# FLAX LOW TWIST ROVING TEX 200

*Technical Datasheet*

## SPECIFICATIONS

### GENERAL PARAMETERS

| | | | | | |
|---|---|---|---|---|---|
| LINEAR DENSITY: | **TEX** | **200** | COLOR: | NATURAL | |
| | **Nm** | **5.0** | FLAX CONTENT: | 100% | |
| TORSION: | **tpm** | **72** | FLAX ORGIN: | EU | ~~non-EU~~ |

### FIBER TREATMENTS:

| | | | |
|---|---|---|---|
| WASHING: | YES | ~~NONE~~ | Alkali washing |
| BLEACHING: | ~~YES~~ | NONE | |
| SIZING: | ~~YES~~ | NONE | |
| ADDITIVES: | ~~YES~~ | NONE | |
| OTHER: | ~~YES~~ | NONE | |

### STANDARD BOBBIN CONDITIONING

| | |
|---|---|
| CORE: | WEAVING CONE |
| TYPE: | CONIC |
| WEIGHT: | 1.1 kg |
| DIAMETER: | N/A |
| WIDTH: | 180 mm |
| LENGTH: | ~5500 m |
| HUMIDITY: | ~9 % |

### STORAGE

Recommended low humidity storage (< 50% R.H.); limited exposure to sunlight

## DRY FLAX ROVING PARAMETERS

| BREAKING STRENGTH (N) | TENACITY (cN/TEX) | CV BREAKING STRENGTH (%) | ELONGATION (%) | RKM min | RKM 3 points mini | RKM max | RKM medium | Um (%) |
|---|---|---|---|---|---|---|---|---|
| 21,5 | 10,75 | 23,4 | 1,2 | 5,2 | 5,9 | 17,6 | 10,9 | 17,8 |

| CVm (%) | Points g (-40%) | Points g (-50%) | Points g (+35%) | Points g (+50%) | Points g (+70%) | Points g (+100%) | Points g (+200%) | Points g (+400%) |
|---|---|---|---|---|---|---|---|---|
| 22,6 | 1969,5 | 435,8 | 1254,8 | 424,8 | 87,8 | 9,0 | 37,3 | 0,8 |

data obtained according to Uster specification for natural fibers

| PARAMETERS | UNITS | VALUES |
|---|---|---|
| TENSILE STRENGTH | MPa | 155 |
| TENSILE MODULUS | GPa | 12.0 |
| TENSILE ELONGATION | % | 1.2 |
| DENSITY OF FLAX FIBERS | $g/cm^3$ | 1.44 |

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## COMPOSITE PARAMETERS

### MECHANICAL PROPERTIES OF MATRIX

| PARAMETERS | UNITS | VALUES |
|---|---|---|
| TYPE OF RESIN | | EPOXY |
| STRENGTH | MPa | 70 |
| MODULUS | GPa | 2 < E < 3 |
| STRAIN | % | > 4 |

| MANUFACTURING PROCESS | THERMOCOMPRESSION<br>BASED ON ISO 10618:2004 (ADAPTED TO NATURAL FIBERS) |
|---|---|

### MECHANICAL PROPERTIES OF COMPOSITE*

*tensile tests performed according to standard ISO 527

| TYPE OF VALUES | | EXPERIMENTAL Vf=57% | NORMALIZED[3] Vf=50% |
|---|---|---|---|
| PARAMETERS | UNITS | VALUES | |
| TENSILE STRENGTH | MPa | 408 | 362 |
| TENSILE MODULUS E1[1] | GPa | 37.4 | 32.8 |
| TENSILE MODULUS E2[2] | GPa | 29.2 | 25.7 |
| TENSILE ELONGATION | % | 1.4 | 1.4 |

[1] E1 - strain (%) between 0,0005 and 0,001

[2] E2 - strain (%) between 0,003 and 0,005

[3] Experimental results recalculated to given fiber volume fraction Vf

### PERFORMANCE OF FLAX FIBER IN COMPOSITE (BACKCALCULATED)*

*according to CELC guidelines

| PARAMETERS | UNITS | VALUES |
|---|---|---|
| FIBER STRENGTH | MPa | 686 |
| TENSILE MODULUS E1[1] | GPa | 65.7 |
| TENSILE MODULUS E2[2] | MPa | 51.4 |
| SPECIFIC STRENGTH | $\frac{MPa}{g \times cm^3}$ | 476 |
| SPECIFIC STIFFNESS | $\frac{GPa}{g \times cm^3}$ | 46 |

[1] E1 - strain (%) between 0,0005 and 0,001

[2] E2 - strain (%) between 0,003 and 0,005

### PROCESSING GUIDELINES

1. Flax roving is compatible with epoxy and polyester resins.
2. Flax reinforcement can be used directly however to obtain the highest performance in composite it is recommended to dry fibers prior to impregnation (110°C / 15min or 60°C / 4h).
3. For textile manufacturing (weaving, knitting etc.) it is important to respect the requirements for natural fiber processing (air relative humidity ~64%, temperature ~22°C).

For further details please contact us on: **www.safilin.fr**