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Active Shield filter

New filter coating helps fight viruses

Despite the roll out of vaccine programmes, we continue to live with the Covid-19 pandemic and still need to protect ourselves and others. One automotive filtration specialist has produced an antiviral, antibacterial technology which eliminates 99% of airborne viruses, including Covid-19.

The A.L. Group has been providing filtration solutions to the automotive industry since it was founded in 1965. The company manufactures air, cabin, oil, fuel and other filter types for light vehicles as well as heavy-duty applications in its production facilities in Bulgaria, China and USA.

The Active Shield filter is designed for indoor air purifiers, for use in cabin air filters in transportation and in industrial filtration settings such as clean rooms or AC systems. The filters are produced using a coating technology developed by a leading Israeli University to solve the problem of infections in hospitals by treating patient linens and doctors’ scrubs, making them antiviral and antibacterial. After researching the technology, the A.L. Group was able to customise it to treat filtration media used to produce indoor air and cabin filters.

In addition to filtering the aerosol droplets carrying the virus, the copper-oxide impregnated into the Active Shield filtration media neutralises viruses and bacteria by disrupting the harmful organisms’ protective layers, interfering with their vital processes, which leaves them harmless and unable to multiply.

Active Shield was tested under the ISO 18184:2019 standard against SARS COV 2 in one of China’s leading laboratories. The testing showed over 99% antiviral activity and over 2 log reduction in viral load. Extensive medical tests under ISO 20743 were also carried out to evaluate Active Shield’s antibacterial efficacy against E.coli and S.aureus. The results demonstrate excellent antibacterial activity of 3 log reduction in bacteria growth.

Greener and safer
The patented technology uses a sonochemical assistant treatment and ultrasound waves to coat filtration media with metal-oxide, giving it antiviral and antibacterial properties. Itsik Levy, A.L. Group’s R&D manager, said: “This technology is greener and safer than any other available today. We do not use any harmful chemical binders in our impregnation process. We also don’t add any metal fibres.”

Multifunctional filter
Another advantage of this technology is that it can be combined with additional layers of the cabin filter, creating a multifunctional filter with carbon media, bio protection layers and HEPA media. “We tried our sonochemistry assistant treatment on different types of filtration media used by the A.L. Group to produce air cabin filters and found it to be excellent in impregnating all of them with metal oxide,” says Avi Pollak, the A.L. Group’s VP of Development & Engi-
neering. “The media coated using this unique process can be combined with other layers that offer additional functionality such as odour protection and anti-allergenic properties. This will create a multifunctional next-generation filter that will benefit the health of all people.”

The A.L. Group ran a series of filtration tests on the treated filters. The results show no difference in dust holding capacity, filtration efficiency and the differential pressure between Active Shield and regular filters, proving that the Active Shield coating does not influence the filter’s performance in any way.

**Technology potential**

The potential for the implementation of this technology is far-reaching. It can be used anywhere that people are gathered in a closed environment, whether that is a bus, train, hotel, hospital or office building. One of the more popular applications for this technology is residential, portable air purifiers. These devices filter the air we breathe in our homes and having an Active Shield filter in an air purifier will protect families from airborne viruses and bacteria. Another popular application is public transportation such as taxi companies that need to protect the health of drivers and passengers.

The A.L. Group will implement Active Shield in its range of automotive filters available in Europe, North America and Asia Pacific. Asaf Shafrir, VP of Sales & Marketing, said: “We offer our customers the flexibility to choose which cabin filter they want, a regular pollen filter, a carbon filter, or the Active Shield. In addition to our automotive customers, we already have multiple interests from the in-door filtration market. I believe that soon we will see Active Shield implemented in residential homes, hospitals, hotels, and of course, public transportation.”

As the importance of clean air becomes more and more evident, solutions such as Active Shield are crucial to putting the pandemic behind us and getting back to our normal lives.

**Technology focus**

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