 29.4% w/w	CAS: 64-17-5
<b>Inert Ingredients</b>	
Water	CAS: 7732-18-5
Isopropyl Alcohol	CAS: 67-63-0
Potassium Hydroxide	CAS: 1310-58-3
Lauric Acid	CAS: 143-07-7
Fragrance	CAS: N/A

## Efficacy Testing – Timed, Exposure Kill Evaluation

<b>Objective</b>	Evaluate the antimicrobial effectiveness of the product <i>in vitro</i> .
<b>Description of Tests</b>	Testing was conducted in accordance with the U.S. Environmental Protection Agency guidelines in effect at the time for determining efficacy of disinfectants intended for use on dry inanimate surfaces.
<b>Independent Laboratories</b>	<ul style="list-style-type: none"> <li>• MicroBioTest, A Division of Microbac Laboratories, Sterling, VA 20164</li> <li>• Microchem Laboratory, Inc., Euless, TX 76040</li> <li>• Accuratus Lab Services, Eagan, MN 55121</li> </ul>

## Test Results

<b>Test Organisms Reference List</b>		*Added November 13, 2017
<b>Hard, Nonporous Surface Disinfection Pathogens</b>		
Bacteria	Strain / ATCC No.	Contact Time
* <i>Acinetobacter baumannii</i>	ATCC 19606	30 seconds
* <i>Bordetella pertussis</i>	ATCC 12743	30 seconds
<i>Campylobacter jejuni</i>	ATCC 43451	30 seconds
<i>Escherichia coli</i> (E. coli)	ATCC 11229	30 seconds
<i>Klebsiella pneumoniae</i>	ATCC 4352	30 seconds
<i>Listeria monocytogenes</i> (Listeria)	ATCC 49594	30 seconds
Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA)	ATCC 33591	30 seconds
<i>Pseudomonas aeruginosa</i>	ATCC 15442	1 minute
<i>Salmonella enterica</i> (Salmonella)	ATCC 10708	30 seconds
<i>Staphylococcus aureus</i> (Staph)	ATCC 6538	1 minute
<i>Streptococcus pneumoniae</i> (Strep)	ATCC 6305	30 seconds
<i>Streptococcus pyogenes</i> (Strep)	ATCC 12344	30 seconds
Vancomycin Resistant <i>Enterococcus faecalis</i> (VRE)	ATCC 51575	30 seconds
<i>Vibrio vulnificus</i>	ATCC 27562	30 seconds
<i>Yersinia enterocolitica</i>	ATCC 9610	30 seconds
<b>Mold, Mildew &amp; Fungi</b>		
<i>Aspergillus niger</i> (Mold)	ATCC 6275	5 minutes
<i>Candida albicans</i>	ATCC 10231	30 seconds
<i>Trichophyton mentagrophytes</i>	ATCC 9533	30 seconds
<b>Mycobacterium</b>		
<i>Mycobacterium bovis</i> var. BCG (TB)	N/A	5 minutes
<b>Viruses Enveloped</b>		
2009-H1N1 Influenza A Virus (H1N1)	A/California/04/09	30 seconds
Influenza A virus (Flu Virus)	A/California/04/09	30 seconds
*Human Coronavirus, Strain 229E	ATCC VR-740	30 seconds
<b>Viruses Non-Enveloped</b>		
* <b>Canine Parvovirus (Parvo)</b>	ATCC BR-2017	<b>30 seconds</b>
Hepatitis A virus (HAV)	University of Ottawa	1 minute
Murine norovirus (Norovirus)	MNV-G, Yale University	30 seconds
Feline Calicivirus (as surrogate for Norovirus)	ATCC VR-782	30 seconds
Polio Type 1 virus	ATCC VR-1562	30 seconds
*Respiratory syncytial virus (RSV)	ATCC VR-26	30 seconds
Rhinovirus (a cause of the common cold)	ATCC VR-284	30 seconds
*Rotavirus	ATCC VR-2018	30 seconds
<b>Bloodborne Pathogens</b>		
Human Hepatitis B virus (HBV)	Grimaud	30 seconds
Human Hepatitis C virus (HCV)	NADL	30 seconds
Human immunodeficiency virus Type I (HIV-1)	Strain IIB (B)	30 seconds

## Test Results (continued)

<b>Food Contact Surface Sanitization Pathogens</b>		
<b>Bacteria</b>	<b>Strain / ATCC No.</b>	<b>Contact Time</b>
* <i>Campylobacter jejuni</i>	ATCC 29428	1 minute
<i>Escherichia coli</i> (E. coli)	ATCC 11229	1 minute
<i>Staphylococcus aureus</i> (Staph)	ATCC 6538	1 minute
* <i>Escherichia coli</i> O157:H7 (STEC Shiga toxin-producing)	ATCC 35150	1 minute
* <i>Listeria monocytogenes</i> (Listeria)	ATCC 19117	1 minute
* <i>Salmonella typhimurium</i> (Salmonella typhi)	ATCC 14028	1 minute
* <i>Shigella dysenteriae</i> (Shigella)	ATCC 11835	1 minute
<b>Non-Food Contact Surface Sanitization Pathogens</b>		
<b>Bacteria</b>		
<i>Klebsiella pneumoniae</i>	ATCC 4352	10 seconds
<i>Staphylococcus aureus</i> (Staph)	ATCC 6538	10 seconds
<b>Soft Surface Sanitization Pathogens</b>		
<b>Bacteria</b>		
<i>Klebsiella pneumoniae</i>	ATCC 4352	20 seconds
<i>Staphylococcus aureus</i> (Staph)	ATCC 6538	20 seconds

## Safety and Toxicity Testing

<b>Objective</b>	Evaluate the acute safety and toxicity of product formulation <i>in vivo</i> .
<b>Description of Tests</b>	Testing was conducted in accordance with the U.S. Environmental Protection Agency guidelines in effect at the time for determining acute toxicity of disinfectants intended for use on dry inanimate surfaces.
<b>Independent Laboratories</b>	Stillmeadow, Inc., 12852 Park One Drive, Sugar Land, TX 77478
<b>Test Results</b>	
<b>Acute Oral Toxicity*</b>	Meets EPA requirement for Category IV rating (greater than 5000 mg/kg).
<b>Acute Dermal Toxicity*</b>	Meets EPA requirement for Category IV rating (greater than 5000 mg/kg).
<b>Acute Inhalation Toxicity*</b>	Meets EPA requirement for Category IV rating (greater than 2 mg/liter).
<b>Acute Eye Irritation</b>	<u>EPA Testing Guideline: OCSPP 870.2400</u> Meets EPA requirement for Category IV rating (minimal effects clearing in less than 24 hours). Under the conditions of the test, the product did not produce eye irritation.
<b>Acute Dermal Irritation*</b>	Meets EPA requirement for Category IV rating. Mild or slight irritation at 72 hours (no irritation or slight erythema).
<b>Skin Sensitization*</b>	Meets EPA requirements as a non-sensitizer for Category IV rating.

\* The ingredients in this product are generally regarded as safe (GRAS) and toxicity testing was not required for registration of this product.

## Surface Compatibility Testing

**Objective** Determine product compatibility with common surfaces after extended and repeat contact exposures.

**Description of Tests** Compatibility study to measure the effects of product on the properties of common surfaces. Using a standardized test methodology, many different hard and soft surface materials were exposed to the product under a worst case simulated use condition to simulate approximately one year of extreme use. This product and other commercially available surface disinfectants were soaked for up to 11 cycles in “use dilution.”

- 1 cycle = 20 hrs. static soak followed by 2-4 hr. air dry at room temperature
- 11 cycles = simulates ~1300 exposures or one year (3-4x day) with a 10-minute contact time

## Test Conclusions

- Testing has demonstrated this product is compatible with many common hard and soft surface materials, including:

Category	Material
Metals	Stainless Steel 316, Stainless Steel A2 and Brushed Bronze
Plastics	PVC Type 1, PET, HDPE, Vinyl Tile, Acrylic and Polycarbonate
Rubber	EPDM and Natural
Ceramic	Porcelain Tile
Soft Surfaces	Cotton, Polyester, Polyamide, and Nylon blended fabrics, Urethane Foam, High Density Foam, EVA Foam, and various Vinyl Fabrics

**Recommendations**

- For best results, always test in a small inconspicuous area before broad application
- Wood and metal surfaces coated with alcohol soluble finishes, such as varnish, shellac, linseed oil and some powder coatings should be avoided.  
*Note: Wax or modern polyurethane finishes are not alcohol soluble and do not present incompatibility concerns.*
- Not recommended for repeat use on untreated copper, brass, and aluminum surfaces.
- Not recommended for use on natural leather surfaces. *Note: Synthetic vinyl fabrics, such as Naugahyde® have shown no incompatibility issues during testing.*

## Cleaning Capability Testing

<b>Objective</b>	Evaluate cleaning performance compared to leading cleaning, sanitizing and disinfecting products found in professional and retail markets.
<b>Description of Tests</b>	<p>Cleaning Study to measure the effectiveness of soil and organic matter removal from common surfaces. Standardized test methodology used to provide numerical evaluation (0 to 100) of a product's capability in removing/cleaning five difficult soils from common surfaces.</p> <p>Data compared cleaning capability of products on five difficult soils (blood, coke, ketchup, salad dressing, and syrup) applied to four common surfaces (ABS plastic, Formica, stainless steel, vinyl composite). Data was generated for this product in addition to six leading competitive products.</p>
<b>Independent Laboratories</b>	Sterling Laboratories, Toledo, Ohio (Study Nbr. 14261FM29)

### Test Conclusions

All products had statistically equivalent cleaning performance for the respective soil and surface combinations.

## Product Stability Testing

<b>Objective</b>	Determine if the product meets the performance requirements over the desired two-year product shelf life.
<b>Description of Tests</b>	Stability Study to measure the properties of product over time (on shelf, unopened, opened). Using standardized test methods defined by the EPA and other international standards, testing was completed under accelerated (54°C) and real time (25°C) conditions for up to two years.

### Test Conclusions

This product has met the requirements necessary to show that the product is stable for a minimum of two years of shelf life if stored in accordance with label instructions.