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Abstrakt:

Trapping of polycyclic aromatic hydrocarbons by amphiphilic cyclodextrin functionalized polypropylene nonwovens

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Recently, there has been an augmented focus on the increasing amount of pesticides, drug residues and endocrine disruptors present in waste and drinking water¹. These pollutants represent a challenge in water purification since they may be hazardous to human health even in low doses².

Cyclodextrins (CDs) are known to be able to form inclusion complexes with a large range of the unwanted pollutants^{e.g.} ³ but in order to utilise this ability to purify water, the CDs must be immobilised on a surface, for instance, a membrane filter.

We have developed a simple and fast method for the functionalization of otherwise inert textiles with amphiphilic CDs using relatively non-harmful organic solvents and an easy setup. The method relies on the self-assembly properties of amphiphilic CDs and can be applied *in situ* by as various methods as spray and kiss-roll yielding multi-layers on the surface of the textile fibers.

In this study we present the ability of amphiphilic CD coated polypropylene nonwovens to trap 8 different polycyclic aromatic hydrocarbons/endocrine disruptors from aqueous solutions thus demonstrating the potential of using the amphiphilic cyclodextrins for water purification.

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