

## Press Release

New study

### Recirculating air filters for cooker hoods: not all filters work well

**The recirculating air principle is used in numerous extractor hoods. But the easier installation and the slightly lower initial investment are not the whole story. It is therefore worth taking a closer look. Naber has done this in the context of a scientific study. One of the results: the plasma filters examined were disappointing across the board.**

As a partner of no less than three independent research institutes (see below), Naber was able to contribute its expertise in the field of kitchen ventilation to the study. Alongside aspects of energy efficiency, the quality of recirculating air systems was also put to the test. As is generally known, these appliances push the air drawn in through several filters in order to remove grease and odours before returning the air to the room.

Among other things, the study looked at how well the activated carbon filters of extractor hoods with recirculating air technology retain odours. For this purpose, the concentration of volatile organic compounds (VOC) was measured before and after the filter unit. The values for new filters vary greatly. At more than 95 per cent of all VOCs, the GREENflow filter box from Naber extracts the most odours from the cooking fumes. Several other brand-name filters also achieved a filtration level of just under 95 per cent. Inferior filters only remove around 80 per cent of the odour-generating substances from the extracted vapours. It comes as no surprise that thicker filters (30 mm) filter better than thinner ones (10 mm), which contain less activated carbon, as the air stays in thicker filters for longer.

#### **Good filters also regenerate well**

Quality differences were also evident after the filters were regenerated by heating them in the oven. With good filters, the degree of odour reduction only decreased by about 3 percent. With inferior filters, the cleaning capacity dropped significantly by 8 to 20 percent compared to the original cleaning capacity. In practice, these poor results mean that cooking smells often require additional airing by opening the window, with correspondingly higher heating costs.

#### **Plasma filters have no effect**

The three plasma filters from two manufacturers that were tested were disappointing. One device failed to work at all, and switching to a replacement device did not improve matters. With the other two plasma filters, the researchers were unable to determine any difference in cleaning performance with and without activated carbon filters or plasma filters. The cleaning performance was therefore entirely down to the activated charcoal filter fitted.

#### **Do not route the fumes into the kitchen cupboard**

Especially with downdraft and hob extractors, the filtered fumes are often routed in an uncontrolled manner into the kitchen base cabinet or into the area between the back of the cabinet and the wall of the building. Since recirculating air systems do not remove moisture, this can lead to contamination and damage to the furniture body or masonry. GREENflow

from Naber guides the air, which has been well filtered in the filter cassettes, almost imperceptibly back into the room via the plinth panel. In case of table fans with integrated odour filtration, the cooking fumes can be discharged hygienically into the kitchen via an air duct and a grille in the cabinet base. Additional advantage of this solution: with extractor hoods in recirculating air mode, if the air is guided through ducts in a controlled manner, the extraction rate is significantly higher than with non-guided recirculating air.

The fundamental disadvantages of a recirculating air system are not cured by even the best filter: the volume of air captured is lower due to the higher pressure loss, so more electrical power is required from the fan, which leads to higher power consumption. Exhaust air systems transport the air captured completely to the outside, along with all moisture, grease, odours and pollutants. Recirculating air systems only partially filter odours and grease; the moisture produced during cooking remains completely in the room - leading to the risk of mould forming. The operation is also more expensive in the long run due to the necessary filter changes. And last but not least, the run-on time for drying the filters reduces the home comfort. Naber therefore recommends installing an extractor with exhaust air technology wherever possible. With the highly efficient COMPAIR PRIME flow® air ducts, this works with all appliances worldwide and in every installation situation, even with downdraft extractors on a cooking island.

The study "Investigation of extractor systems in residential kitchens with regard to energetic, fluidic and hygienic aspects" was commissioned by the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR) and financed by the Federal Ministry for Housing, Urban Development and Building from the funds of the innovation programme Zukunft Bau. The Passive House Institute in Darmstadt, the ITG Institute for Building Systems Engineering Research and Application and the Institute for Wood Technology, both in Dresden, as well as the company Naber from Nordhorn were involved. [www.naber.com](http://www.naber.com), [www.compair-flow.de](http://www.compair-flow.de)

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#### Naber GmbH

A dynamically growing company within the kitchen accessories sector. More than 3,500 accessories items belong to the product range. Numerous internationally recognised design awards underline the innovative power of the family-owned business which is successful for decades.



#### Management

Hans-Joachim Naber is the tireless driving force behind the development and realisation of innovative products.

Ingrid Naber unerringly controls the areas human resources, organisation and finance.

Lasse Naber shapes the future direction of the company with drive and vitality.

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