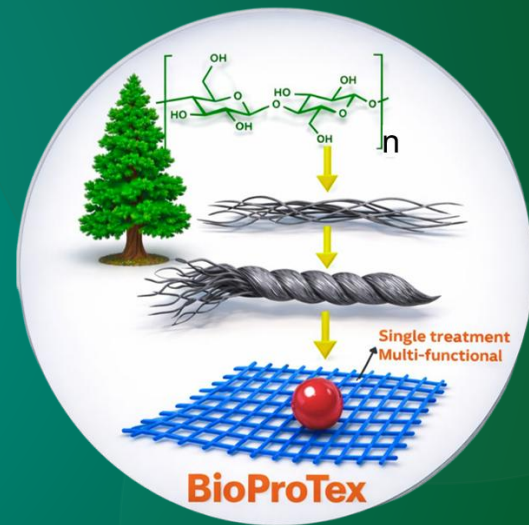


Bio-based & Multifunctional Protective Coating for Functional Textiles

Replacing currently used costly and toxic coating solutions with a single, sustainable bio-based treatment

Esubalew Kasaw, Panu Miettinen, Ali Tehrani, Mohammad Mahdavian
October 2, 2026



Executive Summary: What we offer for medical textiles and more

EFFICIENCY

- High performance
- Single-treatment
- Lower costs
- Preserving the intrinsic properties of fabrics

100% biobased

- Fluorine-free, solvent-free and non-toxic — biocompatible from formula to finished fabric

DROP-IN SOLUTION

- Works across all textile types and nonwovens
- Fits in with existing coating processes

Aalto R2B project (6/2026-11/2027)

We offer the required functionalities for medical textile coatings with 100% biobased formulation and lower costs while preserving the intrinsic properties of fabric. We fit in to existing industry-standard coating processes.

Our (Unexpected) Solution: BioProTex

Solving the problem of providing cost efficient liquid repellency via a completely new chemistry



- Decreases the free surface energy
 - Increases the surface roughness
 - Makes the surface more flexible
- high-performance 100% biobased liquid repellent

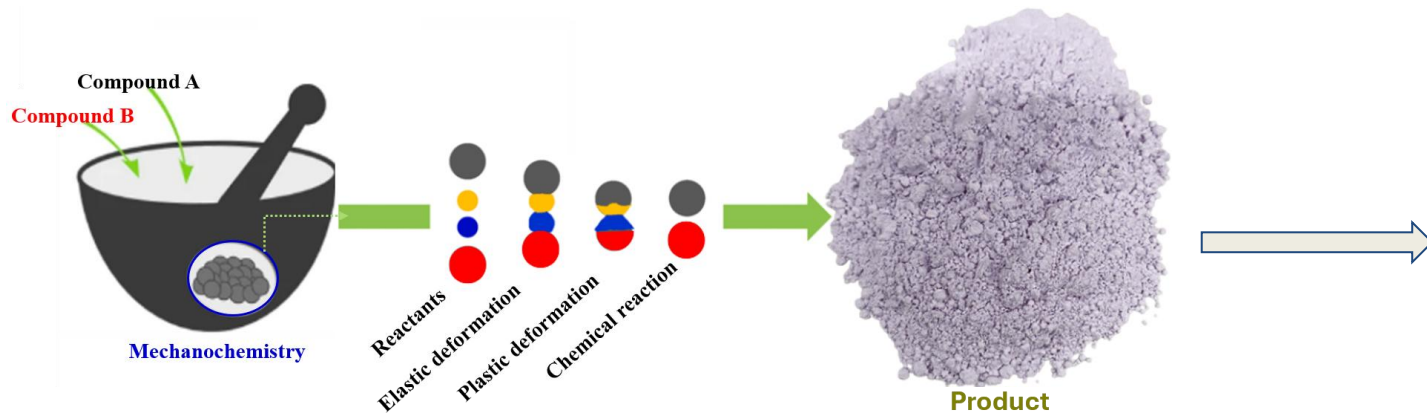
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- Antimicrobial properties
- Dispersible into water
- Retains intrinsic properties of fabric

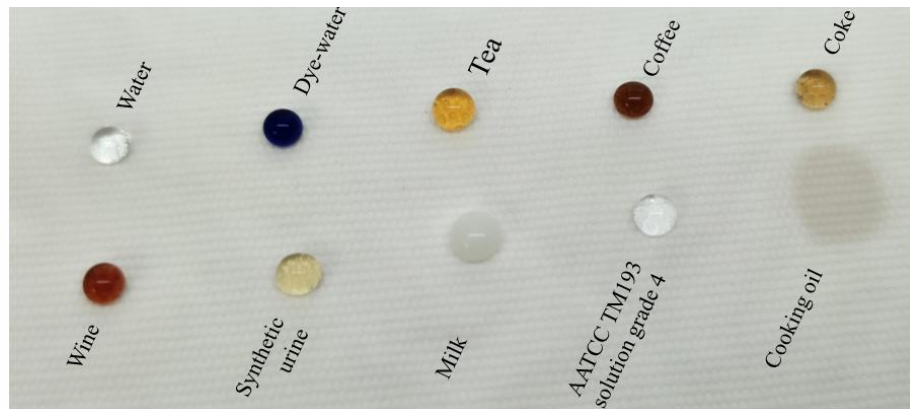
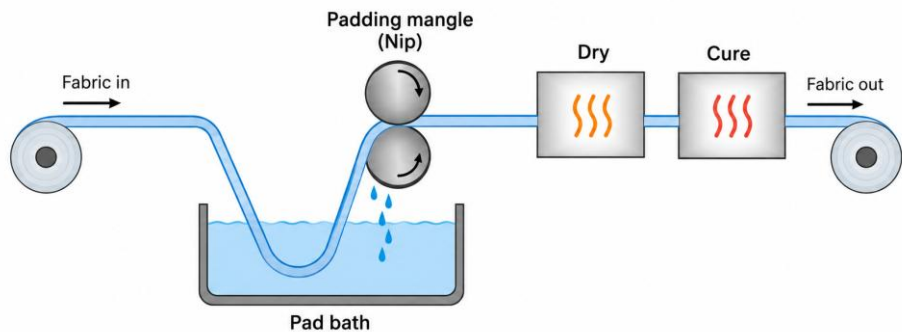
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Unique coating platform for functional textiles and more

BioProTex solution- a drop in technology



<https://doi.org/10.1016/j.heliyon.2024.e34655>.



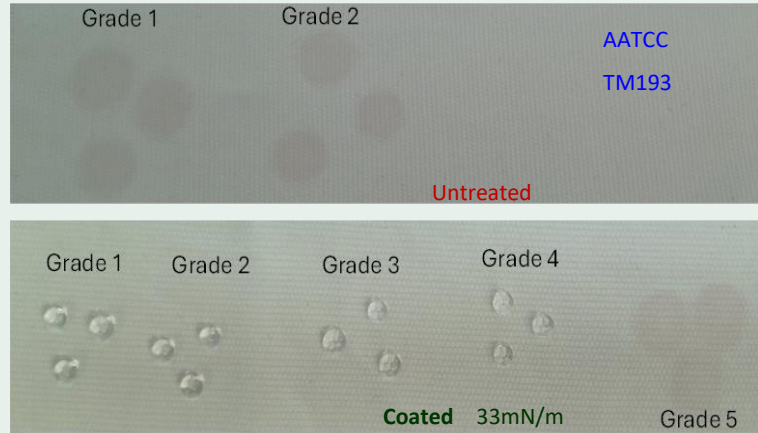
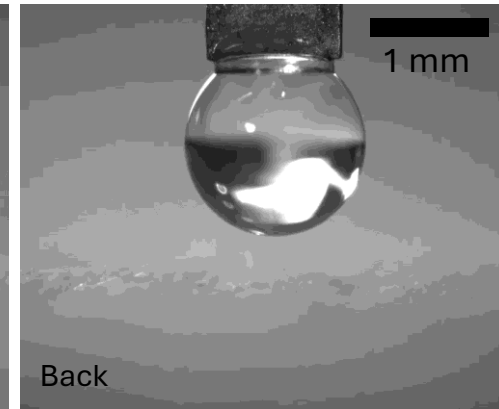
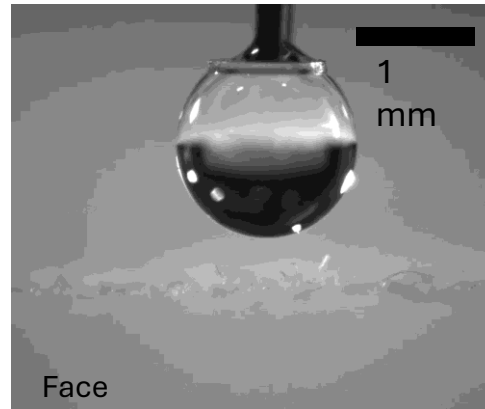
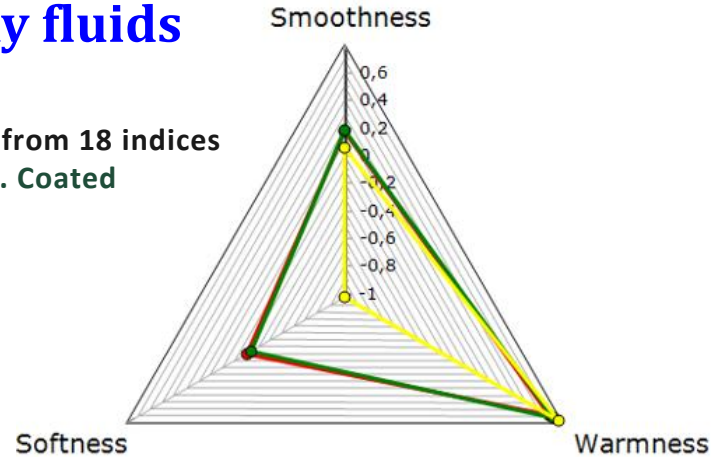
BioProTex coatings: can resist blood and body fluids

What the lab-scale samples show so far.

99.9995%

Antibacterial reduction (ISO 20743:2021)

Tactile properties from 18 indices
Control vs. **Coated**



Hydrostatic head: 330mm of water as per EN 20811

The medical textiles market - quick overview



What are medical textiles?

- Protective personal equipment: gloves, masks, surgical gowns; wound care & hygiene products
- Disposable or reusable

Trends

- Disposable products make 65%-80% of the market
- Oil-based synthetic polymers dominate the market

Strong functional performance is required

- Liquid repellency & dirt and dust resistance
- Strong antimicrobial properties

Multiple coating finishes are needed

- **1-3 treatments for liquid repellency**
- **1 treatment for antimicrobiality**

C8 PFAS-Banned in 2020

Performance as a liquid repellent coating

- +Performance-wise the best coating agent in the universe
- +Works with low concentrations → very low costs
- +Very good at preserving intrinsic properties of fabrics
- The most persistent chemical in organic chemistry

+

Performance as an antimicrobial coating

- +Inhibits the bacteria from adhering to fabrics → excellent antimicrobial properties
- +No separate antimicrobial treatment required

=

BioProTex advantages vs C8 PFAS

- +We are biobased



C6 PFAS-The replacement for C8 PFAS

Performance as a liquid repellent coating

- +Very high performance
- +Higher add-on weight required than with C8 but still low/medium costs
- +Very good at preserving intrinsic properties of fabrics
- The most persistent chemical in organic chemistry
- Being phased out by regulation

+

Performance as an antimicrobial coating

- Does not prevent the adherence of bacteria to the fabric
- Separate, expensive antimicrobial treatment (heavy metals) is required

=

BioProTex's advantages vs C6 PFAS

- +We are multifunctional
- +We are on par or even cheaper in LR costs
- +If AM is needed, we are up to 50% cheaper
- +We are 100% biobased
- +We are regulatorily resilient

Silicones – The replacement for C6 PFAS

Performance as a liquid repellent coating

- +Compatible with existing coating processes (dip coating)
- Medium efficiency, needs to be used with higher add-on weights leading to high costs
- Changes the intrinsic properties of fabrics and attracts hydrophobic dust/dirt
- Toxic and persistent

+

Strength and weaknesses as an antimicrobial coating

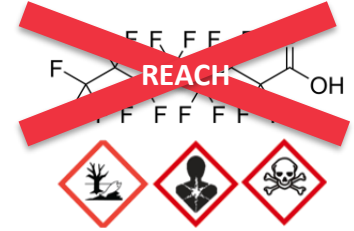
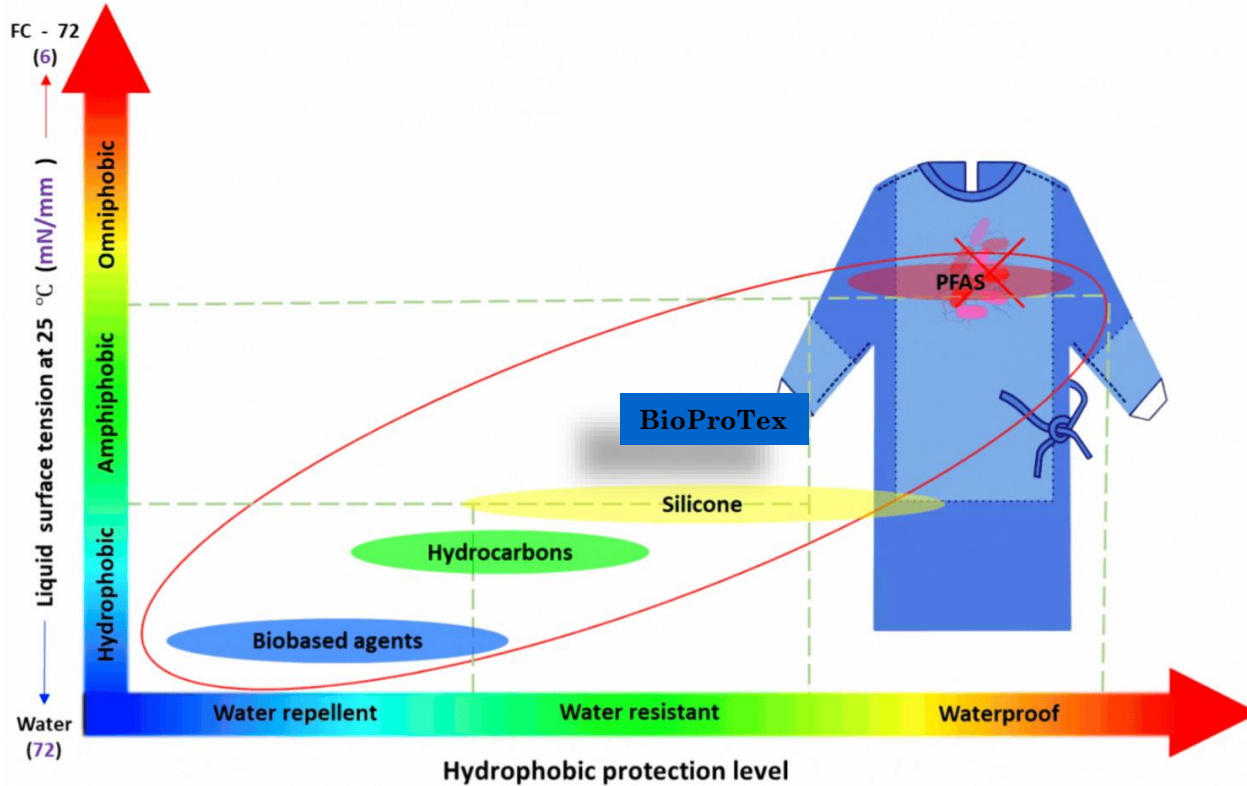
- Does not provide antimicrobial properties
- Separate, expensive antimicrobial treatment is required

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BioProTex's advantages vs silicones

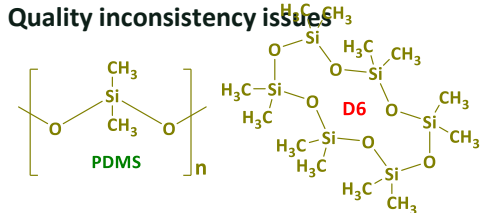
- +We are multifunctional
- +We have higher performance
- +We do not alter the intrinsic properties of fabrics or attract dirt
- +We are up to 30% cheaper as LR
- +If AM is needed, we are up to 80% cheaper
- +We are 100% biobased

Biobased coatings: where the chemistry stands today



Short chain PFAS + Antimicrobial coatings
/Silicones

- High material and manufacturing costs
- Quality inconsistency issues H2C=CH2



Related health hazards of cyclic siloxanes: linear still under consideration (<https://echa.europa.eu/de/registry-of-svhc-intentions>)

Medical textiles: the market opportunity

26–40B€

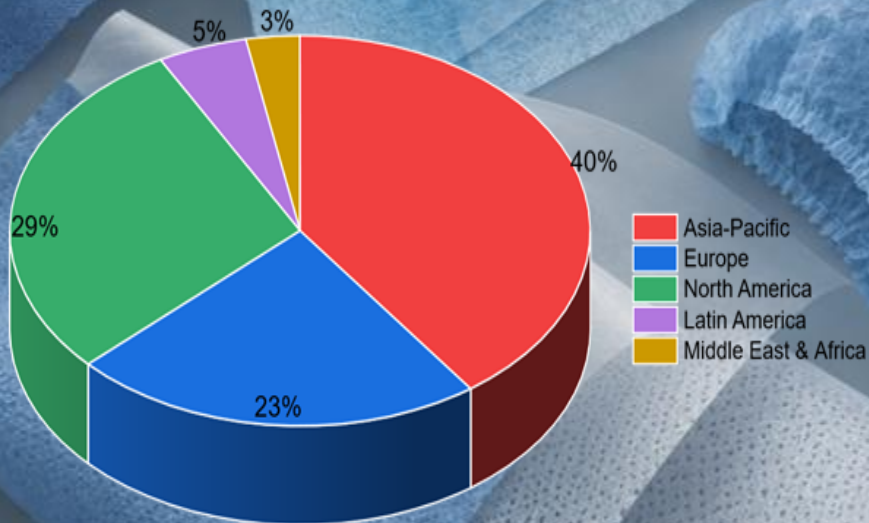
Global medical textile market

65–80%

Of medical textiles are single-use

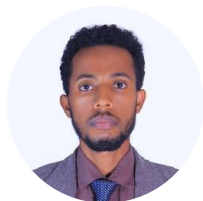
>5B€, +10% CAGR

Coating market for medical textiles



Team

World-class expertise across materials science, chemistry & business



Esubalew Kasaw

Materials researcher

Textile materials research &
industry experience

Technology Champion



Panu Miettinen

Entrepreneur & Commercializer

5 years of experience as
a startup founder

Business Developer



Prof. Ali Tehrani

Textile specialist

25 years of experience in
textile chemistry

Accountable Leader



Dr. Mohammad Mahdavian

Surface Coating Specialist,
Machine Learning Expert

20 years of experience in
polymer coatings

Researcher

Go-to-Market

Unique Value Proposition

- The currently used coatings are toxic, expensive and sometimes lack in technical performance
- We offer the required functionalities with lower cost and with no toxic chemicals, while preserving the intrinsic properties of fabrics

Positioning

- We offer coatings, not textiles
- We compete against legacy coatings: PFAS, Silicones, PU
- Differentiation: 100% biobased, multifunctional & cost-efficient, we preserve the intrinsic properties of fabric

Customers

- Key customers: companies producing functional textiles (Ahlström, Mölnycke, Medline...)
- Companies producing coating agents (Pulcra Chemicals, Rudolf...)
- Deep & warm relationship with customers is the key

Channels

- Our customers sell their products via tenders to end-users (hospitals)
- Direct sales to our customers through website, events & networking

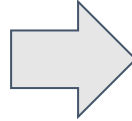
Sales/Marketing: strong sales network with incentives/100% biobased, simple & efficient, **science-based**

What our innovation can achieve

Benchmark treatment
from industry:

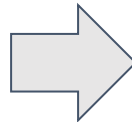
REPELLENT / ANTIBACTERIAL TREATMENT

60 - 100 g/l REPELLAN® NC-6
6 - 10 g/l REPELLAN® XL-N
15 g/l SILVADUR™ 930 FLEX



BioProTex

- 2x PFAS
- 1x heavy metal
- Total amount of coating agent 81-125g/l



- One 100 % biobased treatment
- Total amount of coating agent 30g/L
- Cost savings 50%+

Thank you