

Datasheet for Fibre-Reinforced Composites (FRC) – CENTEXBELL, VANHEEDE

PP-cotton FRC

Product Description	Blend of recycled PP, 25% cotton fibres (0.5-2.5 mm length) and 3% compatibilizer
Physical properties	Nominal values
Density	0.96 g/cm ³
Melt Flow Index (230°C, 2.16 kg)	5 g/10 min.
Mechanical properties	Nominal values
Tensile modulus	1760 MPa
Tensile strength	28 MPa
Flexural modulus	1690 MPa
Flexural strength	43 MPa
Charpy impact strength (notched)	7 kJ/m ²
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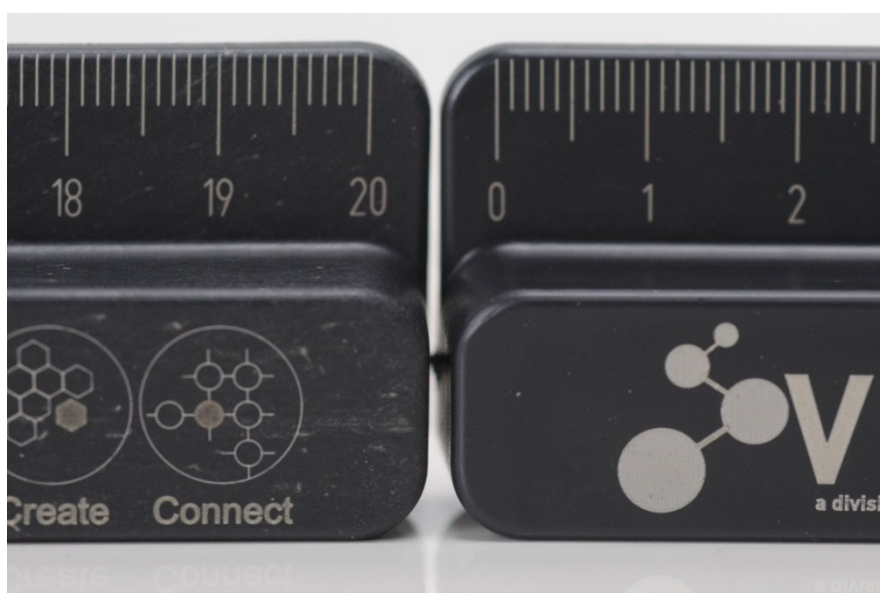
Demonstrator: ruler



PO-cotton FRC

Product Description	Blend of recycled PO (PP and PE mix), 25% cotton fibres (0.5-2.5 mm length) and 3% compatibilizer
Physical properties	Nominal values
Density	0.99 g/cm ³
Melt Flow Index (230°C, 2.16 kg)	2 g/10 min.
Mechanical properties	Nominal values
Tensile modulus	1710 MPa
Tensile strength	28 MPa
Flexural modulus	1590 MPa
Flexural strength	40 MPa
Charpy impact strength (notched)	9 kJ/m ²
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Demonstrator: ruler



PP-Delax FRC

Product Description	Blend of virgin PP, 25% Delax fibres (1-3 mm length) and 3 % compatibilizer.
Physical properties	Nominal values
Density	0.97 g/cm ³
Melt Flow Index (230°C, 2.16 kg)	3 g/10 min.
Mechanical properties	Nominal values
Tensile modulus	1690 MPa
Tensile strength	21 MPa
Flexural modulus	1560 MPa
Flexural strength	36MPa
Charpy impact strength (notched)	11 kJ/m ²
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Demonstrator: wine cooler



PP-mattress FRC

Product Description	Blend of virgin PP, 25% mattress fibres (≤ 1 mm length) and 3% compatibilizer
Physical properties	Nominal values
Melt Flow Index (230°C, 2.16 kg)	5 g/10 min.
Mechanical properties	Nominal values
Tensile modulus	2044 MPa
Tensile strength	30 MPa
Flexural modulus	1950 MPa
Flexural strength	49 MPa
Charpy impact strength (notched)	4.4 kJ/m ²
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Demonstrator: storage box



Environmental performance of storage box

In the LCA analysis:

- the functional unit was 1 storage box made of a blend of virgin PP, 25% mattress fibres (≤ 1 mm length) and 3% compatibilizer (PP mattress FRC)
- the collection of the mixed bulky waste was included (based on the data from IMOG)
- the fragmentation/separation of the mixed bulky waste was included (based on the data from ECOFRAG/VANHEEDE)
- the data on the production process was provided by CENTEXBEL
- for the treatment of waste coming from technological processes, the data from the SimaPro database were used
- the benefits of recycling were taken into account
- the energy mix for Europe without Switzerland was used

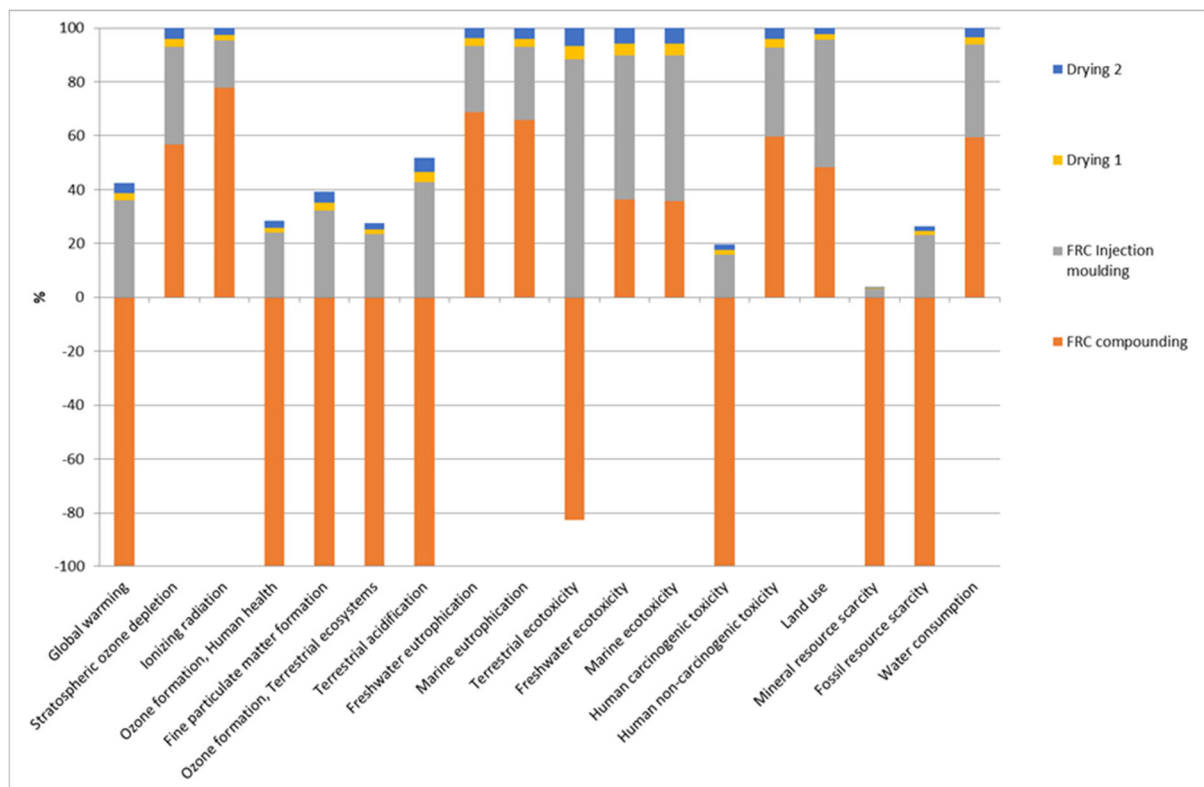


Figure. Results of LCA analysis for 1 storage box made from fibre-reinforced composite (FRC)