FLAX LOW TWIST ROVING TEX 400

Technical Datasheet

SPECIFICATIONS

GENERAL PARAMETERS

LINEAR DENSITY:	**TEX**	**400**
	Nm	**2.5**
TORSION:	**tpm**	**40**

COLOR:	NATURAL	
FLAX CONTENT:	100%	
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:	~2750 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 (%)
32,0	8,00	20,2	1,0	4,8	5,3	13,4	8,5	14,8

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%)
18,6	802,3	71,1	609,8	107,9	8,0	1,5	10,5	0,8

data obtained according to Uster specification for natural fibers

PARAMETERS	UNITS	VALUES
TENSILE STRENGTH	MPa	115
TENSILE MODULUS	GPa	12.0
TENSILE ELONGATION	%	1.0
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** 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=60%	NORMALIZED[3] Vf=50%
PARAMETERS	UNITS	VALUES	
TENSILE STRENGTH	MPa	411	347
TENSILE MODULUS E1[1]	GPa	40.6	33.7
TENSILE MODULUS E2[2]	GPa	31.1	25.8
TENSILE ELONGATION	%	1.3	1.3

[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	658
TENSILE MODULUS E1[1]	GPa	67.3
TENSILE MODULUS E2[2]	MPa	51.7
SPECIFIC STRENGTH	$\frac{MPa}{g \times cm^3}$	457
SPECIFIC STIFFNESS	$\frac{GPa}{g \times cm^3}$	47

[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**