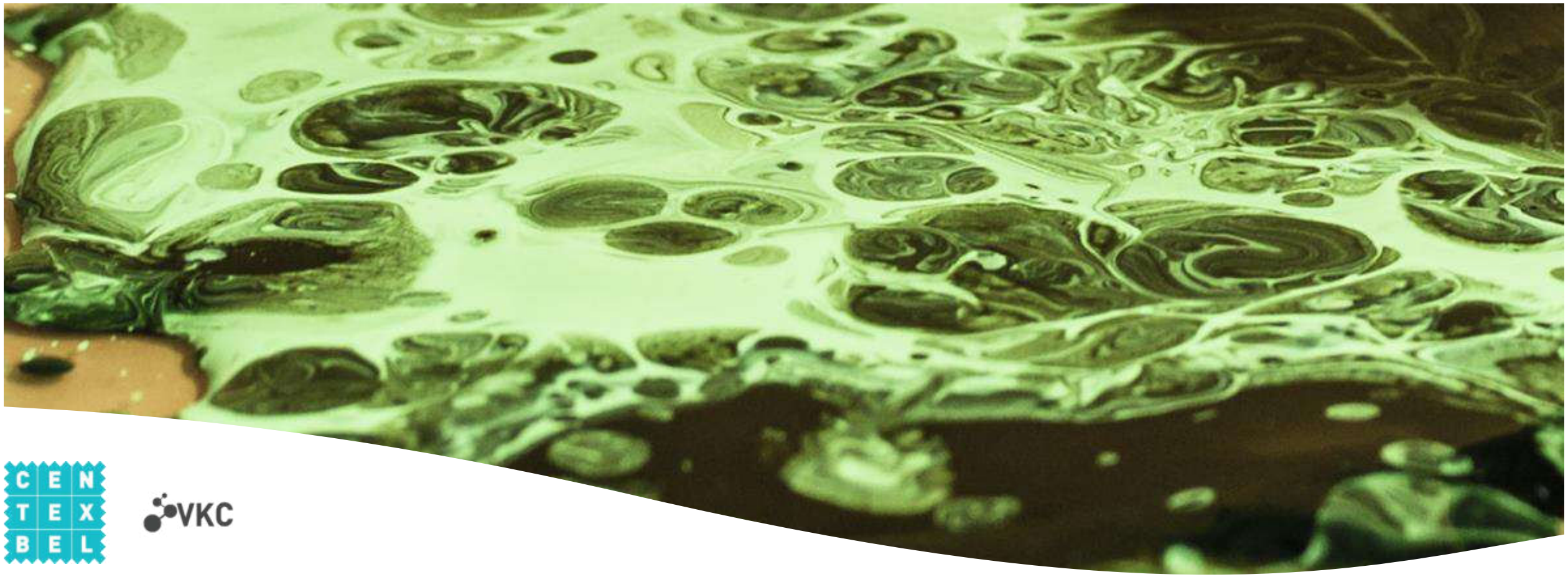


Textile coating and finishing

Willem Uyttendaele – wu@centexbel.be

TEXTILE COATING & FINISHING

Treatment of fabrics:

- Barrier coating
- Water repellent finish
- Dyeing
- Printing

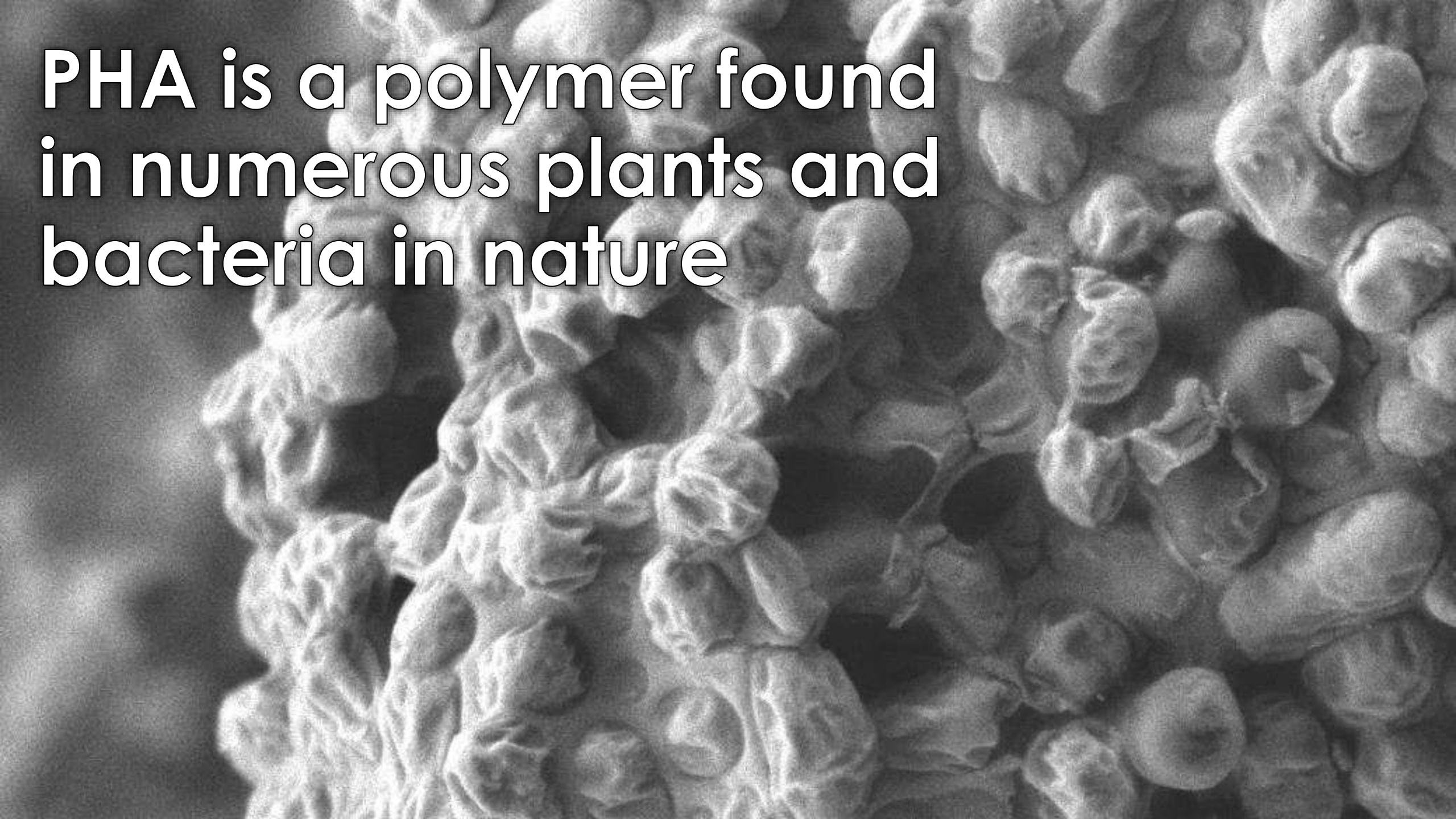
TEXTILE COATING & FINISHING

Range of key topics:

- Biobased & biodegradable
- Circular economy
- Smart textiles
- Composites


PVC

PHA as alternative


PHA is a polymer found in numerous plants and bacteria in nature

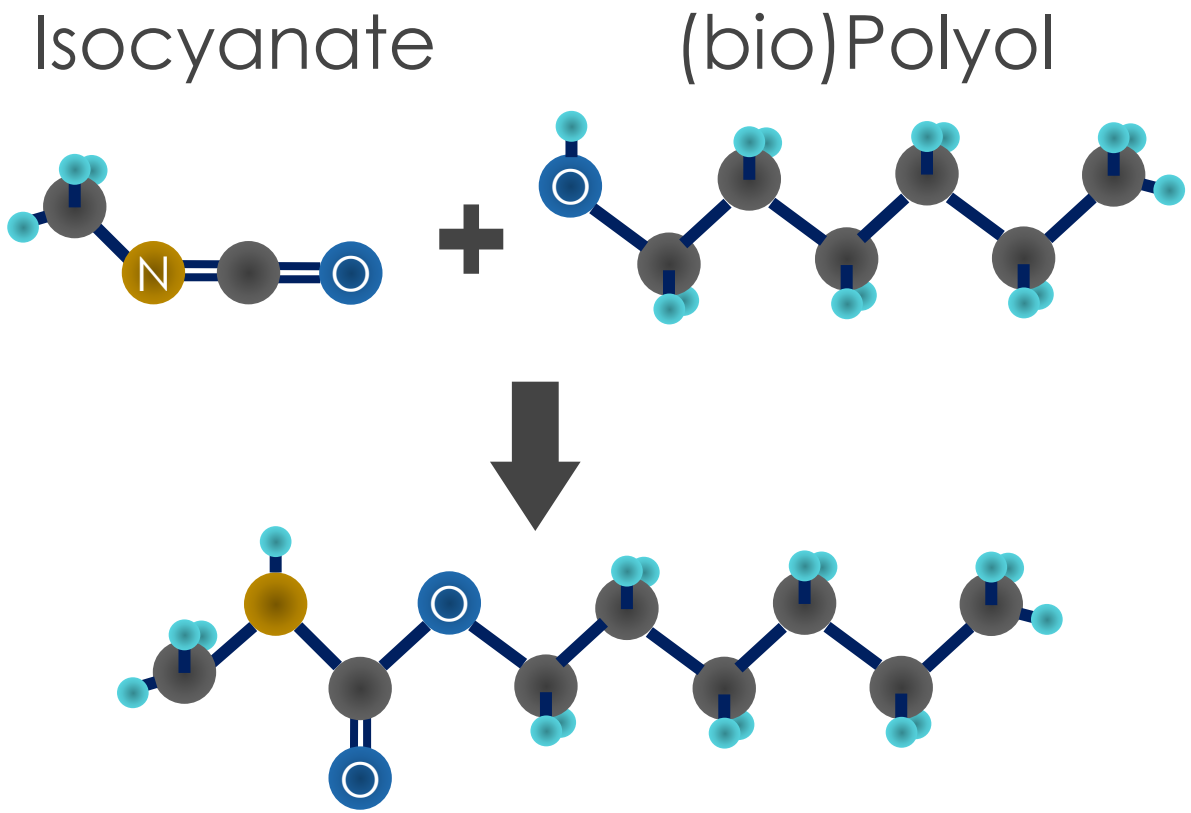
PHA can be converted into coatings


An example is artificial leather
! Additives such as colourants
should be kept in mind!

Other applications can be screen printing inks

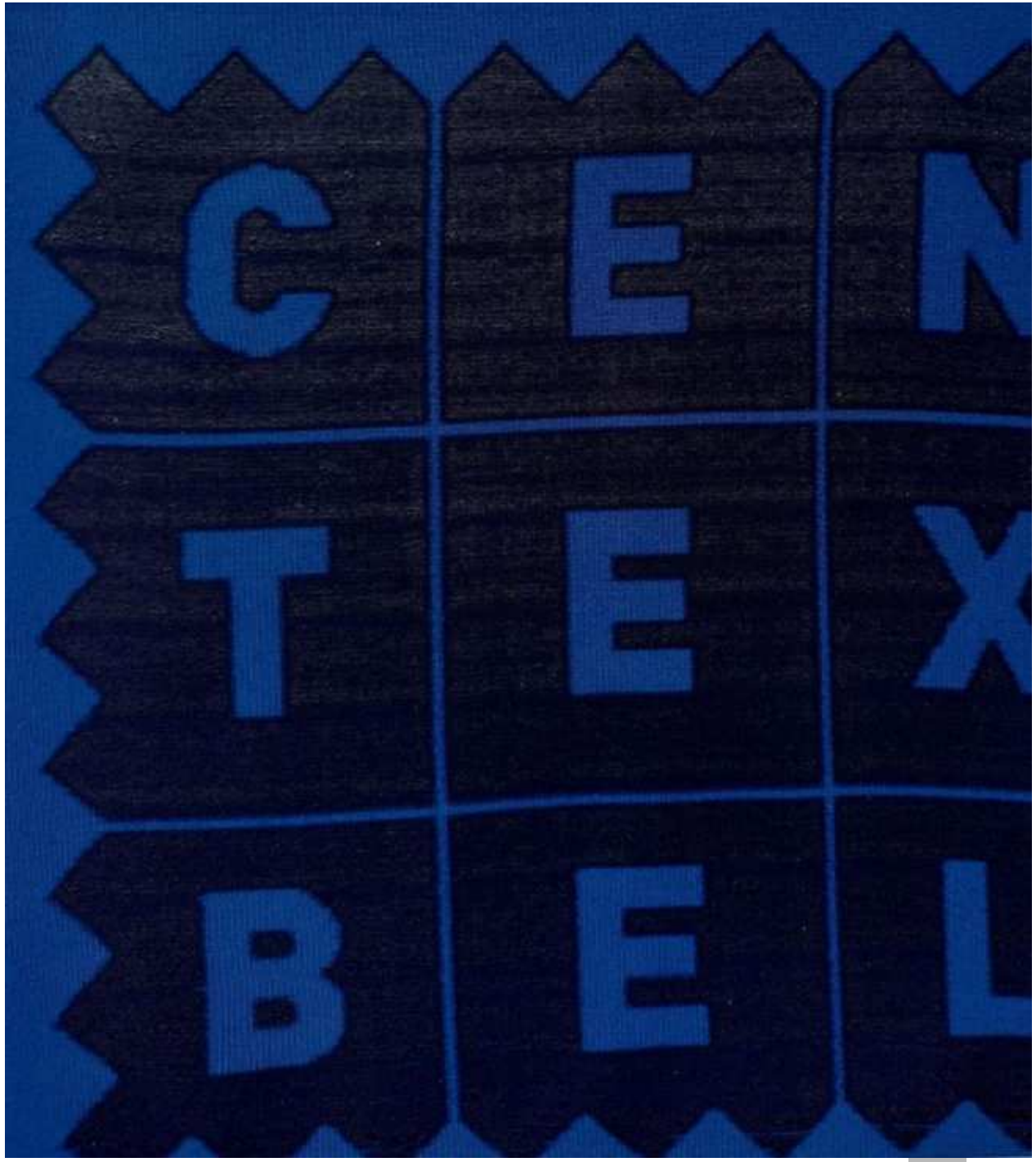
Barrier coatings

Sustainable polyurethanes

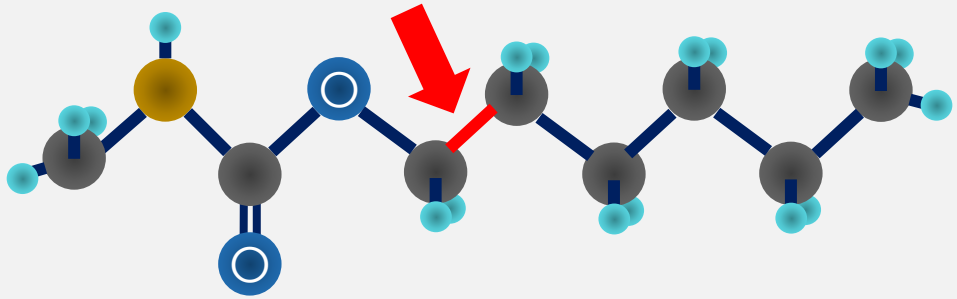


Biobased PU dispersion

- Sebacate based polyol
- At least 80 industrial washing cycles (75°C)
- Water barrier: >1000 mbar

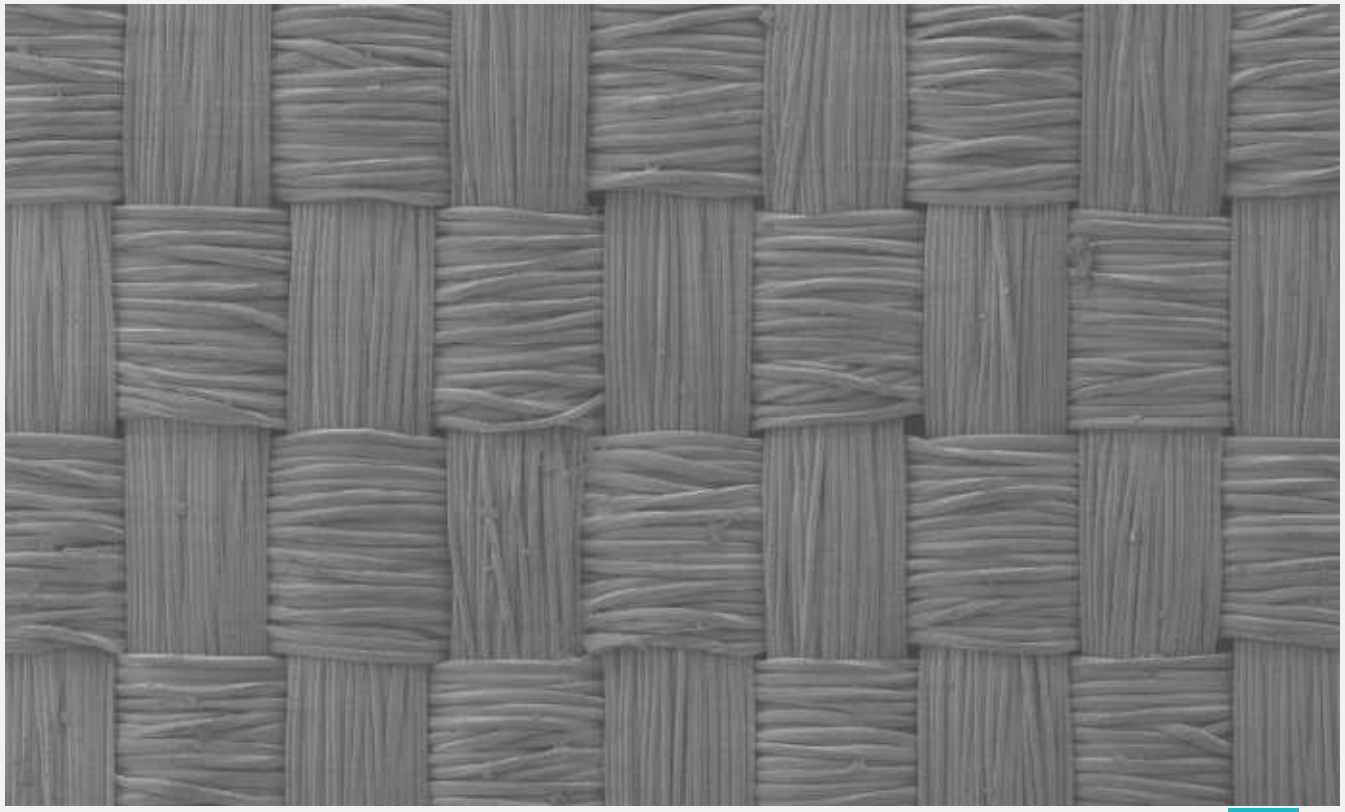


Debondable PU dispersion

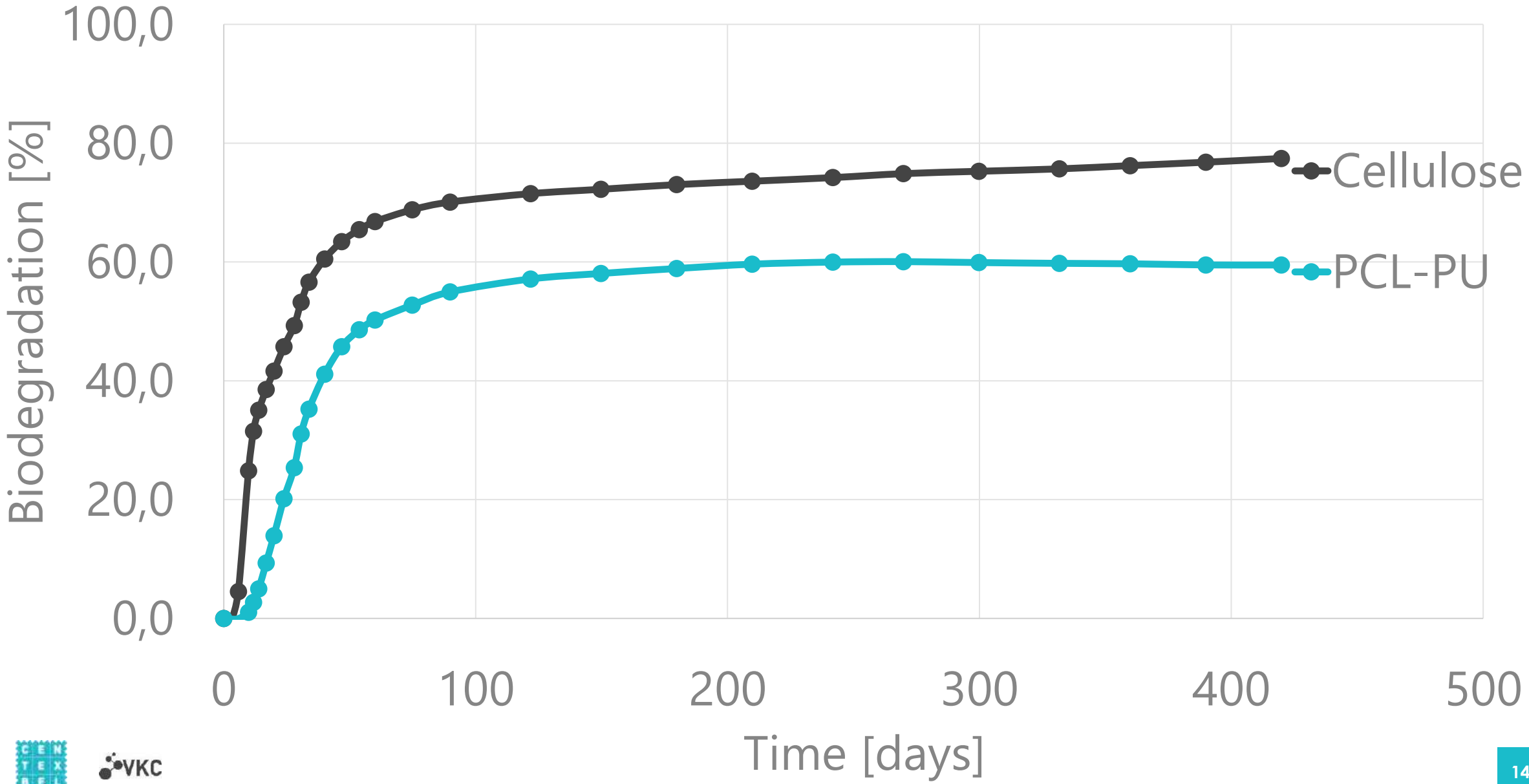


Dissolved PU

Recovered PES fabric

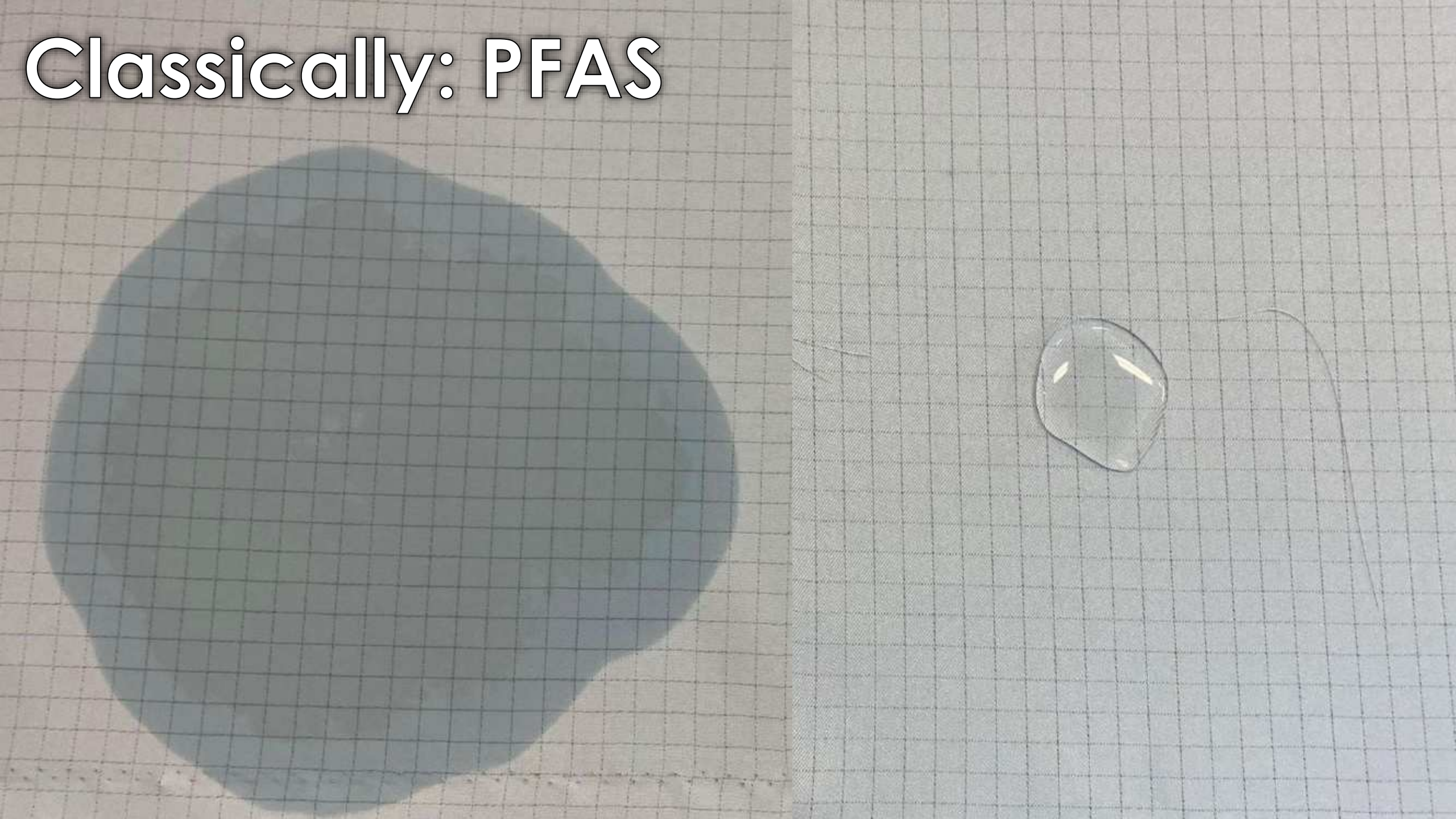


PCL-PU Biodegradation in soil



Water repellency

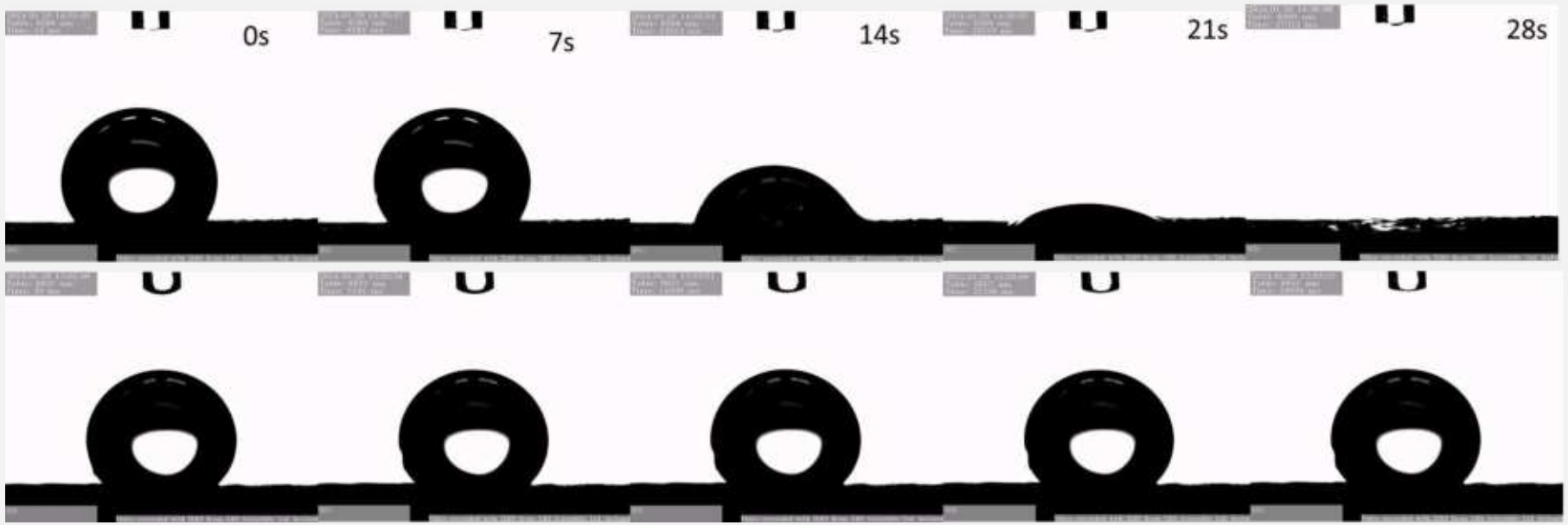
Classically: PFAS



Water repellency after 75°C washing (20 cycles)

silicone
+ crosslinker A

silicone
+ crosslinker B

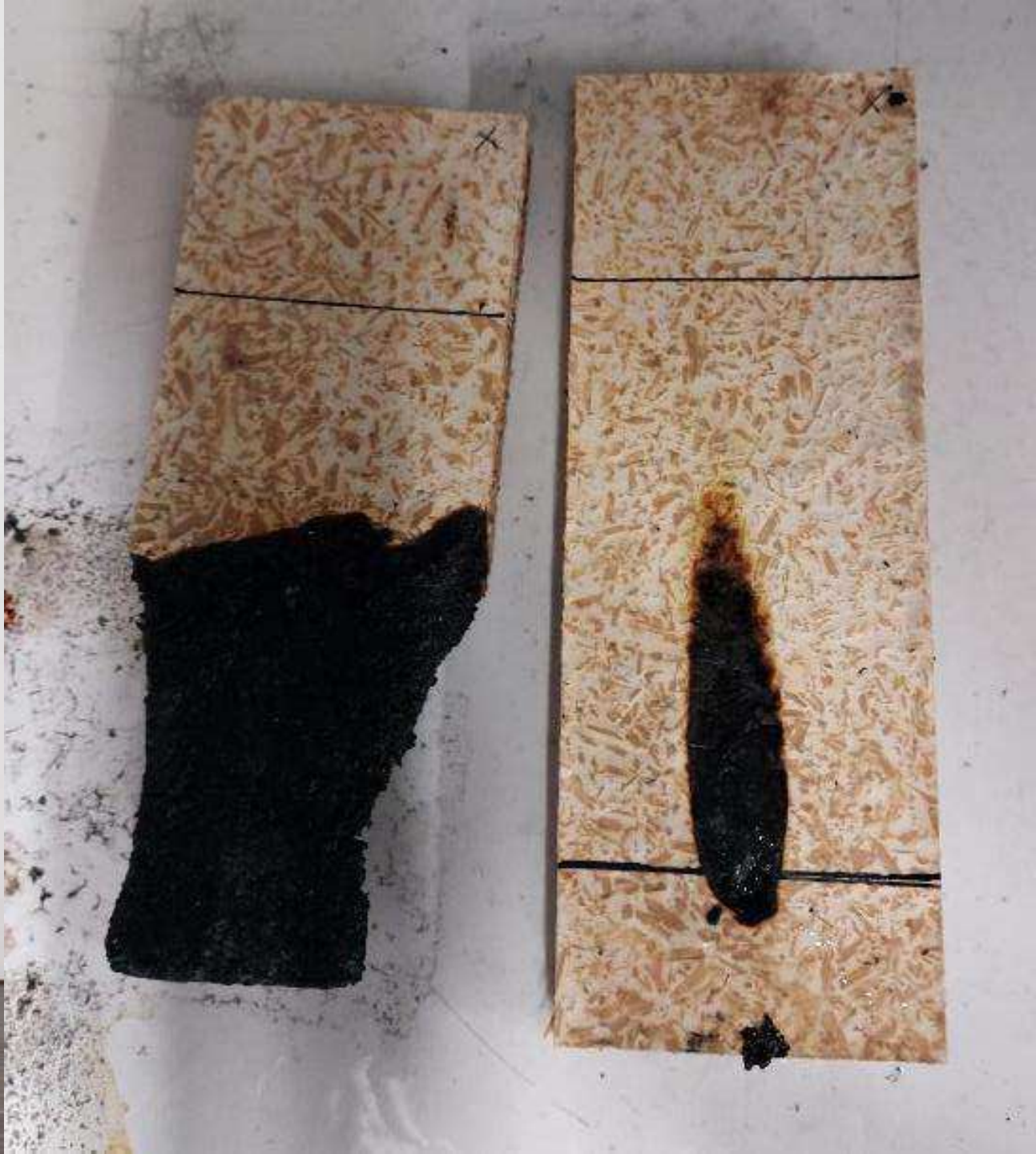


The correct crosslinker makes us retain water repellency after 20 wash cycles at 75°C

Tested products: Dowsil (Dow), different types available, one >80% biobased

Flame retardancy


SQIM



Microfibre release

MICROPLASTIC RELEASE

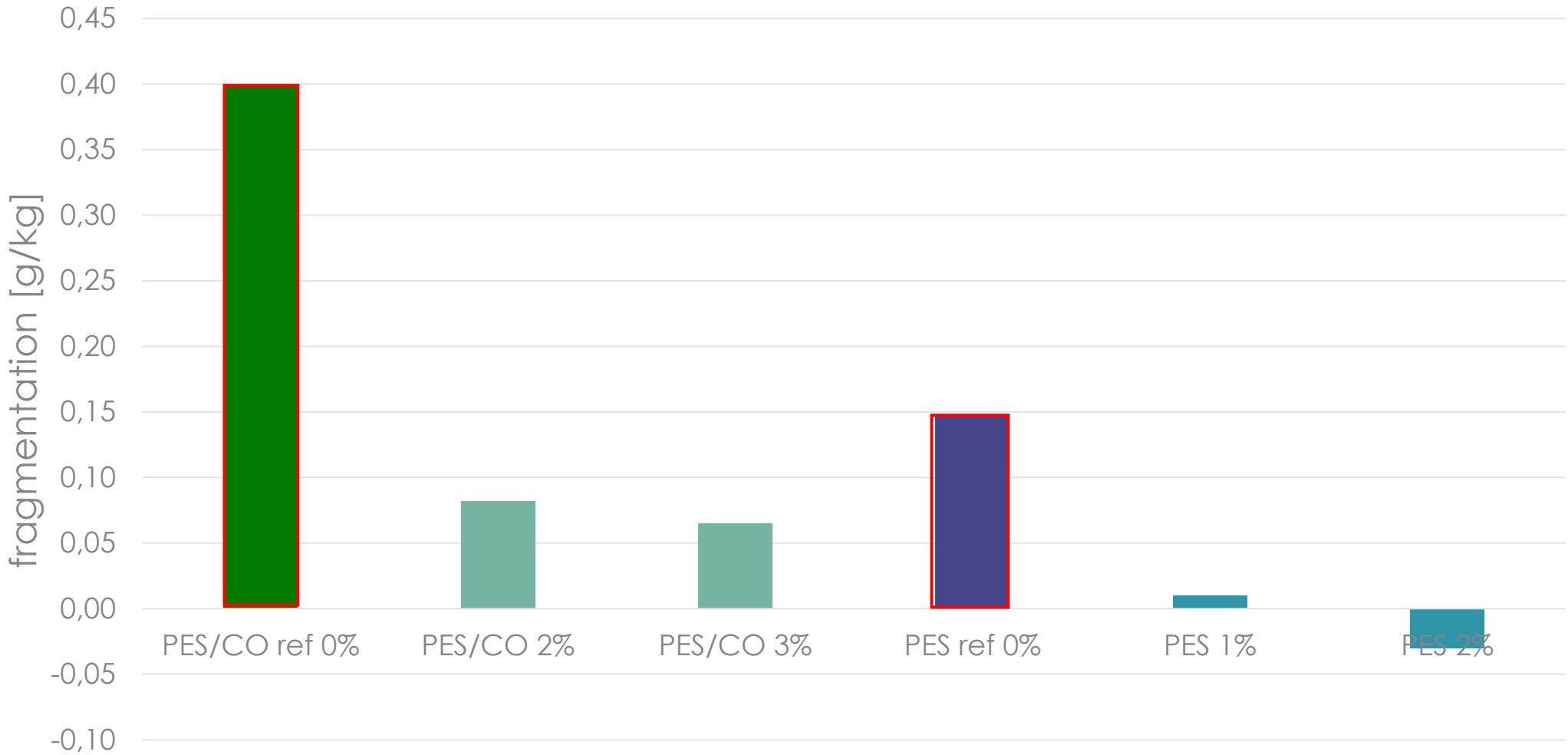
14M ton microplastics on ocean floors

8% of microplastic release in EU from textiles

Majority from washing

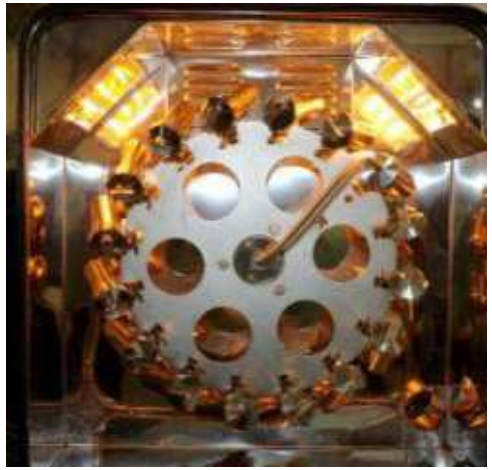
https://www.eea.europa.eu/publications/microplastics-from-textiles-towards-a#:~:text=About%208%25%20of%20European%20microplastics,global%20marine%20environment%20each%20year.-

Influence of Chitosan on fibre fragmentation during washing



HOW TO DYE PLA?

- Ensure colour depth
- Ensure colour fastness
- Minimize shrinkage
- Minimze strength loss



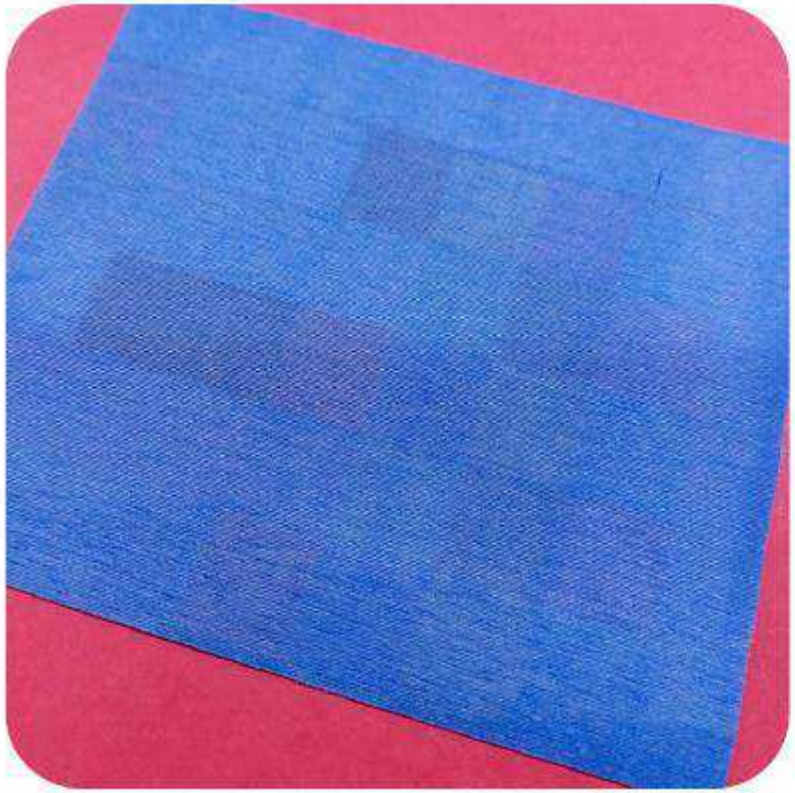
HOW TO DYE PLA?

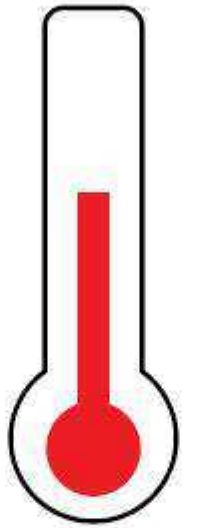
REMOVABLE COATINGS

REMOVABLE COATINGS

- Blue top coating (PU)
- Primer layer containing microspheres
- PES substrate

REMOVABLE COATINGS





190°

Smart textiles


texel – 1000 square

Questions?

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Bio-based Industries Consortium
Horizon 2020
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Innovate UK