

BioGlove products provide long lasting defense against germs, bacteria, and viruses. BioGlove is a pharmaceutical grade, proprietary blend of active ingredients that are all recognized as effective by the FDA, CDC, EPA, and NIH in the “use case” that BioGlove makes in it claims. Furthermore, BioGlove consumer packaging and labeling meets or exceeds all guidelines set forth by the FDA.

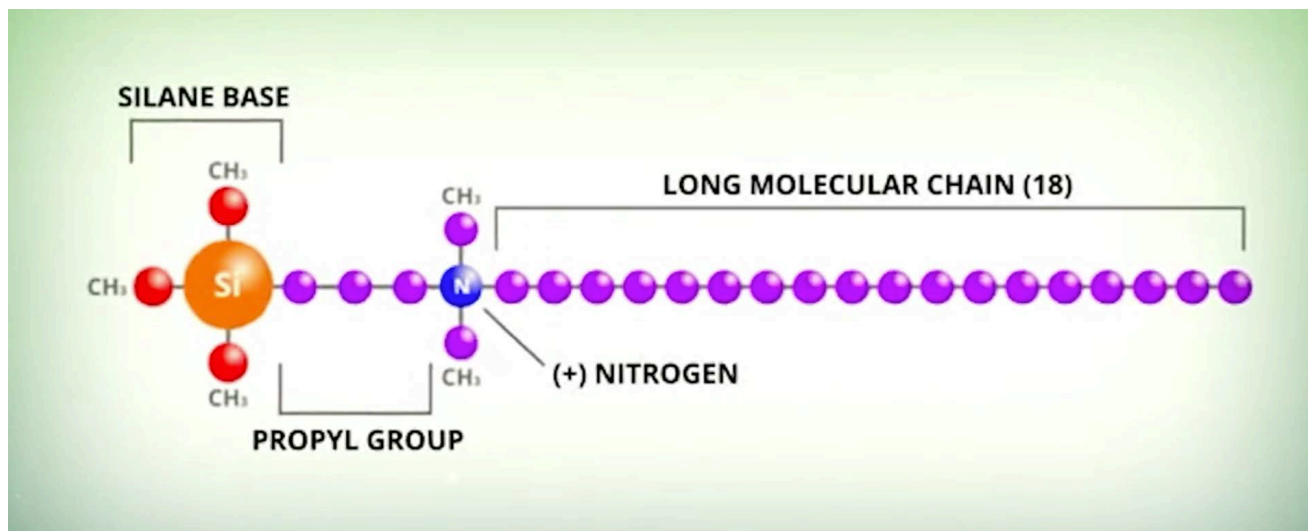
<https://www.fda.gov/drugs/drug-information-consumers/otc-drug-facts-label>

BioGlove provides consumers with federally outlined Material Safety Data Sheets (MSDS) that outline in great detail all the active and non-active ingredients we use in our one of kind 12 hour hand and 28 day surface microbial defense products. The active ingredient is Benzalkonium Chloride (BAC)

- Please don't get it confused with similarly spelled ingredients that our competitors use.

<https://www.fda.gov/drugs/drug-information-consumers/otc-drug-facts-label>

What sets BioGlove apart from the competition is our proprietary blended, water based, non-toxic molecular delivery system. We utilize a Silane base at the molecular level as the foundation. Nano sized, silane base particles have a very strong bond to the target substrate. These attach to the propyl group which connects it to the positively charged nitrogen atoms which, in turn, is topped by a chain of 18 carbons surrounded by a field of protons. This acts to pierce the microbes and begin the total destruction of germs, bacteria, and viruses at their core. This process is the same for both skin and surfaces.



HOW, WHAT AND WHY

BioGlove does not wash off with soap and water and is not affected by chlorine water in pools nor saltwater from the ocean. BioGlove immediately attaches onto the skin at the Stratum Corneum which is the outermost layer of the epidermis skin. It is made up of 10 to 30, thin micro layers of continually shedding, dead keratinocytes cells. As the outermost cells age and wear down, they are replaced by new layers of strong, long-wearing cells. BioGlove bonds to the stratum corneum layer of skin and is shed or sloughed off as new cells take its place. This shedding process slows down with as people age. Partial to complete cell turnover occurs approximately every 12 hours to 32 days.

<https://training.seer.cancer.gov/melanoma/anatomy/layers.html#:~:text=The%20stratum%20corneum%20is%20sloughed,50%20days%20in%20elderly%20adults.>

APPROVALS OF BIOGLOVE ACTIVE INGREDIENTS

FDA:

Active ingredient in BioGlove is: benzalkonium chloride.

<https://www.fda.gov/drugs/information-drug-class/antiseptic-fda-letters>

CDC:

Active ingredient in BioGlove is benzalkonium chloride: Scroll down where it says active ingredients benzalkonium chloride is deemed eligible by FDA for use in the formulation of healthcare personnel hand rubs.

<https://www.cdc.gov/coronavirus/2019-ncov/hcp/hand-hygiene.html>

NIH:

Active ingredient in BioGlove is benzalkonium chloride.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6581159/>

EPA: EPA NON HAZARDOUS APPROVAL NUMBER: HSR006977 for benzalkonium chloride

<https://www.epa.gov/tt/database-search/approved-hazardous-substances-with-controls/view/16188>

REFERENCES

1. Aiello, A.E., Coulbourn, R.M., Perez, V., and Larson, E.L. 2008. Effect of hand hygiene on infectious disease risk in the community setting. *American Journal of Public Health*, 98 (8): 1372-1381.
2. Armstrong, J.A., and Froelich, E.J. 1964. Inactivation of viruses by benzalkonium chloride. *Applied Microbiology*, 12 (2): 132-137.
3. Bjorland, J., Steinum, T., Kvitte, B., Waage, S., Sunde, M., and Heir, E. 2005. Widespread distribution of disinfectant resistance genes among Staphylococci of bovine and caprine origin in Norway. *Journal of Clinical Microbiology*, 43 (9): 4363-4369.
4. Campanac, C., Pineau, L., Payard, A., Baziard-Mouysset, G., and Roques, C. 2002. Interactions between biocide cationic agents and bacterial biofilms. *Antimicrobial agents and chemotherapy*, 46 (5): 1469-1474.
5. Chi, S.Y., Kim, T.O., Park, C.W., Yu, J.Y., Lee, B., Lee, H.S., Kim, Y.I., Lim, S.C., and Kwon, Y.S. 2012. Bacterial pathogens of ventilator associated pneumonia in a tertiary referral hospital. *Tuberculosis and Respiratory Diseases*, 73 (1): 32-37.
6. Chuanchuen, R., Benlich, K., Hoang, T.T., Becher, A., Karkhoff-Schweizer, R.R., and Schweizer, H.P. 2001. Cross-resistance between triclosan and antibiotics in *Pseudomonas aeruginosa* is mediated by multidrug efflux pumps: exposure of a susceptible mutant strain to triclosan selects nfxB mutants overexpressing MexCD-OprJ. *Antimicrobial Agents and Chemotherapy*, 45 (2): 428-432.
7. Ciric, L., Mullany, P., and Roberts, A.P. 2011. Antibiotic and antiseptic resistance genes are linked on a novel mobile genetic element: Tn6087. *Journal of Antimicrobial Chemotherapy*, 66: 2235-2239.
8. Cook, H.A., Cimioti, J.P., Phyllis D.L., Saiman, L., and Larson, E.L. 2007. Antimicrobial resistance patterns of colonizing flora on nurses' hands in the neonatal intensive care unit. *American Journal of Infection Control*, 35 (4): 231-236.
9. Coughlin, R.T., Tonsager, S., and McGroarty, E.J. 1983. Quantitation of metal cations bound to membranes and extracted lipopolysaccharide of *Escherichia coli*. *Biochemistry*, 22 (8): 2002-2007.
10. Engel, J.S., and Spiller, H.A. 2010. Acute ethanol poisoning in a 4-year-old as a result of ethanol-based hand-sanitizer ingestion. *Pediatric Emergency Care*, 26 (70): 508-509.
11. Fazlari, A., and Ekhtelat, M. 2012. The disinfectant effects of benzalkonium chloride on some important foodborne pathogens. *American-Eurasian Journal of Agricultural & Environmental Science*, 12 (1): 23-29.
12. Frenzel, E., Schmidt, S., Niederweis, M., and Steinhilber, K. 2011. Importance of porins for biocide efficacy against *Mycobacterium smegmatis*. *Applied and Environmental Microbiology*, 77 (9): 3068-3073.
13. Gordin, F.M., Schultz, M.E., Huber, R.A., and Gill, J.A. 2005. Reduction in nosocomial transmission of drug-resistant bacteria after introduction of an alcohol-based hand rub. *Infection control and hospital epidemiology*, 26 (7): 650-653.
14. Gormley, N.J., Bronstein, A.C., Rasimas, J.J., Pao, M., Wratney, A.T., Sun, J., Austin, H.A., and Suffredini, A.F. 2012. The rising incidence of intentional ingestion of ethanol-containing hand sanitizers. *Critical Care Medicine*, 40 (1): 290-294.
15. Hammond, B., Ali, Y., Fendler, E., Dolan, M.D.S. 2000. Effect of hand sanitizer use on elementary school absenteeism. *American Journal of Infection Control*, 28:340-6.
16. Hwaser, S. 2012. Surveillance programmes and antibiotic resistance: worldwide and regional monitoring of antibiotic resistance trends. *Handbook of Experimental Pharmacology*, 211: 31-43.
17. Kampf, G., and Kramer, A. 2004. Epidemiologic background of hand hygiene and evaluation of the most important agents for scrubs and rubs. *Clinical Microbiology Reviews*, 17 (4): 863-893.
18. Lau, C.H., Springston, E.E., Sohn, M.W., Mason, I., Gadola, E., Damitza, M., and Gupta, R.S. 2012. Hand hygiene instruction decreases illness-related absenteeism in elementary schools: a prospective cohort study. *Biomedical Central Pediatrics*, 12 (52): 1-7.
19. Leaper, D., McBainm, A.J., Kramer, A., Assdian, O., Sanchez, J.L.A., Lumio, J., and Kiernan, M. 2010. Healthcare associated infection: novel strategies and antimicrobial implants to prevent surgical site infection. *Annals of the Royal College of Surgeons of England*, 92: 452-458.
20. Mangalappall-Ilathu, A.K., and Korber, D.R. 2006. Adaptive resistance and differential protein expression on *Salmonella enteric serovar enteritidis* biofilms exposed to benzalkonium chloride. *Antimicrobial agents and chemotherapy*, 50 (11): 3588-3596.
21. McDonnell, G., and Russell, A.D. 1999. Antiseptics and disinfectants: activity, action, and resistance. *Clinical Microbiology Reviews*, 12 (1): 147-179.
22. Moen, B., Rudi, K., Bore, E., and Langsrud, S. 2012. Subminimal inhibitory concentrations of the disinfectant benzalkonium chloride select for a tolerant subpopulation of *Escherichia coli* with inheritable characteristics. *International Journal of Molecular Sciences*, 12: 4101-4123.
23. Nasvall, J., Sun, L., Roth, J.R., and Andersson, D.I. 2012. Real-time evolution of new genes by innovation, amplification and divergence. *Science*, 338 (6105):384-387.
24. Nic, M., Jirat, B., and Kosata, B. 2006. IUPAC of quaternary ammonium compounds [online]. Available from <http://goldbook.iupac.org/Q05003.html> [accessed 26 October 2012].
25. Nikaido, H. 2003. Molecular basis of bacterial outer membrane permeability revisited. *Microbiology and Molecular Biology Reviews*, 67 (4): 593-656.
26. Oxford, J.S., Potter, W., McLaren, C., and Hardy, W. 1971. Inactivation of influenza and other viruses by a mixture of virucidal compounds. *American Society for Microbiology*, 21 (4): 606-610.
27. Pagar, A., Singh, J., and Batish, V.K. 2011. Efflux mediated adaptive and cross resistance to ciprofloxacin and benzalkonium chloride in *Pseudomonas aeruginosa* of dairy origin. *Journal of Basic Microbiology*, 51: 289-295.
28. Prazuck, T., Compte-Nguyen, G., Pelat, C., Sunder, S., and Blanchon, T. 2010. Reducing gastroenteritis occurrences and their consequences in elementary schools with alcohol-based hand sanitizers. *The Pediatric Infectious Disease Journal*, 29 (11): 994-998.
29. Reynolds, S.A., Levy, F., and Walker, E.S. 2006. Hand sanitizer alert. *Emerging Infectious Diseases*, 12 (3): 527-529.
30. Sidhu, M.S., Heir, E., Sorum, and Holck A. 2001. Genetic linkage between resistance to quaternary ammonium compounds and beta-lactam antibiotics in food-related *Staphylococcus* spp. *Microbial Drug Resistance*, 7 (4): 363-371.
31. Sheldon, A.T. 2005. 'Antiseptic resistance': real or perceived threat? *Clinical Infectious Diseases*, 40 (11): 1650-1656.
32. To, M.S., Favrin, S., Romanova, N., and Griffiths, M.W. 2002. Post adaptational resistance to benzalkonium chloride and subsequent physicochemical modifications of *Listeria monocytogenes*. *Applied and Environmental Microbiology*, 68 (11): 5258-5264.
33. White, C., Kolbe, R., Carlson, R., Lipson, N., Dolan, M., Ali, Y., and Cline, M. 2003. The effect of hand hygiene on illness rate among students in university residence halls. *American Journal of Infection Control*, 31:364-370.