



Information about Anti-Virus Testing

MicroSilver BG™

by

Bio-Gate

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How was the test carried out?

A screening test (quantitative suspension test) against a so-called enveloped surrogate virus (a type of smallpox virus) was carried out. Viruses such as the current corona virus and influenza A are also enveloped viruses.

Can you also have your products tested?

This is not necessary because you can also make claims based on our test results.*

What claims can you make for your cosmetic products with MicroSilver BG?

In general, you can use the following claim:

Laboratory tests have shown that MicroSilver BG is both antimicrobial and antiviral.*

If there are also results against bacteria (QualityLabs offers such tests), the following claims can also be made:

Cares for the skin and protects against pathogens*

*German case law - may vary in other countries

Anti-Viral Efficacy of MicroSilver BG

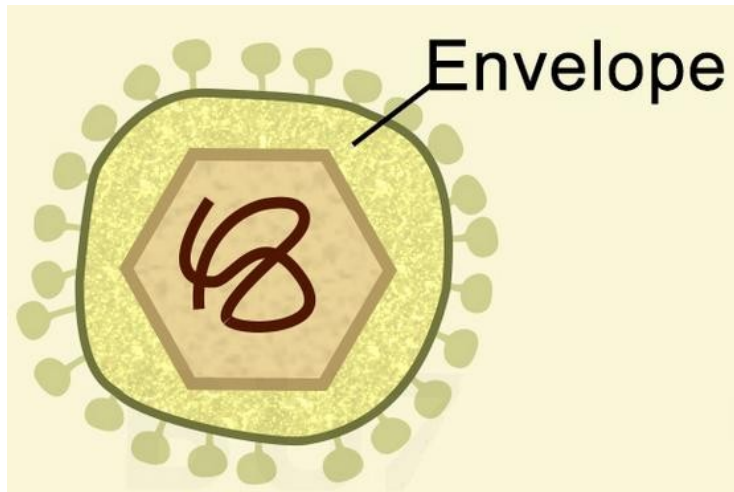


What are viruses and why are they different to bacteria?

Virologists largely agree that viruses are not considered to be living organisms.

	Viruses	Bacteria
Appearance	Virions with or without Evenlope	Cells
Can multiply on their own	No	Yes
Need a host cell for multiplication	Yes	No
Consist of one cell	No	Yes
Have a metabolism	No	Yes
Genetic code consists of	single stranded RNA double stranded RNA single stranded DNA double stranded DNA	double stranded DNA
Sensitive to Antibiotics	No	Yes
Sensitive to Alcohol	Yes for enveloped viruses No for non-enveloped viruses	Yes
Sensitive to Heat	Yes for enveloped viruses No for non-enveloped viruses	Yes (except for extremophiles)
Sensitive to MicroSilver BG	Yes	Yes

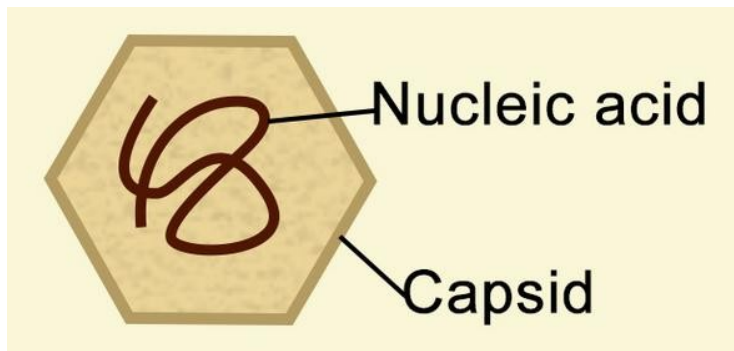
Difference between enveloped and non-enveloped viruses



Viruses with **an** envelope are sensitive to alcohol/heat

Examples for enveloped viruses are:

- SARS-Cov-2 (current Corona virus)
- SARS-Cov
- MVA
- MERS
- Influenza A
- Ebola, Hanta, Lassa
- HIV
- NDV



Viruses without **an** envelope are not sensitive to alcohol/heat

Examples for non-enveloped viruses are:

- Noro virus
- Papilloma virus
- Hepatitis A
- Polio

Viruses do not show metabolic activity outside a host cells.

Thus, the interaction between silver ions and a virus must involve a mechanism which does not require a metabolic process.

To “kill” a virus it is necessary to block the successful reproduction in a host cell.

This may be accomplished by permanently destroying host-cell receptors on the virus, or inactivating the nucleic acid within the viral capsid.

€ MicroSilver BG ions (Ag^+) bind to charged areas on virions, the capsid and on the nucleic acid.

In scientific literature there is proof that silver works against viruses:

Robert B. Thurman, Charles P. Gerba & Gabriel Bitton (1989): The molecular mechanisms of copper and silver ion disinfection of bacteria and viruses, Critical Reviews in Environmental Control, 18:4, 295-315

Minoshima et al.: Comparison of the antiviral effect of solid-state copper and silver compounds. Journal of Hazardous Materials, Volume 312, 15 July 2016, Pages 1-7

Concannon et al.: A randomized comparative evaluation of clinical and home application to investigate the effectiveness of silver nitrate (AgNO₃) (95%) for the treatment of verruca pedis. Int J Pharm Pract. 2017 Dec;25(6):421-428.

Ebrahimi et al.: Efficacy of 10% silver nitrate solution in the treatment of common warts: a placebo-controlled, randomized, clinical trial. Int J Dermatol. 2007 Feb;46(2):215-7.