

innovation

# Keeping the cabin clean

By Nick Palmen

**“A recent test series of competitive filters for high volume vehicle models sampled from IAM service garages again showed that many of these filters allow 2-, 3- or 4-times as much fine dust (below 2.5 micron aerodynamic diameter of particles, such as soot) to pass through into the vehicle cabin.”**

Peter Adam, general manager automotive filters Freudenberg Vliesstoffe KG.

**Motorists are becoming increasingly concerned about the quality of the air inside the cabins of their vehicles.**

The majority of today's vehicles are fitted with cabin air filters by Freudenberg Vliesstoffe KG. The company introduced cabin air filters to German automobile manufacturers in 1989. Since then micronAir has been the

brand of choice in both the original equipment and after market for cabin air filters.

The filtration material is provided by Freudenberg Nonwovens, one of the world's largest producers of nonwovens, with 23 manufacturing and processing sites in 13 countries. The company also manufactures nonwovens for the apparel, construction, shoe, textile/upholstered furniture and hygiene industries, as well as for medical and numerous other industrial applications. Last year, the FV Group realized sales of over 800 million Euros. It has over 4,800 employees worldwide.

The company is part of the Freudenberg Group, whose nonwovens, seals and vibration control technology, household products, specialty chemicals and other business areas generates sales of around 5.3 billion Euros and has 33,000 employees. Automotive Industries (AI) spoke with Peter Adam - general manager automotive filters, Freudenberg Vliesstoffe KG.

**AI:** Fiat Group in Torino, Italy has awarded you the prestigious “Qualitas Award” as one of its best suppliers. What were the factors that contributed to this excellent achievement?

**Adam:** The “Qualitas Award” above all recognized the delivery service, supply chain management and excellent coopera-

tion of Freudenberg and its filter teams in both Italy and Germany. We are the first OES supplier ever to receive this award - and that makes us very proud.

**AI:** Can you tell us more about your “Vendor Managed Inventory” project with Fiat?

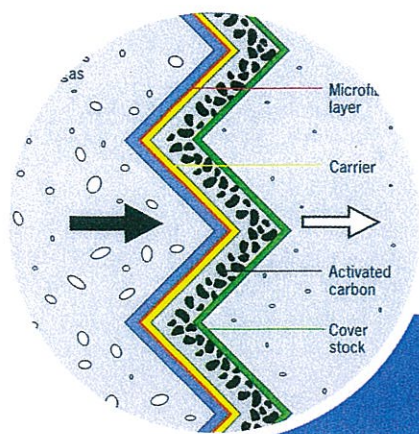
**Adam:** Fiat invited us to start ‘VMI - Vendor Managed Inventory’ with our cabin air filters as a pilot project. VMI means that we directly manage Fiat's stock levels for our products according to agreed targets via our EDI connection. But that's not all: To secure highest service levels to Fiat, we are handling packaging and warehousing of the filters locally, i.e. in the vicinity of Fiat's Torino factory. Being the first supplier fully integrated in the Part & Services supply chain of Fiat was one of the key reasons Fiat awarded the “Qualitas Award” to Freudenberg.

**AI:** What is driving the CAF market at present?

**Adam:** Basically, it is all about improving the quality of air that we breathe in a vehicle. The automotive industry demands innovative solutions with higher filtration performance of cabin air filters in order to increase passenger protection from harmful particles, gases and unpleasant odors. Public awareness and understanding of the serious damage fine dust particles, such as



**With the Qualitas award from Fiat are, from the left: Sergio Papa, key account manager Fiat Group, Peter Adam, general manager Auto Filters Europe and Giacomo Menzio, marketing manager Italy**



A technician shows a customer just how much pollution has been filtered out of the cabin air.



Improving the quality of the air that we breathe.

soot entering the lungs can cause in the human body are increasing rapidly. Longer lifetime and lower cost are additional challenges that drive new filter media development and innovative filter designs for new vehicle generations.

**AI:** What are the benefits of the micronAir filters?

**Adam:** Our micronAir filters fulfill the stringent performance and quality requirements of the leading car manufacturers across the world. We can offer the broadest portfolio of manufacturing technologies and design options, including our proprietary filter media. This allows us to offer tailor-made solutions to our customer for each individual vehicle platform at competitive cost. Global teams of sales engineers and product development specialists are working closely with OEM and OES customers to drive performance of micronAir filters to the next level. We apply the same OE quality standards and performance specifications to our micronAir filters around the world. In the IAM (Independent Aftermarket) the micronAir brand stands for OE quality, whereas performance tests show that large volumes of other branded and white label cabin air filters sold in the global IAM, especially from manufacturers that are not qualified OE suppliers, are far from meeting OE quality levels. A recent test series of competitive filters for high volume vehicle models sampled from IAM service garages again showed that many of these filters allow 2-, 3- or 4-times as much fine dust (below 2.5 micron aerodynamic diameter of particles, such as soot) to pass through into the vehicle cabin.

Freudenberg has in-house prototype development and testing lab facilities around the world, which are closely linked and work according to the same international standards and customer requirements. In addition to the internal R&D network, cooperation with external research institutes and test labs is part of our R&D strategy to keep the micronAir®

brand name as the global reference for cabin air filters in the market.

**AI:** What are the trends in Europe and North America?

**Adam:** Basically, we see the same trends in regard to performance and quality requirements of the automotive industry. There are some major differences though: Whereas first fit rates in newly built cars have been increasing continuously to almost 100% in Europe, installations of cabin air filters have stagnated at around 40% in North America in recent years as US car manufacturers focused on cutting cost to regain profitability. Although, installations in Japanese and European car brands built in North America are on levels comparable to those in Japan and Europe. Another major difference between the European and North American markets is the low share of combination filters (incorporating activated carbon layers to reduce harmful gases and trap unpleasant odors besides filtering out dust and pollen) installed in North American brands, whereas their share in Europe is around 50%.

**AI:** How do you see the development of these types of filters in different markets?

**Adam:** The share of combination filters continues to rise as they combine the benefits of particle and gas filtration. Particle filtration efficiencies as well as gas adsorption will be further improved through innovation in media development. Emerging markets show relatively low shares of combination filters as these are approximately double the cost of particle filters, but they are following the same trends as mature markets like Europe and Japan. Mid- to long-term, consumer demand for better in-vehicle air quality in the US and Canada as well as the competitive pressure from successful Japanese and European brands will spur installation rates in North America to follow European and Japanese trends, again.

**AI:** What is the future of CAF technology?

**Adam:** Here we have to differentiate between filter media technology and filter converting technology. Filter media technology development is driven by the demand for higher filtration performance and filter life-time. New developments in nonwovens technology are focussing on more sophisticated ways to build 3-dimensional fiber structures trapping even ultra-fine particles. Enhanced gas adsorption is achieved through the use of improved activated carbons and their optimized incorporation in nonwoven composites.

Converting technology is becoming more flexible, using multiple technologies to meet new challenges in filter design to adapt filter shapes to stringent space requirements in modern air conditioning systems. The degree of automation in converting processes is rising as productivity needs to increase and volumes are growing worldwide. **AI**

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