

# Flax & Hemp Solutions

## Technical datasheets 2018

NAME OF THE COMPANY : .....

### Technical datasheet - non crimp

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NAME OR REFERENCE : .....

#### Description of the fibres

	Nature	Composition <sub>2</sub>
Reinforcement <sub>1</sub>	<input type="checkbox"/> Roving* <input type="checkbox"/> Yarn	<input type="checkbox"/> Flax <input type="checkbox"/> Hemp <input type="checkbox"/> Other, specify: .....

	Type	Linear density		
Binding yarn	.....	Unit	Standard	Value
		Tex (g/km)	ISO 1973	..... ± .....

<sup>1</sup> More details can be found on the roving/yarn datasheets from the manufacturer given in the «additional information» section

<sup>2</sup> Multiple options can be selected in case of special commingled roving or yarn, or in other special combined yarns

\* The twist, measured according to ISO 17202, is lower as 10 twists/m

#### Description of the fabric

Property	Unit	Standard	Value
Areal weight	g/m <sup>2</sup>	ISO 3801	..... ± .....
Mass fraction of binding yarns	%		.....
<b>Stitching pattern</b> Type Stitching density Stitching gauge	 /cm /cm		<input type="checkbox"/> Tricot <input type="checkbox"/> Chain ..... .....
Orientation of layers		Layer 1 ..... Layer 2 ..... Layer 3 ..... Layer 4 .....	
Weight distribution of layers	%	Layer 1 ..... Layer 2 ..... Layer 3 ..... Layer 4 .....	
Standard width	cm	ISO 5025	..... ± .....
Standard length	m		.....
Standard mass	kg		.....

**Footnote:** Density of flax and hemp fixed at 1,45 g/cm<sup>3</sup>. More details can be found in the CELC guideline.

**Footnote:** Areal volume =  $\frac{\text{areal weight}}{\text{density}} \times \frac{1}{1000}$

A glass fibre non-crimp fabric of 200 g/m<sup>2</sup> has an areal volume of 0,079 mm<sup>3</sup>/mm<sup>2</sup>, while a flax noncrimp fabric of 200 g/m<sup>2</sup> has an areal volume of 0,138 mm<sup>3</sup>/mm<sup>2</sup>

# Mechanical properties of the laminate

## With a thermoset matrix

Stacking sequence:	<input type="checkbox"/> Regular*	<input type="checkbox"/> Other, specify: .....
Process:	<input type="checkbox"/> Hand lay-up <input type="checkbox"/> Resin transfer molding	<input type="checkbox"/> Vacuum infusion <input type="checkbox"/> Other, specify: .....
Name of matrix**:	.....	

\* All layers of non-crimp fabric oriented in machine direction  
\*\* Matrix properties can be found on the datasheet from the manufacturer given in section “additional information”

MECHANICAL PROPERTIES OF NON - CRIMPED FABRIC COMPOSITE	TENSION	FLEXION
$V_f(\%)^*$	..... ± .....	..... ± .....
Modulus in MD** (GPa)	E1 = ..... ± ..... (1)	E1 = ..... ± ..... (1)
Modulus in CD** (GPa)	E1 = ..... ± ..... (1)	E1 = ..... ± ..... (1)
Modulus in BD** (GPa)	E1 = ..... ± ..... (1)	E1 = ..... ± ..... (1)
Strength in MD (MPa)	..... ± .....	..... ± .....
Strength in CD (MPa)	..... ± .....	..... ± .....
Strength in BD (MPa)	..... ± .....	..... ± .....
Failure strain in MD (%)	..... ± .....	..... ± .....
Failure strain in CD (%)	..... ± .....	..... ± .....
Failure strain in BD (%)	..... ± .....	..... ± .....
Standards	ISO 527	ISO 14125

\* More details on the calculation of the fibre volume fraction can be found in the CELC guideline.  
\*\* MD: machine direction  
\*\* CD: cross direction  
\*\* BD: bias direction  
(1) E1 measured between 0 and 0,1% strain, adapted for natural fibres, more details can be found in the CELC guideline.

Mechanical properties of the laminate (2)

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With a thermoplastic matrix

Stacking sequence:	<input type="checkbox"/> Regular*	<input type="checkbox"/> Other, specify: .....
Process:	<input type="checkbox"/> Compression molding	<input type="checkbox"/> Other, specify: .....
Name of matrix**:	.....	

\* All layers of non-crimp fabric oriented in machine direction  
\*\* Matrix properties can be found on the datasheet from the manufacturer given in section “additional information”

MECHANICAL PROPERTIES OF NON - CRIMPED FABRIC COMPOSITE	TENSION	FLEXION
$V_f(\%)^*$	..... ± .....	..... ± .....
Modulus in MD** (GPa)	E1 = ..... ± ..... (1)	E1 = ..... ± ..... (1)
Modulus in CD** (GPa)	E1 = ..... ± ..... (1)	E1 = ..... ± ..... (1)
Modulus in BD** (GPa)	E1 = ..... ± ..... (1)	E1 = ..... ± ..... (1)
Strength in MD (MPa)	..... ± .....	..... ± .....
Strength in CD (MPa)	..... ± .....	..... ± .....
Strength in BD (MPa)	..... ± .....	..... ± .....
Failure strain in MD (%)	..... ± .....	..... ± .....
Failure strain in CD (%)	..... ± .....	..... ± .....
Failure strain in BD (%)	..... ± .....	..... ± .....
Standards	ISO 527	ISO 14125

\* More details on the calculation of the fibre volume fraction can be found in the CELC guideline.  
\*\* MD: machine direction  
\*\* CD: cross direction  
\*\* BD: bias direction  
(1) E1 measured between 0 and 0,1% strain, adapted for natural fibres, more details can be found in the CELC guideline.

# Additional information

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Add datasheet of the rovings or yarns used to manufacture the preform (mandatory)  
Add datasheet(s) of the thermoset and/or thermoplastic matrix used for composite production (mandatory)

## Treatment

Treatment: ☐ Yes ☐ No

Purpose(s) of treatment:

Compatibilised for use with: .....

Other: .....

Sizing: ☐ Yes ☐ No

Purpose(s) sizing:

.....  
.....

## Recommended storage and use conditions

.....  
.....

## Suggestions for additional information

Unique properties: life cycle analysis and vibrational damping properties

Non-crimp fabric structure

Fatigue- and impact properties

Sales aspects