

CeraSleeve-Paper

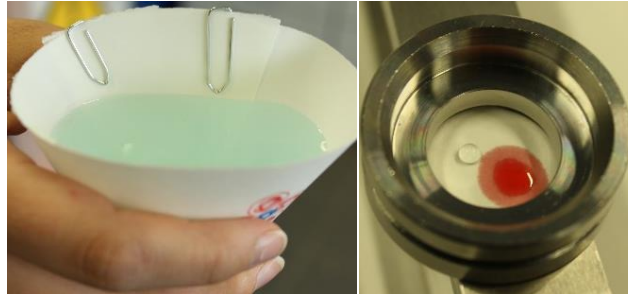
Controlled hydrophobization of paper via sustainable silica coating

Status quo

Nowadays, unilateral water-repellent (hydrophobic) papers for the fabrication of disposable products, e.g. coffee cups, disposable tableware, straws etc., are produced by lamination with polyethylene foils. Bilateral hydrophobicity is mainly achieved by applying synthetic resins, besides lamination processes. However, these conventional products, implying the use of fossil raw materials, are highly disadvantageous with respect to closed material cycles (circular economy), due to the often poor recyclability of paper-plastic composites.

Our technology: CeraSleeve-Paper

The concerns of poor recyclability and application of fossil raw materials are addressed by a novel process for the hydrophobization of papers without using hydrophobic or polymer-based materials. Furthermore, the process allows reduction of processing steps as well as the amount of the functional material. The paper based product is fully bio-based, as the functionality is accomplished by a nanometer thin silica/silicon dioxide layer, ergo sand.



Benefits

- ✓ Adjustment of product properties by simple and controlled modification of process parameters
- ✓ Good availability of raw materials
- ✓ Product harmless to health

Application possibilities

- Hydrophobic papers as bio-based and flexible packaging materials
- Filtration membranes, disposable tableware, parchment paper

Commercialization opportunities

You feel addressed as company? There are various possibilities for cooperation between you and TU Darmstadt: from an exchange with the know-how carriers of the technology up to a close individual cooperation in case of further development needs.

Current stage of development

Technology Readiness Level (TRL)



9 Product ready to launch

6 Prototype

3 Proof of Concept

1 Idea

The technology development is presently at Level 4: Utilization in real application is currently validated and pilot-plant scale is intended in the next step.

Your contact partners at TU Darmstadt

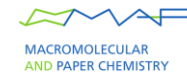
Mathias Stanzel and Dr. Nicole Rath

+49 6151 16-23726

mathias.stanzel@tu-darmstadt.de

nicole.rath@tu-darmstadt.de

A project of the research working groups:



Macromolecular and Paper Chemistry

Prof. Dr. Markus Biesalski

biesalski@tu-darmstadt.de



Smart Membranes

Prof. Dr. Annette Andrieu-Brunsen

annette.andrieu-brunsen@tu-darmstadt.de



Deniz Bayramoglu

Leitung IP- und Innovationsmanagement

+49 6151 16-57215

innovation@pvw.tu-darmstadt.de