GEFÖRDERT VOM
Bundesministerium für Bildung und Forschung

Project title:	BioFlaT: Biohybrid Flame Retardant Finish for Textiles
Partner:	Chair of Biotechnology of RWTH Aachen University; Klevers GmbH & Co. KG
Duration:	01/2022 – 12/2023
Funding Agency:	BMBF (Projektträger Jülich, Bio4MatPro)

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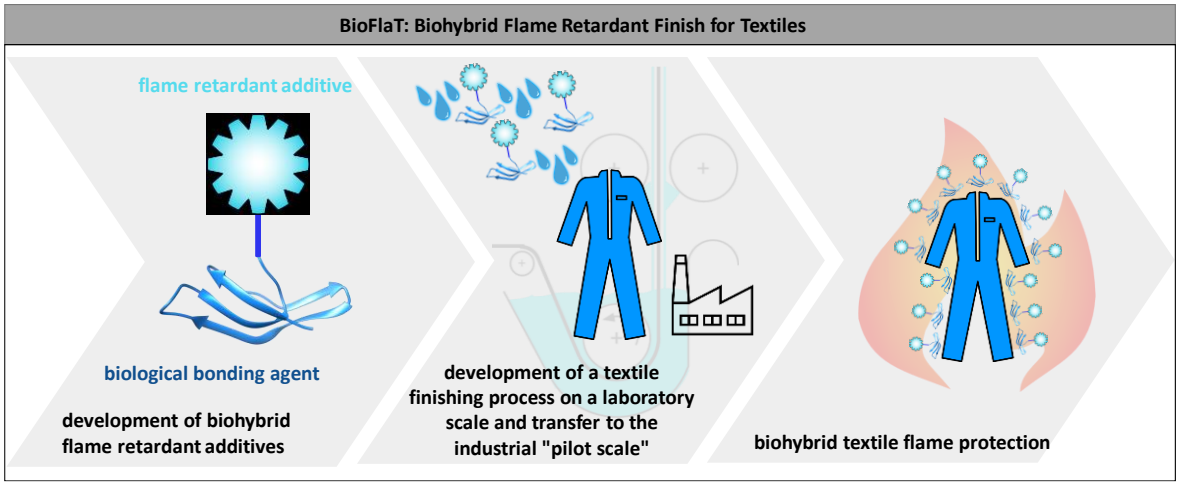
Mission Statement

The fire protection of materials plays an important role in our daily lives and covers a highly diverse range of substances, materials and applications. An important field of application for fire protection, especially in public areas, is textiles (e.g. applications for occupational safety, carpets, curtains, upholstered furniture, insulation and technical applications in outdoor areas). The efficient and durable finishing of the materials with flame retardant additives is crucial here to ensure effective fire protection. Many of the currently used flame retardant additives are based on halogens, bromides, chlorides, phosphates or antimony. However, these flame retardants are harmful to the environment and/or health.

The aim of BioFlaT is to reduce the amount of flame retardant additives needed for effective flame retardancy of textiles and to make the flame retardant finish more durable against external influences (e.g. washing processes, UV light, weathering, abrasion, temperature) by developing biohybrid flame retardant additives (anchor peptides functionalised with flame retardant additives). In this way, the flame retardant finish of the textiles can be made more sustainable, energy efficient and durable.



Approach

In the project, the Department of Biology (BIOTEC) is developing biohybrid flame retardant additives for textiles made from glass, aramid and natural fibres (e.g. linen). In parallel, the Institute für Textile Technology (ITA) is developing tailor-made textile finishing processes (e.g. padding, coating processes, roller application systems) for biohybrid flame retardant finishes on a laboratory scale and is investigating the stability of the finish against external influences (e.g. washing processes, UV light, weathering, abrasion, temperature) as well as its flame retardant properties. Based on these findings, the developed textile finishing process will finally be transferred to an industrial "pilot scale" by Klevers in close cooperation with the university partners and the performance of the biohybrid flame retardant finish will be validated.

Acknowledgement

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