

Unprecedented germ kill with a single pump



PURELL® Advanced Instant Hand Sanitizer
GOJO® LTX™ and GOJO® ADX™ Dispensing Systems



For the first time ever, one pump is all you need

There's a perception that all instant hand sanitizers are created equal. It's just not true. PURELL® Advanced Instant Hand Sanitizer is simply better.¹⁰ Why? Because with an application of just 1.1 mL, it exceeds FDA Healthcare Personnel Handwash requirements while maintaining skin health and improving overall skin feel.^{6-8,13} No other instant hand sanitizer can do that.¹⁰ Even better, when paired with GOJO® LTX™ and GOJO® ADX™ dispensing systems, PURELL Advanced Instant Hand Sanitizer provides healthcare workers with the FDA-required efficacy they need with just one pump.* Ensuring that healthcare workers were getting enough product for each hand hygiene opportunity was challenging in the past. This ultimate combination of a revolutionary product and an innovative dispensing technology is not only taking the guesswork out of compliance, it's changing the game completely.



first and



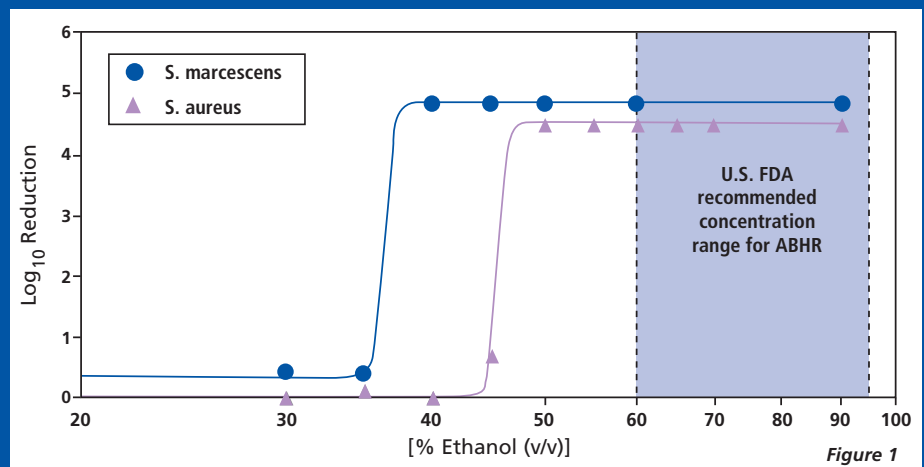
Formulation matters most

While some suggest that a high level of alcohol is the key to a higher level of efficacy, science indicates otherwise. Alcohol, in fact, reaches a point of diminishing return at higher levels.^{1,2,3} And too much can be hard on skin. It's actually the total formulation that can have the greatest impact on efficacy.

As a company that's dedicated to the science of skin care, we knew we could formulate an instant hand sanitizer that delivers unprecedented efficacy in a skin-friendly formulation without excessive alcohol. And we did. The result is a product that, ounce for ounce, outperforms other hand sanitizers.^{10,11,12,13}

Alcohol's Point of Diminishing Return

Alcohol concentrations in ABHR products are well above the bactericidal threshold concentration:



Concentration dependence of the bactericidal activity of ethyl alcohol. Various concentrations of ethyl alcohol (v/v) were evaluated by 15-second time kill experiments according to ASTM E2315-08 against *S. marcescens* (ATCC 14756) and *S. aureus* (ATCC 6538). Data was visualized using GraphPad Prism and curves were fit using a sigmoidal dose-response (variable slope).

only

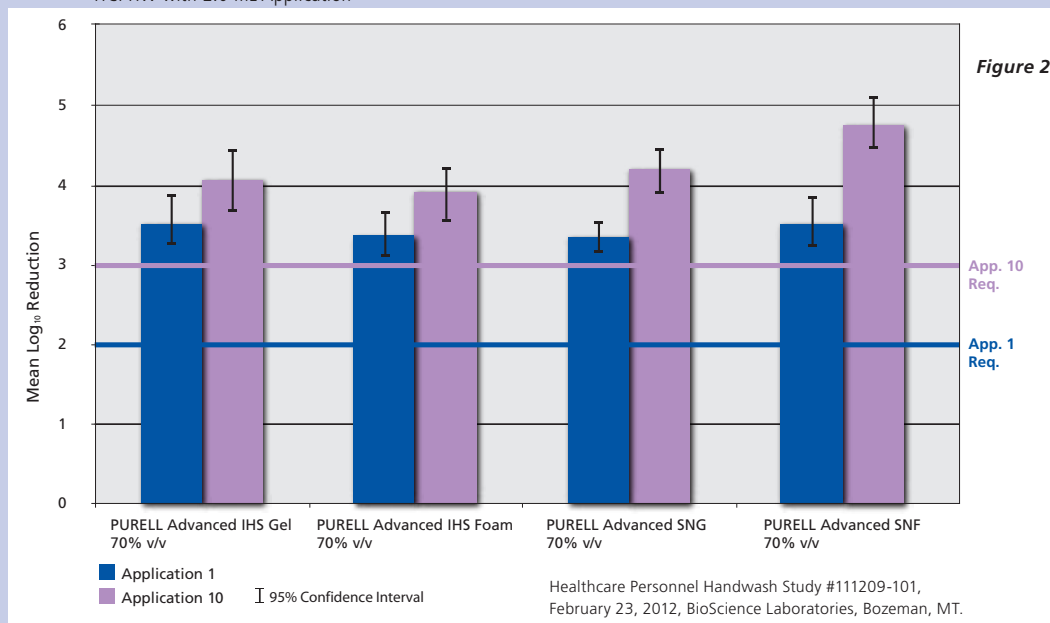
*PURELL® Advanced Instant Hand Sanitizer exceeds HCPHW at 1.1 mL of product. ADX and LTX dispensers only. Fully primed pump through 95% of refill.

Throughout this brochure, competitor product names have been masked. These alcohol-based hand rub products are identified as Healthcare Competitor A (HCA), etc. Though names are masked, the alcohol volume of each product is identified.

Each formulation exceeds HCPHW requirements

Formulated with just 70% ethyl alcohol, PURELL® Advanced Instant Hand Sanitizer exceeds the FDA Healthcare Personnel Handwash (HCPHW) efficacy requirement. This test helps to determine the effectiveness of antimicrobial hand hygiene agents designed for frequent use at reducing transient bacterial flora on hands. Even better, our formulations exceed these requirements with an application of just 1.1 mL. No other hand sanitizer does that.

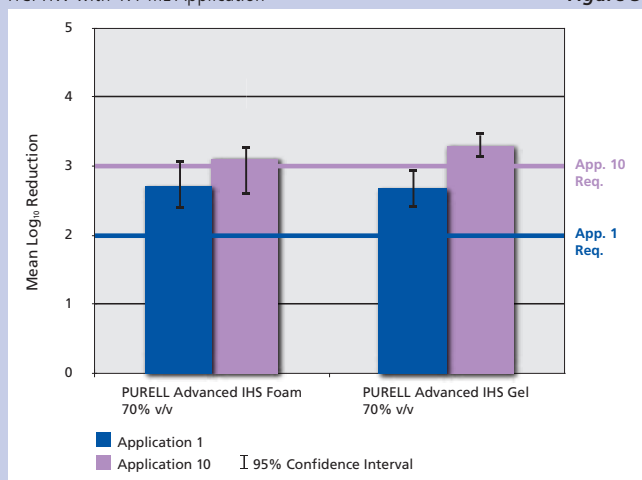
All PURELL Advanced Formulations Exceed FDA Efficacy Requirements
HCPHW with 2.0 mL Application



FDA Healthcare Personnel Handwash (HCPHW) – ASTM 1174

Developed by the American Society for Testing and Materials (ASTM), this test is the required standard of efficacy established by the FDA. It is used to determine the effectiveness of antimicrobial handwash agents designed for frequent use at reducing transient bacterial flora on hands. The FDA requires that antimicrobial handwash agents achieve a 2-log₁₀ reduction at Application 1 and a 3-log₁₀ reduction at Application 10.

PURELL Advanced Instant Hand Sanitizer Gel and Foam Exceed FDA Efficacy Requirements with the Least Amount of Product
HCPHW with 1.1 mL Application



Log Reduction

A mathematical term, “Log Reduction,” is used to show the relative number of live microbes eliminated by disinfecting or cleaning. For example, a “5-log reduction” means the number of microorganisms has been lowered by 100,000-fold. If a sample holds 100,000 pathogenic microbes, a 5-log reduction would reduce the number of microorganisms to one.

Conclusion:

Delivering unprecedented efficacy, PURELL Advanced Instant Hand Sanitizer formulations exceed HCPHW requirements with as little as 1.1 mL of product.



The first dispensers built with compliance in mind

In the past, healthcare workers needed more than one pump of instant hand sanitizer to meet FDA HCPHW efficacy requirements. Our new GOJO® LTX™ and GOJO® ADX™ dispensing systems change that. With a single actuation,* these dispensers release the exact amount of PURELL® Advanced Instant Hand Sanitizer needed to meet FDA efficacy requirements — 1.1 mL. So healthcare workers will know that they are getting the best germ kill available. We're the first and only company to perfect this technology. And that's exactly what you'd expect from the hand hygiene leader.

The GOJO® LTX™ dispensing system

It's been proven that touch-free dispensing can increase compliance by 20.8%.⁹ That's why the GOJO LTX dispensing system is sure to become a popular choice. This revolutionary third-generation touch-free dispenser is aesthetically pleasing and available in two sizes. The LTX-12™ is a large-capacity model that holds 1,200 mL of product. And because we know that easy access to hand hygiene products is key to improving compliance, the smaller LTX-7™ holds 700 mL to offer maximum fire code-compliant placement.

The GOJO® ADX™ dispensing system

Featuring a small, ADA-compliant dispenser, the GOJO ADX manual dispensing platform is calibrated for ease of use and allows for maximum fire code-compliant placement throughout your facility. The ADX-12™ is a large capacity model that holds 1,200 mL of product while the smaller ADX-7™ holds 700 mL.

precise

*PURELL® Advanced Instant Hand Sanitizer exceeds HCPHW at 1.1 mL of product. ADX and LTX dispensers only. Fully primed pump through 95% of refill.

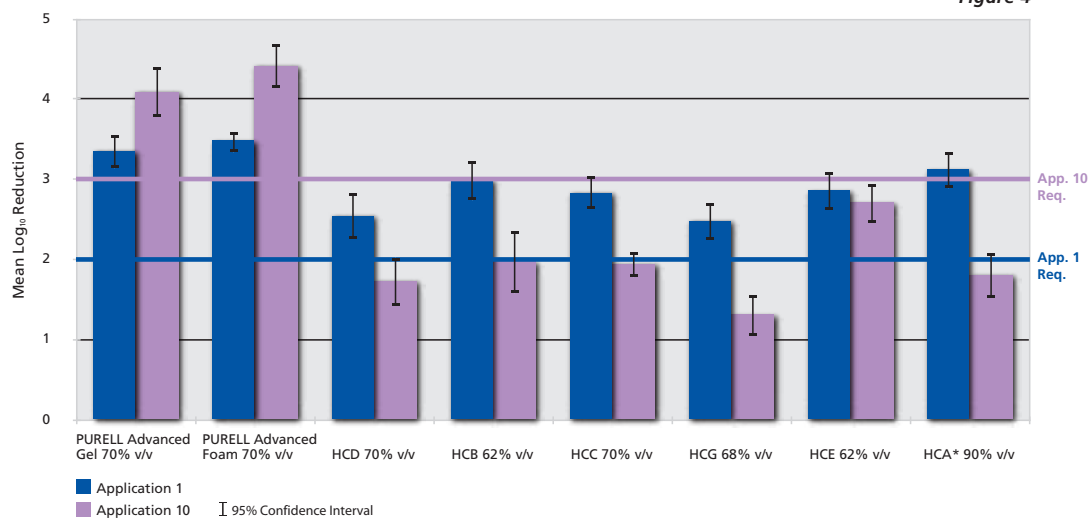
effective

PURELL® Advanced Instant Hand Sanitizers outperform other leading brands

Developed with 70% ethyl alcohol, PURELL® Advanced Instant Hand Sanitizer formulations contain a patent-pending blend of ingredients that do two things: maximize the impact of alcohol on bacteria AND maintain skin moisture for optimal skin health. Both the gel and foam formats outperform other hand sanitizers delivering the most powerful, advanced antimicrobial kill while moisturizing skin.

PURELL Advanced Instant Hand Sanitizer Outperforms Other Leading Hand Sanitizers HCPHW WITH 2.0 ML APPLICATION

Figure 4



Healthcare Personnel Handwash Study #110103-101, April 5, 2011, BioScience Laboratories, Bozeman, MT.
*Healthcare Personnel Handwash Study #100907-101, January 6, 2011, BioScience Laboratories, Bozeman, MT.

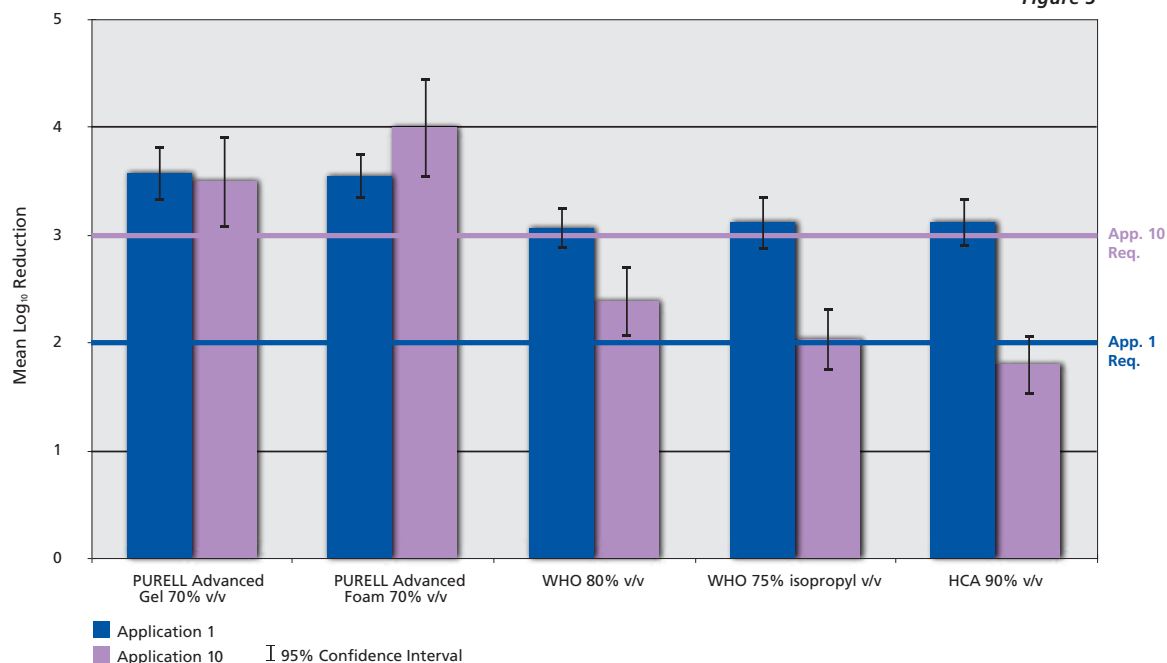


Ounce for ounce, PURELL® Advanced Instant Hand Sanitizer is more effective than higher alcohol formulations

Not only does PURELL® Advanced Instant Hand Sanitizer exceed FDA HCPHW requirements, it does so with a lower amount of product per application than other hand sanitizers — including products with higher alcohol formulations. In fact, in our comparative study at 2.0 mL for both foam and gel, PURELL Advanced Instant Hand Sanitizer exceeds HCPHW requirements. Recommended WHO formulations at 75% and 80% alcohol, and a 90% alcohol product, did not meet the FDA requirement.

PURELL Advanced Instant Hand Sanitizer vs. Other Hand Sanitizers with Higher Volumes of Alcohol
HCPHW with 2.0 mL Application

Figure 5



Healthcare Personnel Handwash Study #100907-101, January 6, 2011, BioScience Laboratories, Bozeman, MT.

Conclusion:

Both PURELL Advanced Instant Hand Sanitizer gel and foam formulations exceed HCPHW requirements while outperforming other hand sanitizer brands — even those with a higher concentration of alcohol.

Superior defense against germs in a skin-friendly formula

In addition to superior efficacy, the ability of PURELL® Advanced Instant Hand Sanitizer to retain moisture and maintain skin health sets it apart from other hand sanitizers. We call it SKIN PROTECTION Technology. It's the ideal amount of alcohol plus a patent-pending blend of complementary ingredients that sensitizes microbial cells to the denaturing activity of ethanol and maximizes bacterial cell membrane destruction.

PURELL Advanced Instant Hand Sanitizer formulations are proven effective in helping to maintain skin health and skin moisture while improving overall skin feel. In fact, in a clinical study, four out of five healthcare workers said that PURELL Advanced Instant Hand Sanitizer Original formulations were soothing to their skin.⁶⁻⁸

It's also been clinically proven that PURELL Advanced Instant Hand Sanitizer Skin Nourishing formulations lock-in moisture⁶ and are clinically proven to improve skin condition within 14 days of continued use.⁶⁻⁸ Further, in a clinical study, four out of five healthcare workers said our skin nourishing formulations left their hands feeling soft.⁶⁻⁸

Proven performance

PURELL Advanced Instant Hand Sanitizer has demonstrated efficacy and improved performance with repeated use. Third-party *in vitro* testing shows that PURELL Advanced Instant Hand Sanitizer achieves a 5-log¹⁰ reduction against the most common hospital pathogens — including gram-positive and gram-negative bacteria. Our ability to formulate products that maximize the performance of the active ingredient ethyl alcohol results in better germ kill without skin damage.

PURELL Advanced Formulations Performance Against Key Healthcare Pathogenic Bacteria

Microorganism Species (ATCC #)	Exposure	PURELL® Advanced IHS	PURELL® Advanced IHS Foam	PURELL® Advanced IHS Skin Nourishing Gel	PURELL® Advanced IHS Skin Nourishing Foam
		Time in Seconds	Percent Reduction	Percent Reduction	Percent Reduction
Acinetobacter baumannii (ATCC #19606)	15	> 99.9999%	> 99.9999%	> 99.9999%	> 99.9999%
Candida albicans (ATCC #18804)	15	> 99.9999%	> 99.9999%	> 99.9999%	> 99.9999%
Clostridium difficile vegetative cells (ATCC #9689)	15	> 99.9943%	> 99.9943%	> 99.9943%	> 99.9943%
Enterococcus faecalis VRE (ATCC #51299)	15	> 99.9999%	> 99.9999%	> 99.9999%	> 99.9999%
Escherichia coli MDR; ESBL (ATCC #BAA-196)	15	> 99.9999%	> 99.9999%	> 99.9999%	> 99.9999%
Escherichia coli ESBL Carbapenemase-Producing	15	> 99.9998%	> 99.9998%	> 99.9998%	> 99.9998%
Klebsiella pneumoniae KPC 2 Positive; Carbapenemase-Producing	15	> 99.9998%	> 99.9998%	> 99.9998%	> 99.9998%
Klebsiella pneumoniae blaNDM-1	15	> 99.9999%	> 99.9999%	> 99.9999%	> 99.9999%
Pseudomonas aeruginosa (ATCC #15442)	15	> 99.9999%	> 99.9999%	> 99.9999%	> 99.9999%
Serratia marcescens (ATCC #8100)	15	> 99.9999%	> 99.9999%	> 99.9999%	> 99.9999%
Staphylococcus aureus aureus MRSA (ATCC #33591)	15	> 99.9999%	> 99.9999%	> 99.9999%	> 99.9999%
Staphylococcus aureus MRSA; VRSA (BSL1 #062707NARSaVRSa1)CE	15	> 99.9999%	> 99.9999%	> 99.9999%	> 99.9999%
Streptococcus pneumoniae (ATCC #6303)	15	> 99.9999%	> 99.9999%	> 99.9999%	> 99.9999%

Time Kill Study #091106-201, October 19, 2010, BioScience Laboratories, Bozeman, MT.
Time Kill Study #110824-201, December 7, 2011, BioScience Laboratories, Bozeman, MT.

Our SKIN PROTECTION Technology includes:

Skin Conditioning Agents — A blend of four different conditioners that moisturize skin and continue to promote healthy skin with repeated use.

A Safe and Effective FDA Category I Active Ingredient —

Formulated with 70% ethyl alcohol for more potent, broad-spectrum antimicrobial activity.

This perfect balance of alcohol and skin conditioning agents enables PURELL Advanced formulations to deliver an unprecedented level of antimicrobial efficacy while being kind to the skin.

In Vitro Study

Measures rapid bactericidal action of products in the lab. Used to determine spectrum of activity of products.

Conclusion:

PURELL Advanced Instant Hand Sanitizer demonstrated very rapid and effective log reduction of gram-negative and gram-positive microorganisms. Therefore, it exhibits broad-spectrum antimicrobial efficacy.

Better science yields better products — and better compliance

At GOJO, we're driven to develop products that help increase hand hygiene compliance and improve patient outcomes in healthcare. That's why we partner with acute care facilities to study hand hygiene compliance and protocol. We want to understand barriers in the hand hygiene process so we can provide solutions that remove them.

We know that the frequency of handwashing required of healthcare workers typically leads to dry, irritated skin — a significant barrier to compliance. PURELL® Advanced Instant Hand Sanitizer formulations allow healthcare workers to use them as frequently as they need to without damaging their skin. It's the ultimate path to compliance — they're so effective and gentle that healthcare workers will want to use them. In fact, PURELL Advanced Instant Hand Sanitizer formulations are clinically proven to help moisturize and maintain skin health.⁶⁻⁸

And studies have shown, when hand hygiene compliance increases, the incidence of hospital acquired infections decreases.^{4,5}



unmatched

A superior product for superior user experience

PURELL® Advanced Instant Hand Sanitizer not only kills 99.99% of germs on hands to help protect your staff, it also helps promote and maintain healthy skin.

Our formulations are:

- Hypoallergenic
- CHG compatible
- Latex and nitrile glove compatible

All of these benefits combine to make it a product your staff will want to use, which will ultimately help drive better compliance and yield better patient outcomes.

Four formulations in the Advanced family

PURELL Advanced Instant Hand Sanitizer Original Formulations

Our trusted broad-spectrum formulations that include four different skin moisturizers

PURELL Advanced Instant Hand Sanitizer Aloe Formulation

Contains moisturizers as well as vitamin E and aloe

PURELL Advanced Green Certified Instant Hand Sanitizer Formulations

Formulated with 100% naturally renewable ethanol. They meet the EcoLogo™ hand sanitizer standard for environmental leadership and proven performance

PURELL Advanced Instant Hand Sanitizer Skin Nourishing Formulations

Contains our patented DERMAGLYCERIN SYSTEM™, which is clinically proven to improve skin condition in 14 days⁶



¹Ali, Y., Dolan, M. J., Fendler, E. J. and Larson, E. L. *Disinfection, Sterilization, and Preservation, 5th Edition*. Block (ed.) (Lippincott Williams & Wilkins, Philadelphia, 2001).

²Harrington, C. and Walker, H. The Germicidal Action of Alcohol. *Boston Medical and Surgical Journal* CXLVIII, 548-552 (1903).

³Price, P. B. Reevaluation of ethyl alcohol as a germicide. *Arch. Surg.* 60, 492-502 (1950).

⁴Didier Pittet, Stéphane Hugonnet, Stephan Harbarth, Philippe Mourouga, Valérie Sauvan, Sylvie Touveneau, Thomas V Perneger, and members of the Infection Control Programme Effectiveness of a hospital-wide programme to improve compliance with hand hygiene. *Lancet*. 2000; 356:1307-1312.

⁵Improving hand hygiene compliance: A multidisciplinary approach. Helms et al. Association for Professionals in Infection Control and Epidemiology, Inc. *AM J Infect Control* 2010; 38:572-4.

⁶Acute Moisturization Analysis, Study #110212-301, April 25, 2011, BioScience Laboratories, Bozeman, MT.

⁷4-Week Clinical Field Study #2011-F10232, Akron, OH, February – March, 2011.

⁸4-Week Clinical Field Study #2011-F10233, Akron, OH, February – March, 2011.

⁹Larson EL, Albrecht S, O'Keefe M. Hand hygiene behavior in a pediatric emergency department and a pediatric intensive care unit: comparison of use of 2 dispenser systems. *Am J Crit Care*. 2005 Jul;14:304-11; quiz 312.

¹⁰Based on top selling hand sanitizers for general hand antisepsis according to GHX hand sanitizer sales data 12 months ending December 2011.

¹¹Healthcare Personnel Handwash Study #110103-101, April 5, 2011, BioScience Laboratories, Bozeman, MT.

¹²Healthcare Personnel Handwash Study #100907-101, January 6, 2011, BioScience Laboratories, Bozeman, MT.

¹³Healthcare Personnel Handwash Study #111016-101, March 19, 2012, BioScience Laboratories, Bozeman, MT.

GOJO — Built on a foundation of innovation

As the leading global producer of skin health and hygiene solutions, GOJO Industries is committed to innovation. Throughout our history, we've formulated an array of efficacious products using the latest advances in the science of skin care. We *invented* the PURELL® Instant Hand Sanitizer category. We pioneered products and processes that have helped reduce infection rates in hospital settings and make a very real difference in patient outcomes. And our smart dispensing solutions, education and behavior-based compliance-building programs help put a truly successful infection control program in your hands.

innovation

Our family of PURELL® Advanced Instant Hand Sanitizer formulas includes:

Refills	TOUCH-FREE				MANUAL			
	LTX™ 700 mL 1320-04	LTX™ 1200 mL 1920-04	TFX™ 1000 mL 2720-12	TFX™ 1200 mL 2720-12	ADX™ 700 mL 8720-06	ADX™ 1200 mL 8820-06	FMX™ 1000 mL 5120-06	FMX™ 1000 mL 5120-06
PURELL® Advanced Instant Hand Sanitizer Gel				5456-04				
PURELL® Advanced with Aloe Instant Hand Sanitizer Gel				5457-04				
PURELL® Advanced Green Certified Instant Hand Sanitizer Gel	1303-03	1903-02			8703-04	8803-03		
PURELL® Advanced Skin Nourishing Instant Hand Sanitizer Gel				5451-04				
PURELL® Advanced Instant Hand Sanitizer Foam	1305-03	1905-02	5592-02	5392-02	8705-04	8805-03	5190-03	5192-03
PURELL® Advanced Green Certified Instant Hand Sanitizer Foam	1304-03	1904-02			8704-04	8804-03		
PURELL® Advanced Skin Nourishing Instant Hand Sanitizer Foam	1306-02	1906-02	5399-02	5398-02	8706-04	8806-03	5199-03	5198-03

Pump Bottles	535 mL Pump Bottle	45 mL Pump Bottle	12 fl oz Pump Bottle	8 fl oz Refill Bottle Cartridge	8 fl oz Pump Bottle	4 fl oz Bottle with Flip Cap	2 fl oz PERSONAL Bottle with Flip Cap	2 fl oz PERSONAL Pump Bottle
	PURELL® Advanced Instant Hand Sanitizer Gel			3659-12	9654-12	9652-12	9651-24	9605-24
PURELL® Advanced with Aloe Instant Hand Sanitizer Gel			3639-12		9674-12	9631-24	9682-24	
PURELL® Advanced Skin Nourishing Instant Hand Sanitizer Gel			3646-12					9648-24
PURELL® Advanced Instant Hand Sanitizer Foam	5792-04	5692-24						
PURELL® Advanced Skin Nourishing Instant Hand Sanitizer Foam	5798-04	5698-24						



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