



OUTLOOK ON THE POTENTIAL OF HYBRID NONWOVEN FROM FLAX FIBRES AND RECYCLED CARBON FIBRES

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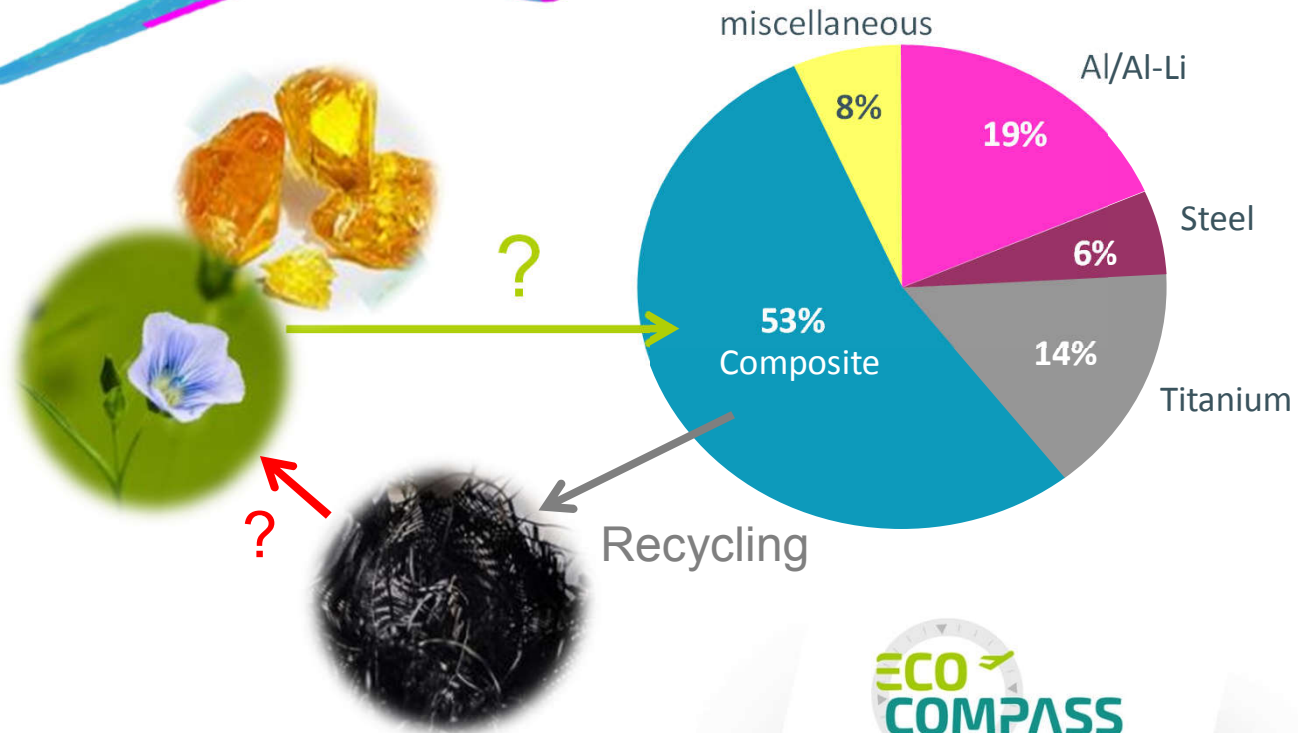
This project has received funding from:

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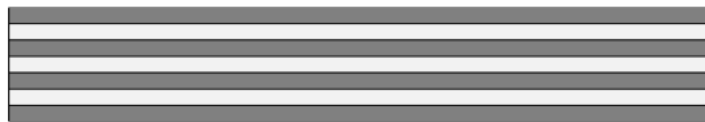
*- The Ministry for Industry and Information of the People's Republic of
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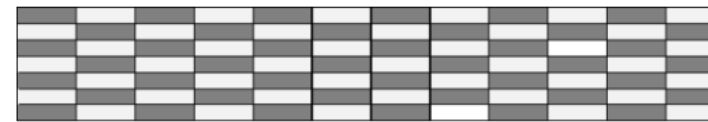
Motivation ECO-COMPASS



Hybrid nonwoven from rCF and NF



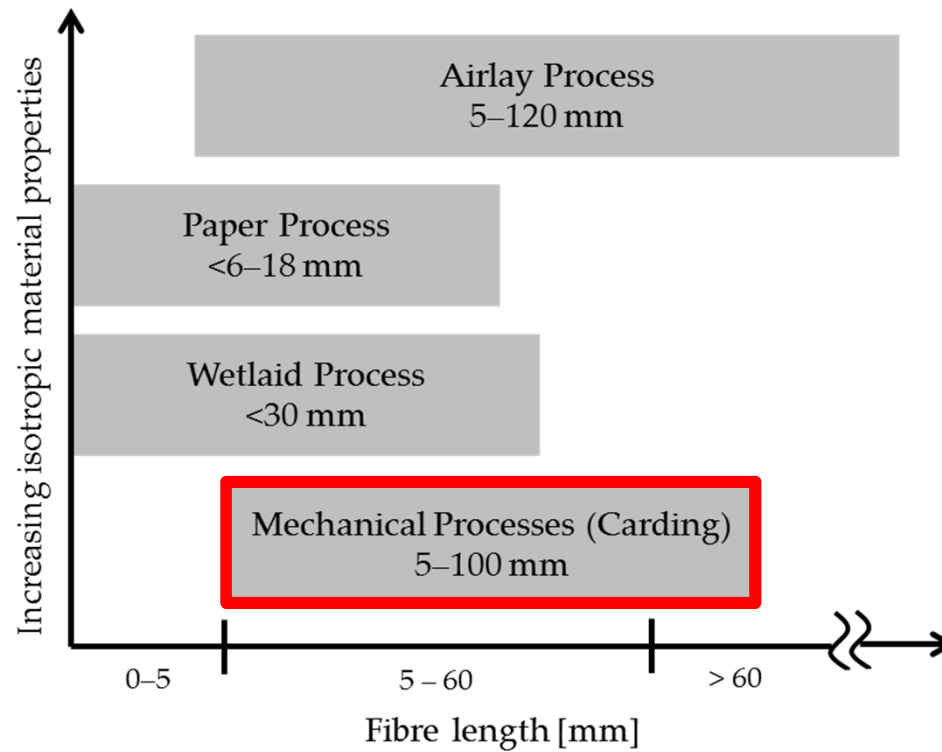
Interlayer



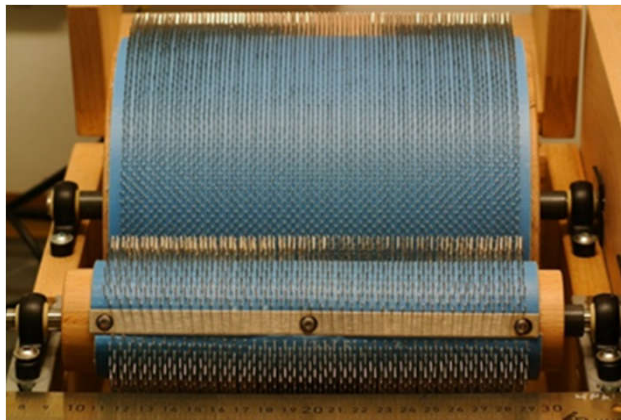
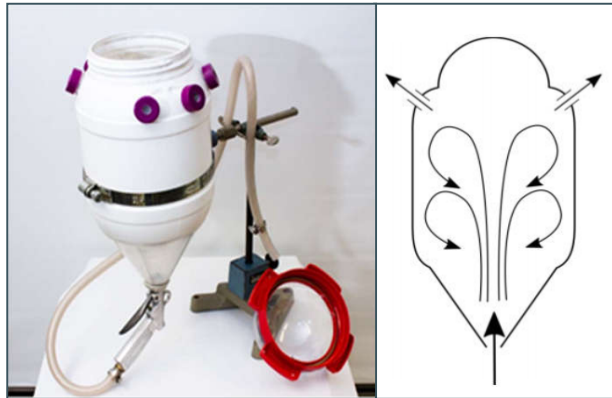
Intralayer



Nonwoven processes



Mixing and nonwoven production



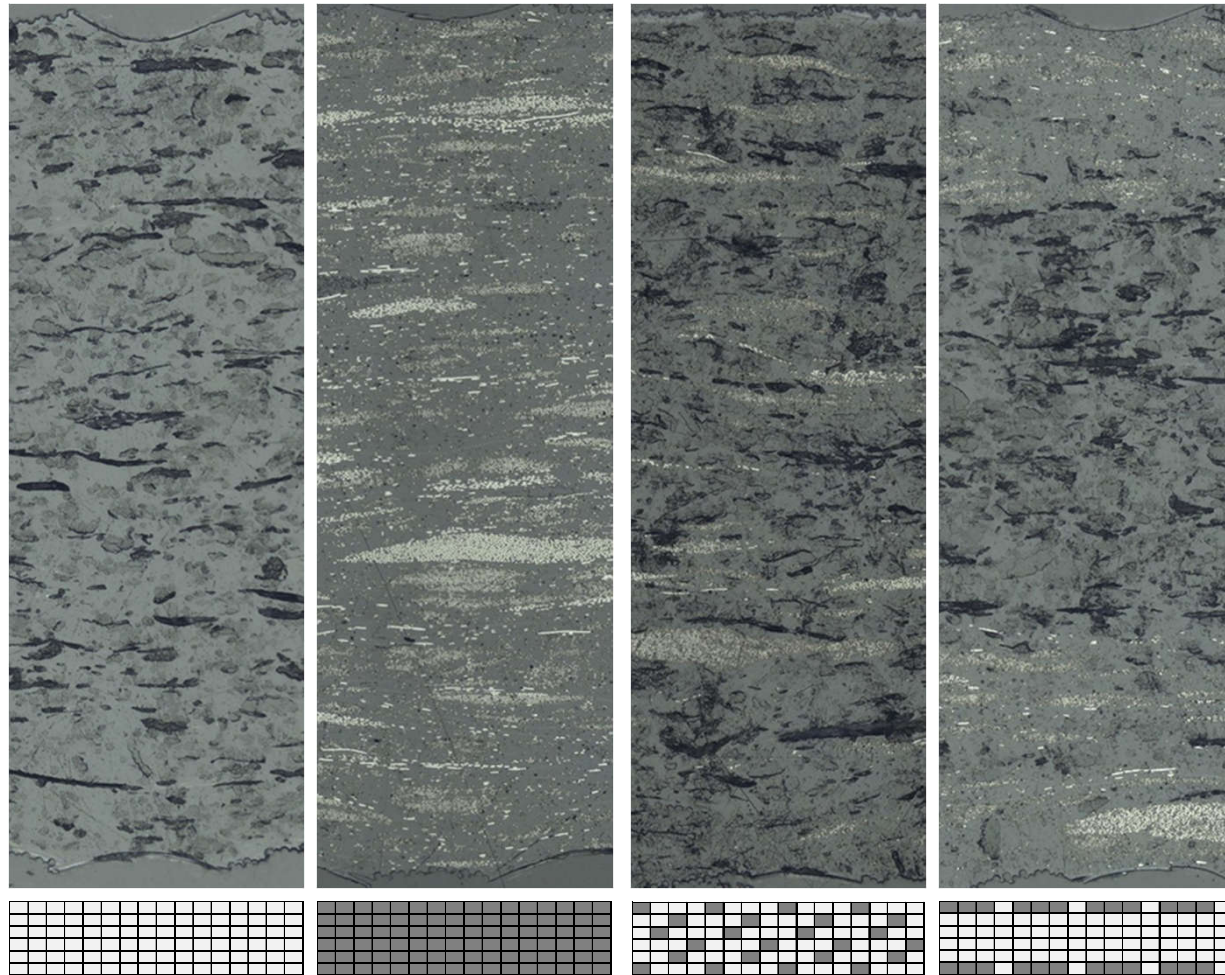
Nonwoven configuration



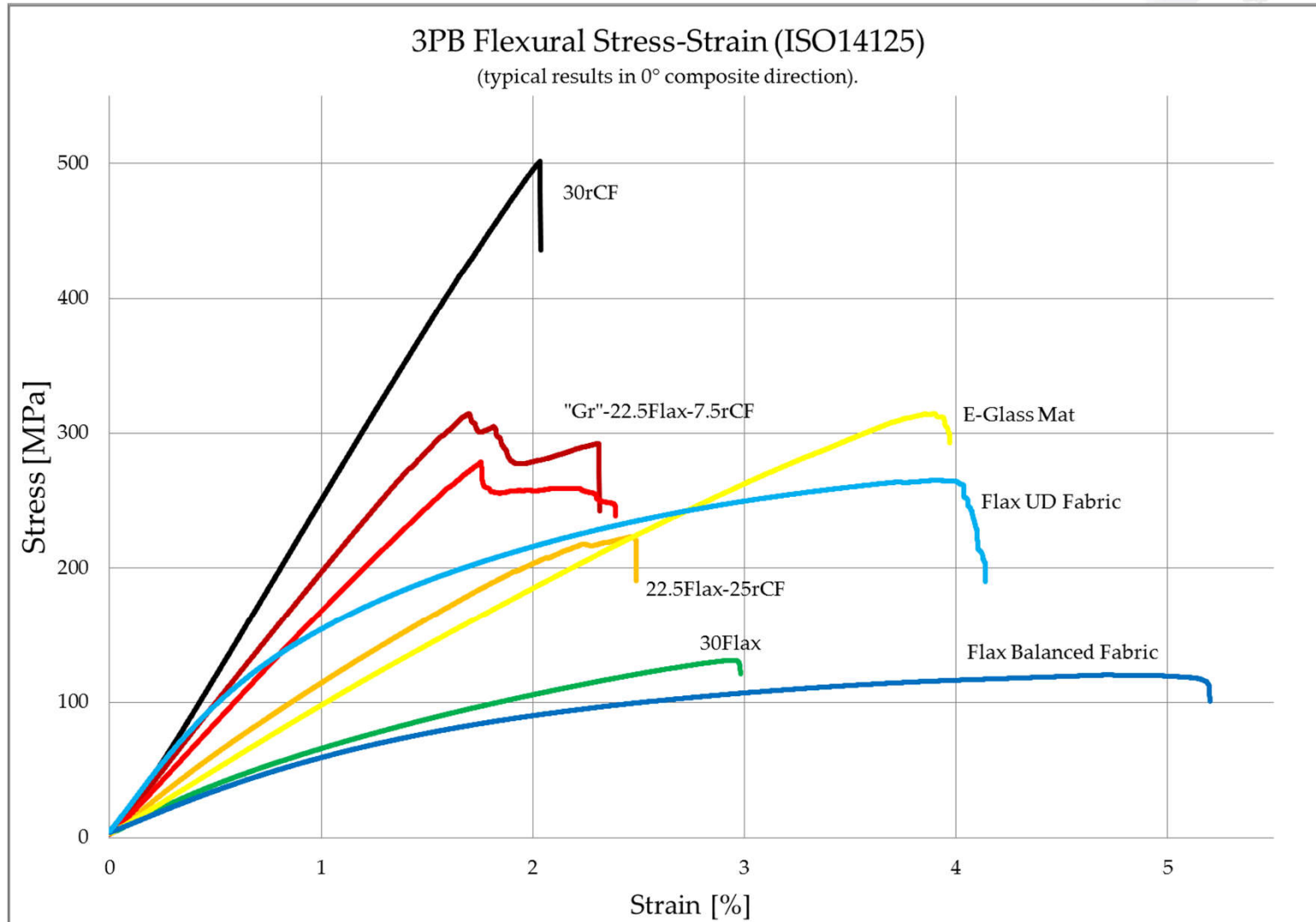
Laminate	Stacking Sequence and Volumetric Distribution of Fibres	Composition
30Flax		30 vol.-% Flax 70 vol.-% Epoxy
30rCF		30 vol.-% rCF 70 vol.-% Epoxy
22.5Flax-7.5rCF		22.5 vol.-% Flax 7.5 vol.-% rCF 70 vol.-% Epoxy
Gr-22.5Flax-7.5rCF		22.5 vol.-% Flax 7.5 vol.-% rCF 70 vol.-% Epoxy

Legend: Flax rCF

Fibre distribution



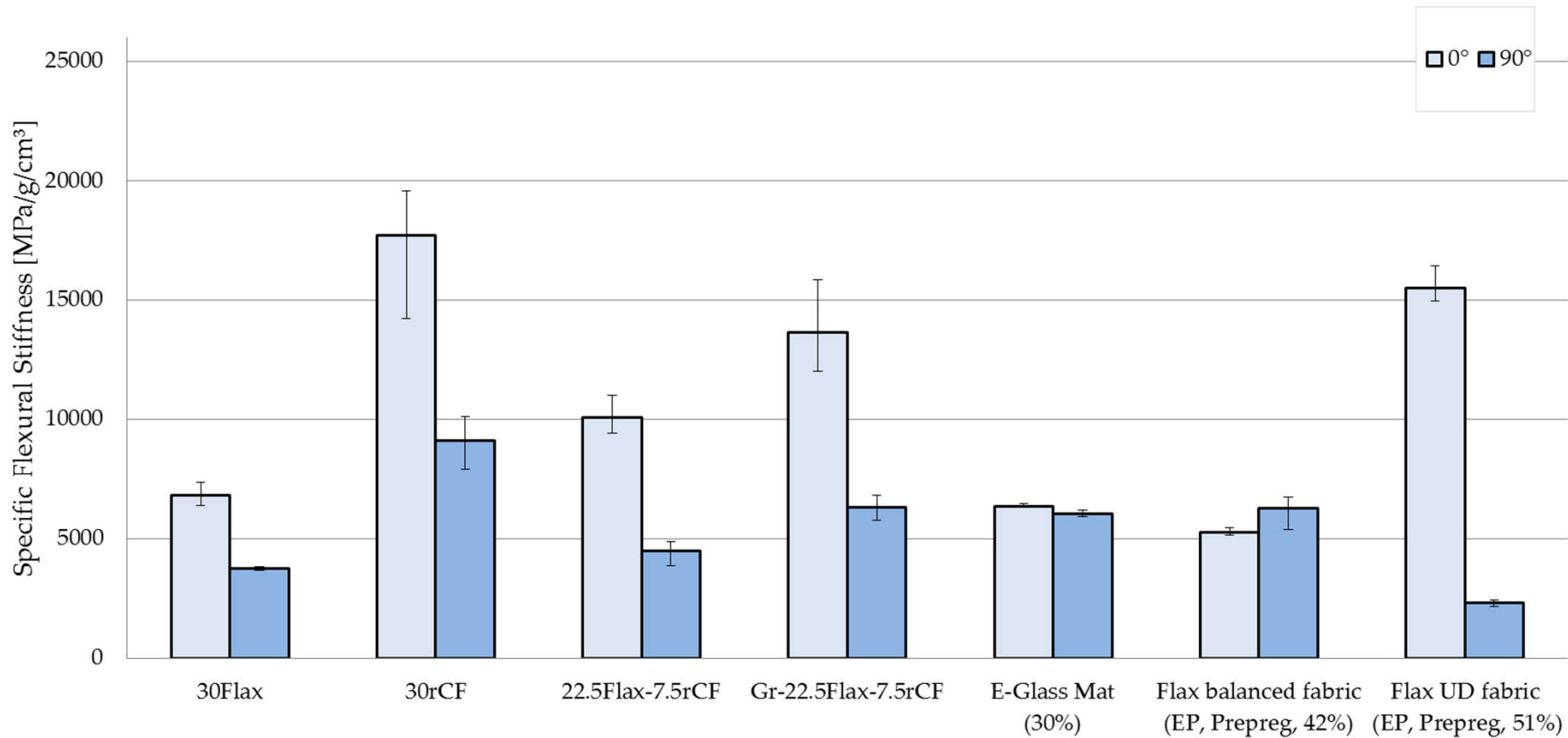
Flexural Characterisation



Flexural Characterisation



3PB Specific Flexural Stiffness [ISO14125]



Summary & Outlook



- Recycled carbon fibres (rCF) retain their good mechanical properties
- Restricted length comparable to natural fibres (NF)
- rCF and flax fibres were combined in a hybrid nonwoven as a way to improve mechanical properties compared to pure NFRP.
- Flexural characterisation (3PB) shows potential improvement of hybrid nonwoven configurations compared to pure flax reinforced composite. However, pure rCF reinforcement was not reached.

Outlook

- A full characterisation with TEN, COM, etc.
- Improvement of fibre-matrix adhesion for pyrolysed rCF without sizing
- Upscaling of fibre mixing and distribution process
- Adaptation of mixing ratio, fibre distribution and fibre alignment (e.g. by cross-laying)



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谢谢大家的关注。

THANK YOU FOR YOUR ATTENTION.

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