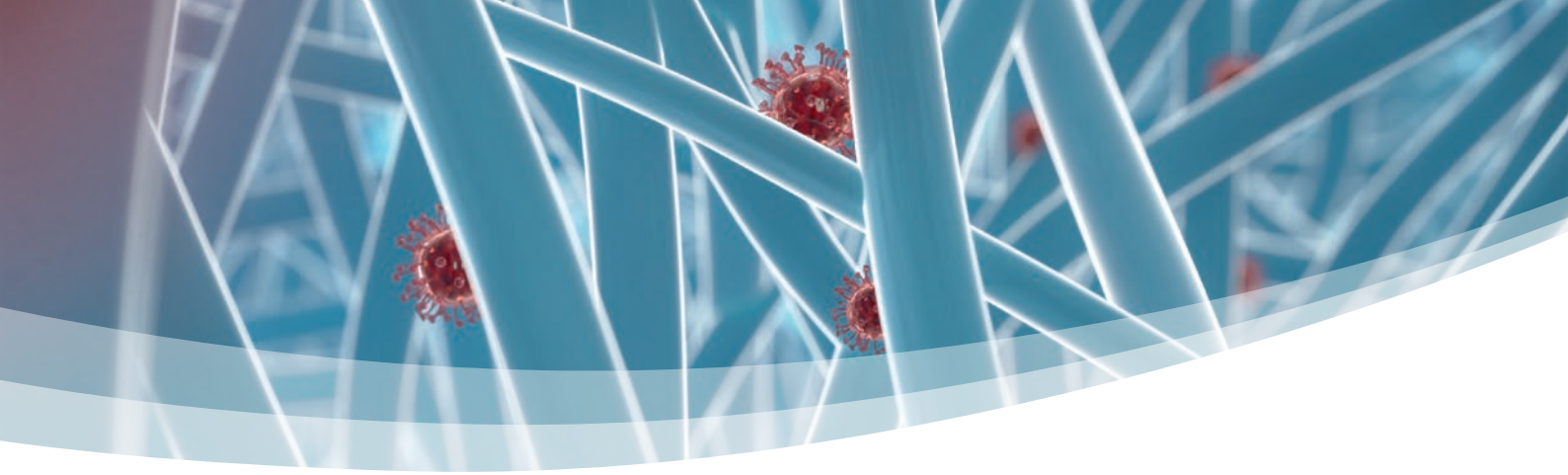


CUSTOMER INFORMATION

micronAir® blue

REDUCING THE AEROSOL CONCENTRATION – HOW MICRONAIR CABIN AIR FILTERS EFFECTIVELY CONTRIBUTE TO REDUCING THE TRANSMISSION OF THE SARS-COV-2 VIRUS

The World Health Organization (WHO) declared the infection events related to the SARS-CoV-2 virus to be a global pandemic in mid-March 2020. At present, it is not possible to estimate when an effective vaccination for the entire world population will be achieved. Even assuming this is achieved faster than expected, we cannot know what role it might play in the years ahead. For this reason, we have to assume that SARS-CoV-2 will remain active in the future.

Against this background, we need to consider how to effectively mitigate the potential risk that the virus presents in our daily lives. Areas in which the risk of viral transmission has always been elevated are vehicle interiors. Confined spaces and close human proximity are well known to increase the risk of passing on viruses. For this reason, ensuring the cleanest possible air inside vehicle cabins has to be a priority.

Disclaimer: Please note that the claims being made in the following communication only apply to European countries. For locations outside of the European Economic Area (EEA) you should first review local regulatory restrictions. For the USA, the product is not available until the pending registration with the United States Environmental Protection Agency (US EPA) has been completed.

Back in April 2020, we published general guidance on this theme in our “Cabin air filter protection guidelines against COVID-19 health threats” information sheet. This covered such areas as infection paths and the behavior of viruses on surfaces. The most up-to-date research supports the statements made in this document concerning the use of our premium micronAir® blue cabin air filters to reduce the aerosol concentration indoors.

Understanding corona viruses

Corona viruses expelled when breathing, sneezing or coughing are passed initially from human to human by droplets. According to current studies, apart from quantity the size of the related airborne aerosol particles also varies significantly depending on the person and usually lies from 0.05 µm to 16 µm.

These viral droplets and aerosols (droplet nuclei) can be either directly absorbed by people or ingested via secondary contamination via the viral bio-burden released into the air again through changing operating conditions.

MICRONAIR BLUE WITH ANTI-VIRAL PROPERTIES: FOUR-LAYER FILTRATION FOR BEST POSSIBLE PROTECTION

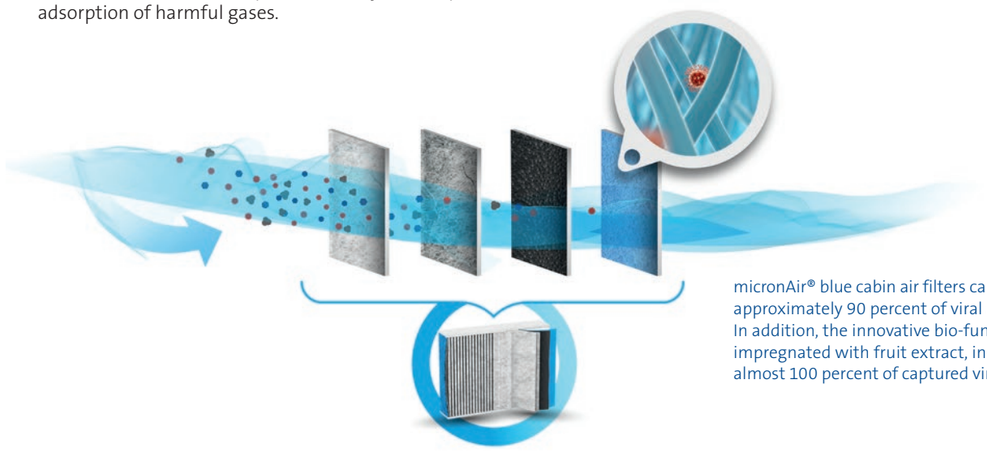
micronAir® blue cabin air filters provide active protection by significantly reducing the concentration of viral aerosols. This is achieved by a unique multi-layer design that effectively filters, separates and retains inorganic and biological particles and aerosols.

The fine particle filtration layers in the premium micronAir® blue cabin air filters provide decisive protection against virus transmission. They demonstrably separate not only droplets (> 5 µm), but also critical viral aerosols (droplet nuclei significantly below 5 µm).

The first two layers thus capture the majority of ultra-fine viral aerosols while the optional 3rd layer is responsible for adsorption of harmful gases.

In addition, the fourth bio-functional layer inactivates collected viral contaminants, therefore effectively suppresses the release of active viruses back into the cabin air. This has been conclusively proved by a comprehensive series of tests conducted at an independent external institute, specialized in microbiological analysis.

The high particulate and viral aerosol filtration performance is sufficient to significantly reduce the concentration of airborne viral aerosols. In this way, micronAir® blue cabin air filters make a substantial contribution to minimizing the risk of virus transmission inside vehicles.



micronAir® blue cabin air filters can trap approximately 90 percent of viral aerosols. In addition, the innovative bio-functional layer, impregnated with fruit extract, inactivates almost 100 percent of captured viral load.

RECOMMENDATIONS FOR THE REDUCTION OF INFECTION RISKS INSIDE THE VEHICLE CABIN

- **Increased fresh air supply** is an efficient way to protect against viruses inside vehicles. This maximizes the dilution of airborne aerosols.
- **The efficiency of the filter elements** plays a vital role in filtering out environmental contaminants, harmful substances and pathogenic aerosols. In recirculation mode, the viral air-cleaning performance depends heavily on the viral filtration efficiency of the filtration system and the air exchange rate.

Freudenberg Filtration Technologies SE & Co. KG
IAM@freudenberg-filter.com
www.micronairblue.com | www.freudenberg-filter.com

micronAir® blue cabin air filters reliably capture viral aerosols with their unique progressive multi-layer design and prevent the viral re-aerosolization.

We recommend indicating the following:

micronAir® blue with surface disinfection properties by means of a functional filter layer based on fruit extract (active ingredient CAS-Nr. 77-92-9 and/or 5949-29-1) for use in air handling/air conditioning systems: Bacteriostatic and fungistatic surface disinfection properties against a multitude of gram-positive and gram-negative bacteria, yeast and fungi as well as viral surface disinfection properties (excellent antiviral efficacy for example against corona virus HCoV 229E in accordance with to ISO 18184:2019) to prevent viral re-aerosolization.

The safest choice – now and in the future

The SARS-CoV-2 virus is just the latest of an unbroken line of viruses stretching back through human history. Even when it finally disappears, others will evolve to replace it. In terms of mitigating risk while travelling in motor vehicles, there is currently no better protection then the advanced micronAir® blue cabin air filters.

- **Innovative filter elements with the surface disinfection properties of a functional layer** efficiently prevent viral re-aerosolization while ensuring the highest level of protection of human health and the environment.
- **Filter service:** Especially under current conditions, the cabin air filter should be **changed more frequently than usual** to maintain optimum protection.

Legal conformity

The bio-functional layer in micronAir® blue cabin air filters is able to inactivate harmful organisms. Unlike traditional chemical biocides, many of which are already banned for use in vehicles or labeled “to be substituted”, the fruit extract used conforms to the European Biocide Directive (BPR). The European Chemicals Agency (ECHA) does not believe that citric acid raises any grounds for concern. It stated this in the European Commission’s delegated regulation of November 3, 2020. In accordance with the stipulations of the BPR, we inform the end-consumers that micronAir® blue cabin air filters are a “treated article” with biocidal properties.

About the European Biocide Directive (BPR)

The BPR is intended to regulate biocidal products that may pose risks to humans, animals and the environment. The directive (Regulation (EU) No. 528/2012) regulates the marketing and sale of biocidal products intended to protect humans, animals, materials or products against harmful organisms such as bacteria and viruses. The aim of the BPR is to strengthen the biocidal products market in the EU while ensuring a high level of protection for human health and the environment.

To learn more about how air filtration contributes to protecting against germs and viruses, go to:

www.freudenberg-filter.com/en/filtration-know-how/protection-against-viruses

Join us in fighting the spread of SARS-CoV-2 to protect your customers. Contact your regular micronAir® partner or email

IAM@freudenberg-filter.com

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