

TOM

Biocide-Free Textile Odour Management

Background

Textiles preventing the development of bad odours improve the wear comfort, product quality and lifetime of clothing and other textile products that are difficult to clean on a regular basis, such as interior textiles (curtains, pillow, mattress covers).

Textiles simultaneously reducing the development of bad odours and absorbing bad smells result in the marketing of superior products with an outspoken added value.

Unpleasant smells in textiles are either caused by microorganisms (bacteria) metabolizing human sweat or by the absorption of odours from the environment (cooking, smoking, etc.). Until now, biocides and cyclodextrins have been used on an industrial level for textile odour control. However, since both methodologies are not very efficient, expensive and because of their environmental impact, it is highly desirable to develop alternatives.

Biocides reduce the smell by killing the odour-producing bacteria on textiles, but they have a negative impact on the environment and should therefore not be used in non-medical products.

Goals

The project focuses on environmental friendly odour management technologies, thus without using biocides or hazardous substances.

As an alternative, an anti-adhesive surface coating will be developed that is able to reduce the number of bacteria on textiles, i.e. the bacteria are not killed, but their adhesion is prevented. The anti-adhesive components that will be used are: polyethyleneglycol (PEG) derivatives and zwitterionic compounds. Their efficiency will be further increased by the combination with existing odour absorbers, e.g. cyclodextrins, activated carbon, or zinc ricinoleate (depending on the specific application). This multifunctional approach is particularly relevant for clothing (sports, outdoor, workwear, etc.) and for interior textiles that are used in an environment where bacterial fouling is an issue (curtains, covers, bedding, etc. in hospitals, nursing homes).

The aim of the TOM project is to implement ecofriendly and biocide-free formulations and technologies for textile odour management that comply with European legislation (e.g. REACH and Biocidal Products Regulation) **and label requirements** (e.g. OEKO-TEX®-100, Global Organic Textile Standard or GOTS).

Project consortium

Centexbel (project coordinator, Belgium) and DTNW (Germany) will be responsible for the management and dissemination of the results. Centexbel and DTNW will perform the research.

The user committee includes all relevant companies: coating & textile companies, formulators, chemistry producers, etc.



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