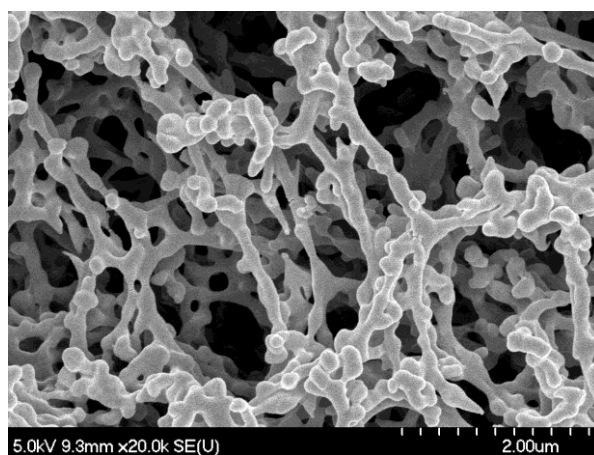


Investigation of multiwalled carbon nanotubes modified cellulose nitrate membrane filters

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Membrane filters including cellulose nitrate are used for solid-phase extraction of trace species such as organic species, some anions and heavy metal ions in various media. The most attractive features of membrane filtration technique are the simplicity and rapidity [1]. Since their discovery in 1991, carbon nanotubes have generated huge activity in most areas of science and engineering due to their unprecedented physical and chemical properties [2]. These properties make nanotubes ideal not only for a wide range of applications [3].



SEM picture of 0.2 μm pore size cellulose nitrate membrane

First of all, the different pore size cellulose nitrate membrane filters were examined with scanning electron microscopy, average pore sizes and fiber diameters were investigated by Image-Java application. After that, multiwalled carbon nanotubes with different sizes, milled by planetary ball mill, were filtrated into the pores of membrane filters. The results were examined by SEM and atomic force microscopy. Mechanical properties of these films were also investigated and measured by dynamic mechanical analysis.

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