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Low-emission foam sealing at star-level quality

The further development of low-emission polyurethane foams has long been a topic at Sonderhoff. In the meantime, low-emission polyurethane foam sealings are available that meet the strict limit value requirements of almost all automobile manufacturers. Recently, Sonderhoff Chemicals received a star-level distinction: the auto-manufacturer Daimler confirmed to the sealing specialists from Cologne that the low-emission polyurethane foam sealant Fermapor K31-A-45CO-1-G-LE meets the strict technical requirements of the manufacturer's delivery specifications DBL 5452-13 on keeping to the VOC emission target values and for fogging behaviour.

Volatile organic compounds in the air can lead to
a fogging effect on windscreens or the inside of headlights.

Because we spend so much time in cars today, car manufacturers place particular importance on the optimal design of car interiors. And this is not only regarding comfort and user-friendliness, but rather what also concerns air quality and low emissions and thereby the health of the car's occupants.

The use of materials with the lowest emissions possible avoids the high VOC burden on the air in the vehicle's interior, which may cause irritation to the eyes, nose, throat and skin among other allergic effects. Known under the general term volatile organic compounds, VOCs can slowly diffuse to the surface area of plastic components and get into the air. This includes e. g. accompanying substances such as solvents, softeners, stabilisers, solubilising agents, antioxidants or additives that are not always firmly integrated into the molecular structure of plastics or glues.

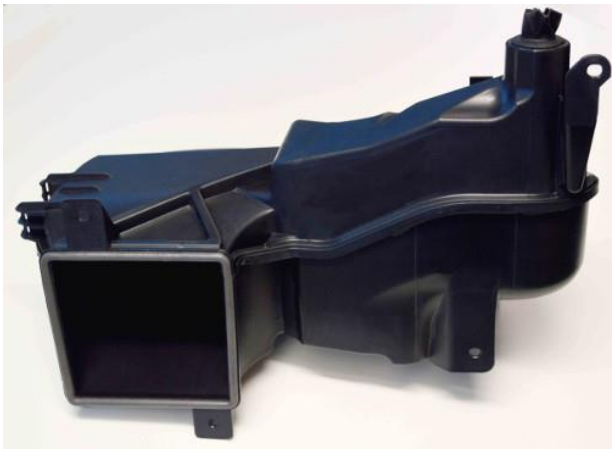
Increased use of low-emission materials in car construction

In using the wrong substance in a car's interior – measured by the area of the installed components – more emissions are usually present than at a workspace in an office. Therefore, the limit values concentration of VOCs in cars lie well below the accepted values within buildings.

Among other things, VOCs in the air can also lead to what experts call a fogging effect. Fogging is a physical effect that cannot be completely prevented. Sooty particles, dust and/or aerosol particles move from warmer to colder areas where they are deposited. In cars this can cause fogging up of the windscreen or the inside of the headlights. In extreme cases, this can impair the driver's road safety. Because there are currently no legal limits for the

amount of VOCs present in the indoor air, car manufacturers are determining their own low-emission target values in their delivery specifications.

Almost all plastics built into the car interior that the passengers come into contact with during the journey are now made from low-emission materials, such as seat foaming, dashboard and steering wheel coatings, interior door trims, sun shades or gear sticks. Recently, car manufacturers have also been paying more attention to smaller parts built into the vehicle's interior such as foam seals. As this is an area that requires a clean interior environment that is as free from allergens as possible without unpleasant odours, Sonderhoff Chemicals, the sealant specialists from Cologne make sure that the amount of VOCs and solvent-based substances are as low as possible in the sealing products.



Fresh air intake with low-emission foam sealing from Sonderhoff Chemicals

Foam seals for the low-emission requirements of car manufacturers

Sonderhoff's low-emission foam sealing systems meet the target values for flexible, open-cell polyurethane foam seals as defined by the manufacturer's norms. For example, the low-emission polyurethane foam seal Fermapor K31-A-45CO-1-G-LE developed by Sonderhoff corresponds to the target values defined in Daimler's delivery specifications DBL 5452-13 for foam-formed flexible foams on polyurethane basis. They have values of 100 µg for VOC emissions and 250 µg per gram of polyurethane in fogging behaviour, thereby significantly reducing the amount of VOC air pollution in the vehicle's interior.

The emissions values were determined by independent institutions according to the norms VDA 278 in connection with thermo desorption (VOC, fogging) and VDA 275 regarding formaldehyde emissions. Here, evaporation deposits of volatile organic components were measured at low temperatures in the form of VOC values as well as the evaporation of low-volatility components at high temperatures, expressed by fog values. Plastics and also seals are not allowed to emit any pollutants that could give rise to health risks at a certain amount, even at extreme temperatures like those often found in vehicle interiors in direct sunlight during the summer. The minimisation of emissions can be achieved through the selection of the raw materials.

Clean air in cars

Because medicine has realised that VOC emissions are often the trigger of respiratory difficulties or contact allergies, products made from low-emission materials will gain in importance in the future. The growing number of allergy sufferers in Germany (over 25 %)

will therefore be directly approached by car manufacturers as a potential group of buyers, with offers of the most allergy-tested vehicle interior.

For example, as one of the first car manufacturers with allergy-tested interiors, Ford has been promoting its cars with a special TÜV certificate since 2004. Sonderhoff's low-emission sealing products that are particularly in demand from car manufacturers and their suppliers, have made a contribution towards reducing the fogging effect and VOC air pollution in car interiors. Clean air in vehicles will therefore remain an important topic, as cars will not lose their importance for tomorrow's mobility so quickly.