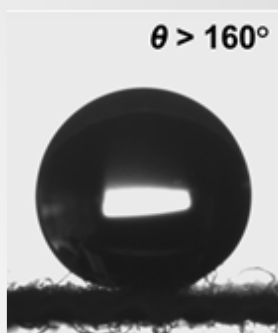


WASH-RESISTANT WATER- AND OIL-REPELLENT SELF-CLEANING COTTON TEXTILE



Scientists from the National Institute of Chemistry and the Faculty of Natural Sciences and Engineering at the University of Ljubljana are developing advanced multifunctional technical textile materials with high added value, which represents a scientific and technological breakthrough in the development of technologically innovative textile manufacturing processes. Their research development strategy is based on the principles of environmentally friendly technologies. In the production of specialized high-tech textiles, cotton fibres, which are natural cellulose fibres, are becoming increasingly important due to their technological advantages and successfully compete with synthetic fibres, which are less ecologically acceptable. The design of a new dual micro- to nanostructured protective coating on the surface of cotton fibres enables the creation of a biomimetic self-cleaning cotton fabric with wetting resistances for a variety of polar and non-polar liquids.

TYPE OF COOPERATION

R&D cooperation and technology
licensing opportunity

INTELLECTUAL PROPERTY

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MORE INFORMATION ABOUT THE INVENTION



Technology

The invention relates to the preparation of breathable wash-resistant water- and oil-repellent self-cleaning cotton textiles by sol-gel technology. The achieved self-cleaning effect enabled water droplet to roll-off from the textile surface at angle lower than 2° , and was accompanied by an exceptionally high water-repellence, i.e. the static contact angles of the water and n-hexadecane droplets were equal to 160° and 150° , respectively. The wash-resistant coating successfully preserves the outstanding performances even after 10 domestic washings.

Main advantages

- Wash-resistant superhydrophobic and oleophobic self-cleaning characteristics
- High comfort air permeable and aesthetic textile products
- Biodegradability of fibers