Fachverlag für die Polymerindustrie

20. April 2016

Seals with antimicrobial protection help to improve air hygiene

The threatening syndromes of epidemics occurring more and more in recent times and the German Infection Protection Act to improve hygiene have led **Sonderhoff**, a specialist and system supplier of polymeric liquid seals and mixing and metering technology, to deal again with this topic.

Regular maintenance of air conditioning systems and the built-in air filter with antimicrobial seals helps protect against allergens and bacterial microorganisms and thus improves the indoor air quality.

Sonderhoff Chemicals GmbH has offered antimicrobial foam seals to its international customers already for several years, and has since optimised its sealing systems continuously. Special additives in the seal formulation provide for protection against harmful micro-organisms that can become lodged on the seals in unfavourable indoor climates. Therefore, manufacturers of technical equipment and air filters increasingly ask Sonderhoff for antimicrobial sealing solutions.
It is known that hot humid climates, as prevail in ventilation and air conditioning systems for the exchange of incoming and dissipated fresh air, promote bacterial growth. Specifically at increasing temperatures, the concentration of micro-organisms increases and fungal spores develop a higher vitality. Such conditions are a good breeding ground for germs and diseases that can cause infections in humans. Therefore, the market for air conditioning systems requires special seals with a surface on which micro-organisms, such as moulds and fungal spores, cannot develop.

Minipleat filters separate particles or aerosols, toxic dusts, bacteria, germs etc. from the supply air and exhaust air in ventilation systems with large volume flows and long filter life (picture: Trox GmbH).

The fact that the German Federal Government – by revising the Infection Protection Act (Printed Matter 17/5178, which has been adopted by the Bundestag on 9 June 2011) – has declared war against germs and pathogens, shows the extent of the problem and its consequences for society. Against this background, the importance of the mechanical ventilation of interior spaces through air handling (HVAC) systems, i. e. the use of air conditioners and their quality standards, has newly been discussed. Specifically, the air filters of this equipment, which are intended to improve the climatic conditions of interiors, stand out in the public focus as major risk factors for contamination of indoor air.

In this context, infections transmitted with the room air are increasingly observed as a cause of adverse reactions and infectious diseases in humans and animals – also known as the "sick building syndrome". A reason for this is the separation of dust and biogenic constituents as well as the accumulation of living and dead micro-organisms on air filters in air conditioners, which can lead to a health-relevant pollution of indoor air.

Ventilation systems must therefore function properly because the accumulation of micro-organisms held on air filters may represent a potent allergen reservoir. To ensure hygienic standards of HVAC systems, regular technical and hygienic controls are therefore necessary. Amongst these measures, the leak-free seat of air filters is checked by optimal seals, which are provided, at best, with an antibacterial protection.

Sonderhoff foam seals suitable for use in HVAC systems

The **Institute for Air Hygiene (ILH Berlin)** has recently tested selected foam seal systems from Sonderhoff Chemicals and recognised them as suitable for use in HVAC systems. The foam seal systems **Fermapor K31-A-9020-17F** and **K31-A-9308-5-VP5-F** as well as the potting system **Fermadur A-196-4F** especially developed for HVAC systems have been examined in their resistance to fungi and bacteria according to DIN EN ISO 846 (Evaluation of the action of microorganisms on plastics). These systems also meet the requirements for microbial inertness of the VDI 6022 (test for microbial metabolic potential, Part 1 (04/2006)). The test results show that the sealing material is not used as a nutrient source for micro-organisms.

The Fermapor foam seals with antibacterial features protect the plastic surfaces of the air technical components for air distribution – such as ventilation grilles, air filter, nebulizers and access locks – effectively against attacks by allergens and bacterial microorganisms that can settle on them. They are distinguished by a high tensile strength and low water absorption and can be processed precisely to

contours with inclines and declines even with complex, three-dimensional components. On painted or powder-coated metal surfaces they have an optimal adhesion.

About the author:

Florian Kampf
f.kampf@sonderhoff.com
Senior Manager Marketing/PR
Sonderhoff Holding GmbH, Cologne, Germany