Fibre extraction sorbents for chromatographic analysis

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Abstract: In general, one of the challenges of chemical analysis is the processing of environmental or medical samples with significant amounts of water or other polar components and high molecular weight analyses. Such samples must undergo a so-called sorbent pretreatment method before analysis (most often by liquid chromatography) to ensure the necessary concentration, purity and overall quality of the sample for analysis. Sorbents made of a mixture of polymeric micro and nanofibres appear to be very interesting for these pretreatments. Polymer fibre sorbents have been made using the Spun-blown - BIAX technology, which, when optimally set up, allows in the case of some polymers the one-step production of a bulky fibre layer containing a homogeneous mixture of micro- and nanofibres. In the structure thus formed, the microfibers provide mechanical stability and sufficient porosity; on the other hand, the nanofibers provide the necessary specific surface area for binding interactions with the analytes. Specifically, fibre sorbents were prepared from polycaprolactone, polybutylene terephthalate and polyamide 6, which exhibit different functional groups and polarity. The extraction properties of the microfibrous and nanofibrous sorbents were tested as part of the extraction centrifugation filters.

KEYWORDS: ***SORBENT, PRETREATMENT, LIQUID CHROMATOGRAPHY, SPUN-BLOWN - BIAX TECHNOLOGY, MICROFIBRES, NANOFIBRES***

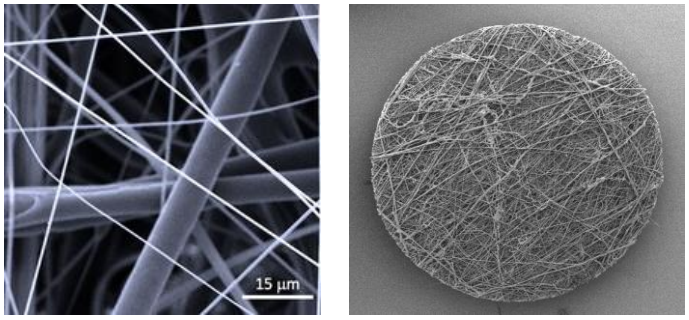

Figure 1: In the picture on the left, can be seen the micro and nanofibrous structure. The fibrous sorbent can be seen in the picture on the right.