

CONTRIBUTION OF SHEATH-CORE BICOMPONENT BASED NONWOVENS TO THE DESIGN OF SYNTHETIC COMPOSITE FILTER MEDIA.

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The design of synthetic air filter media is changing driven by new norms and customer expectations. Conventional filter packages become commodity and give space to reengineered solutions with often demanding specifications and cost structure. Filter media becomes thinner, cheaper, more efficient, combining additional functionalities and most importantly provide much lower pressure drop. In addition many experts in the industry post difficult safety questions asking about the future of wet laid and glass based filters. This trend is feasible in almost all filtration segments from cabin air filtration to HVAC creating the opportunity space for high performance synthetic support layers.

Until recently conventional layers have been almost exclusively providing mechanical support and protecting fragile layers of filter either during conversion or end use. These are often based on PP or low melting point polyesters suitable to be processed in well-known spunbond process. This study summarizes several redesign strategies originating from unique thermally bonded sheath-core based nonwovens and tailoring these support layers for specific applications in filtration. Presentation will focus on effect of polymer choices like high molecular weight polypropylene (PP), poly and copolyesters (PET and coPET) and very unusual in filtration space polyamide (PA). In addition the review of general properties, technological choices and their effect on dimensional stability of various environmental conditions will be presented.