



HYGIENIC SURFACES

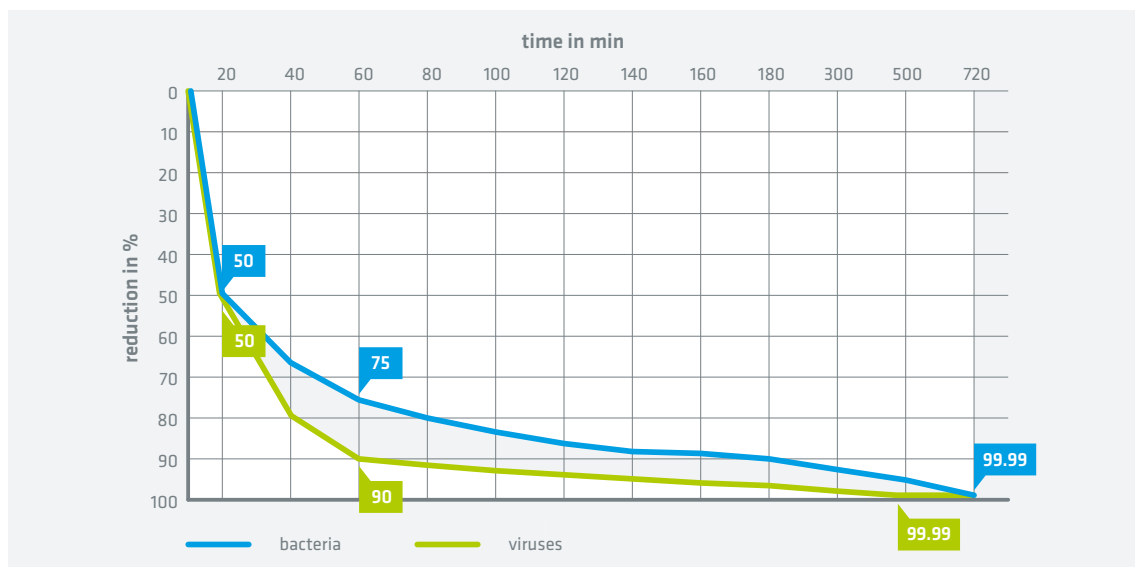
Antimicrobial coating

SUBSTRATES

- » **plastics** (e. g. PC, PP, ETFE & many others on request)
- » **glass** (e. g. borosilicate glass, soda-lime glass, quartz glass)
- » **metals and alloys** (e. g. steel, aluminium, copper, brass)

PROPERTIES

- » **reduces proliferation of dangerous germs between cleaning cycles**
- » **active agent: agpure® nanosilver** (trafficable according to the biocides directive, EU regulation No. 528/2012, listed in article 95, annex II; CAS No. 7440-22-4)
- » **maximum temperature load: 200 °C**
- » **film thickness from 150 nm up to 2,500 nm**
- » **antiviral effect:** virus reduction > 90 % after one hour (Ig 1.35), virus reduction > 99.99 % after 8 hours (Ig 4.5); testing of virucidal coated germ carriers in practical virucidal carrier test based on RKI guideline (1995) and ISO 21702:2019 against the bovine coronavirus (BoCV; strain: S379 Riems) – screening test S1
- » **lifelong antimicrobial effectiveness** (significantly antimicrobial according to ISO 22196/JIS Z 2801:2010)
- » **physiologically harmless** (biocompatible according to DIN EN ISO 10993-5)
- » **resistant to abrasion** (according to DIN EN 60068-2-70; minimum 100,000 cycles)
- » **scratch-resistant** (scratch hardness according to DIN EN ISO 1518 up to 20 N; pencil hardness according to DIN EN ISO 15184 up to 10 H)
- » **adhesion-proof** (cross-cut test according to DIN EN ISO 2409)
- » **no change in haptic and optic quality of substrates**
- » **chemically resistant to customary detergents and disinfection methods**
- » **transparent, individually coloured on request or proof of presence using fluorescent particles**
- » **mechanically flexible**
- » **tested in contact with food** (tested by TÜV Rheinland: stainless steel plate coated with SANPURE® meets requirements of §31 LFGB)



TECHNOLOGIE

- » **dip coating or spray coating**
- » **application process is defined individually according to geometry and requirements of the substrate**

COATING

- » **coating material tested according to REACH and RoHS**
- » **certified according to ISO 9001:2015; process organization complies with IATF 16949**
- » **environmental management conforms to ISO 14001**

SANPURE® declares war on viruses

A test carried out by the hygiene laboratory Eurovir in June 2020 proved the effectiveness of SANPURE® against viruses. In this test the reduction of the virus load amounted to more than 90 percent after one hour (lg 1.35). After eight hours there was a virus reduction of over 99.99 percent (lg 4.5). Almost no virus load could be demonstrated on the substrate after only eight hours.

SANPURE® is effective against viruses, bacteria, germs and fungus. That's why it is the perfect solution to today's hygienic problems. Frequently used surfaces can be protected effectively against dangerous pathogens. This improves the hygienic situation a lot.

Small quantity – big impact

A case study at the university hospital in Regensburg proved that even the smallest quantities of silver contained in surfaces contribute to a considerable improvement in hygiene. The research activities were observed by the RAS AG – a partner of GBneuhäus – that developed the active agent agpure® contained in our SANPURE® coating. The above-mentioned study was carried out in 2019 at the emergency room of the university hospital in Regensburg, where the effectiveness of SANPURE® was tested in the laboratory as well as in real-world situations. The results unequivocally prove the high efficiency of this antimicrobial coating in the fight for more hygiene.

In laboratory conditions, the solution devitalized 99.9% of the microbes that it came into contact with. Proof under real-world conditions seemed to be slightly more difficult. To this end, contact-plate sampling tests were conducted over a period of three months in two identical rooms during running operations, where one of the rooms was partially equipped with surfaces coated with SANPURE®. The experiment could establish that the overall germ contamination – even on uncoated surfaces – was considerably lower thanks to SANPURE®. This naturally contributed to improving the overall hygienic situation.

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The case study showed how effective SANPURE® is in the fight against bacteria and germs – especially in hospitals and in similar organizations, where solutions for multi-resistant germs are the need of the hour in order to reduce the number of victims that fall prey to this problem. The functional surface coating SANPURE®, developed by the GBneuhäus in cooperation with RAS AG, combats bacteria, germs and fungi and is the number one guarantee for more hygiene – in many day-to-day situations and especially in the public space.

YOUR BENEFIT: OUR SERVICE – Yes, we coat!

As your service partner, we are always available to answer any questions or queries you might have. It would thrill us if you are interested in SANPURE®, would like to test out its possibilities and would like to contribute, with us as your partner, to the improvement of hygiene in the daily lives of people all over the world. In this way, our service can transform into your unbeatable advantage. We look forward to working with you!

FREQUENTLY ASKED QUESTIONS

Does nanosilver work against bacteria and germs?

The antimicrobial effect of silver was first determined in the 19th century. Its oligodynamic effect (harmful effect on living cells) makes sure that even negligible quantities of silver unleash an antibacterial effect.

The silver particles in nanosilver have a size of 1 to 100 nm. This is more than enough to protect the material from microbial attack. When a coated surface comes in contact with moisture, silver ions are released, reach the surface and react there with the DNA of the bacteria, impairing vital metabolic pathways. This leads to the death of the bacteria.

For this to happen, an air humidity rate of roughly 20% is more than enough. The effectiveness of silver ions against fungi and viruses has similarly been documented.

Is SANPURE® effective against viruses?

SANPURE® was tested in a practical virucidal carrier test based on RKI guideline (1995) and ISO 21702:2019 against the bovine coronavirus (BoCV; strain: S379 Riems) – screening test S1. After a contact time of one hour the virus reduction amounted to more than 90 percent (lg 1.35).

Almost no virus load could be demonstrated on the surface of the substrate after only eight hours. The reduction was more than 99.99 percent (lg 4.5).

How can one test the effectiveness of SANPURE® on one's individual product?

GBneuhaus offers a three-stage sampling process. Within this process, customers and partners witness firsthand the effectiveness of the antimicrobial coating and can test the performance of their product after coating without much effort.

How long does the nanosilver remain effective and when is the reserve of silver empty?

Current experiments and projections have concluded that the nanosilver is effective for more than 20 years. The reserve of silver is larger than in silver salts or in layers that contain copper

Is it dangerous for my skin cells to come in contact with a surface coated with SANPURE®?

No. A study by Dirk Hoefer and Timo R. Hammer substantiates: Antimicrobial active agents do not show any harmful effects on the ecological equilibrium of the microflora in healthy human skin.¹

Does nanosilver harm the environment?

SANPURE® contains a modern system for the controlled release of active agents and thus fulfills all requirements for biocompatibility. It is therefore considered physiologically harmless and thus does not harm nature.

Can silver leach out or diffuse from the surface?

The silver will never diffuse to such an extent that the antimicrobial effect of SANPURE® is compromised in any way. An experiment in which the coated surface was wiped with HNO₃ twice a day showed a life period of 55 years for the coating.

How can one be sure of the antimicrobial protection offered by SANPURE® especially since the coating itself is invisible?

Since SANPURE® contains fluorescent particles, it can be made visible under UV light if required.

Does one even need to clean surfaces that are coated with SANPURE®?

In order to guarantee the best possible hygiene on the surface, standard cleaning cycles should be observed as usual. SANPURE® improves the hygienic situation in the intervals between cleaning cycles, prevents the growth and spread of bacteria, germs and fungi and disintegrates them gradually. While cleaning or disinfecting the surface only improves the situation temporarily, SANPURE® improves hygiene long-term.

What advantage does SANPURE® offer as opposed to a powder coating with silver?

SANPURE® is considerably thinner than a powder coating and hence requires the use of a much lesser amount of material. In addition, the product looks and feels exactly the same after being coated with SANPURE®.

¹ Hoefer, D.; Hammer, T. R. (2011). "Antimicrobial active clothes display no adverse effects on the ecological balance of the healthy human skin microflora", ISRN Dermatology, 2011, 369603. <http://doi.org/10.5402/2011/369603>