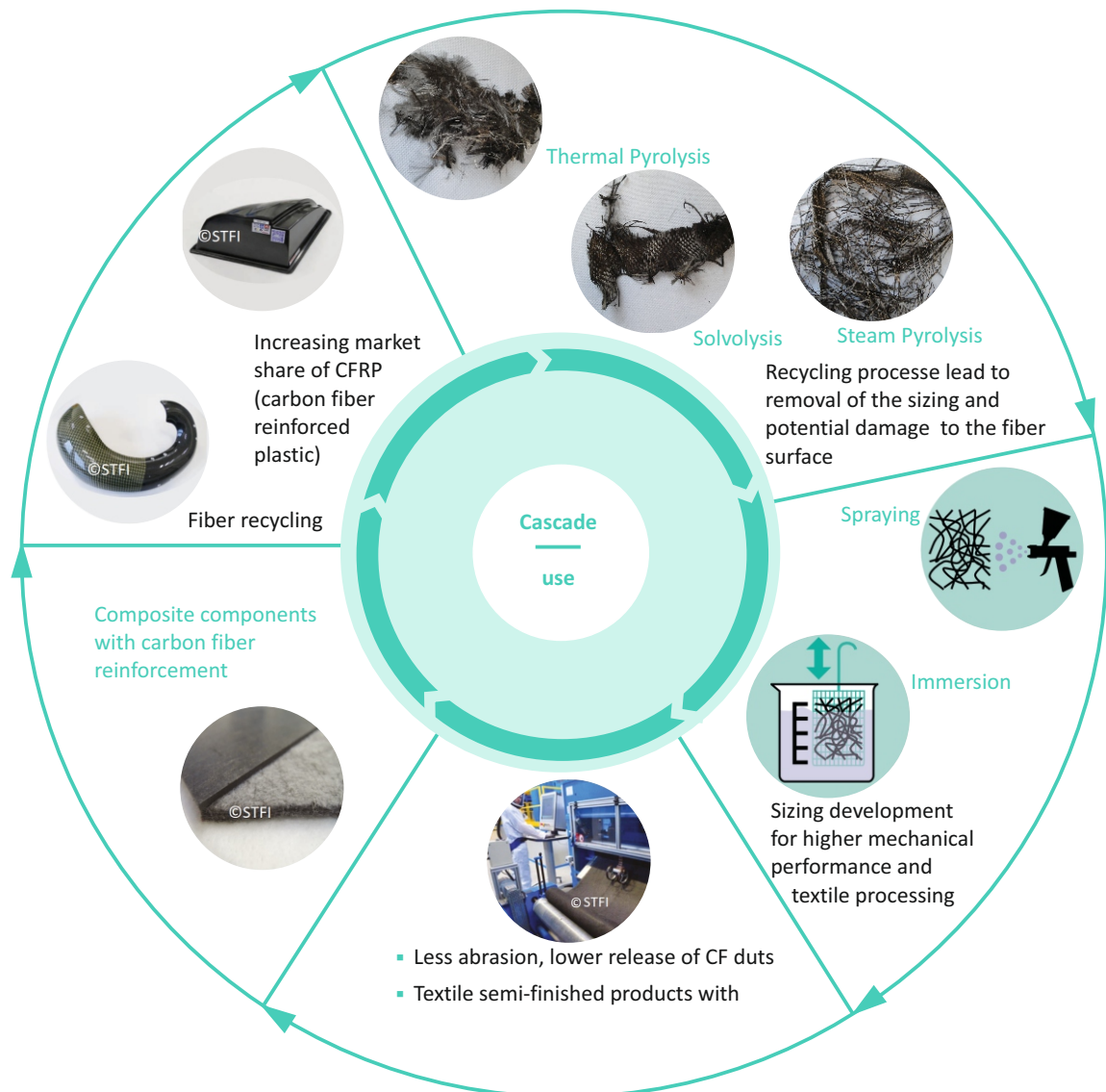


Application of sizings on recycled carbon fibers (rCF) for the manufacturing of nonwovens

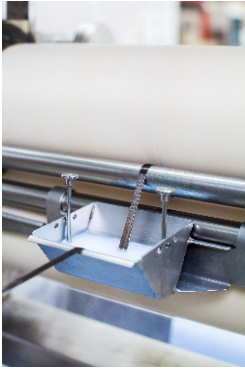


Aims:

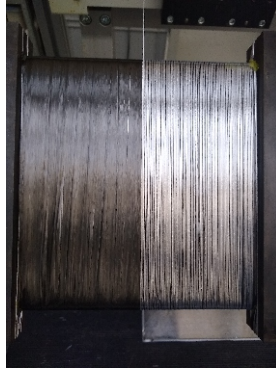
- Evaluation of the effectiveness of different sizing application methods (immersion, spraying)
- Adapted sizings for different polymer matrix materials (e.g. PU, PA, PPS, EP)
- Improved mechanical properties of rCF-reinforced composites compared made of unsized rCF
- Manufacturing of nonwovens: prevent fiber and machine damage by reducing the friction between fiber and machine parts; improvement of handling and post processing
- Enhancing the competitiveness of rCF compared to virgin CF (vCF)
- Cost-effective production of rCF-reinforced composites

Application of sizings by immersion (foulard) on unsized vCF for mechanical testing of unidirectional composites for sizing evaluation:

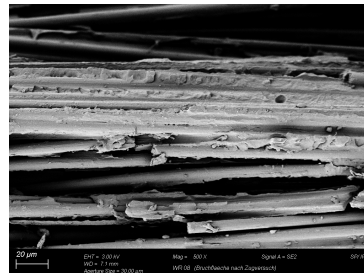
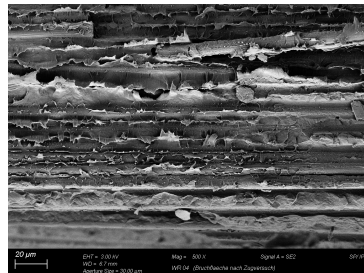
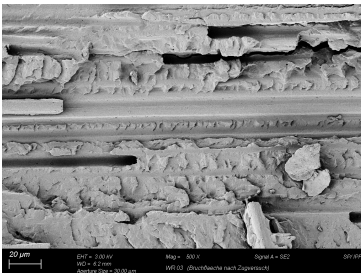
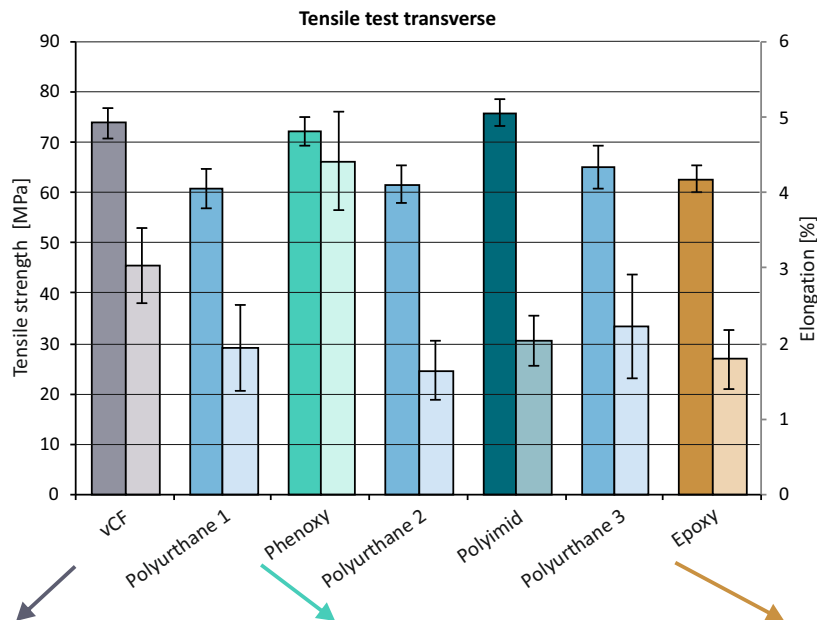
Sizing on foulard



Winding of CF and thermoplastics filaments



Unidirectional composites filaments



SEM images of fractured surfaces in unidirectional composites (vCF/polyamide 6) with different sizings; the phenoxy-based sizing leads to pronounced ductile failure

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Project

CORNET project ReCarboSize – 297 EBRD

Duration: 10/2021 – 09/2023

Partner

