Characteristics

Technical data sheet

The characteristics of composites moulded with Twintex® depend, of course, on the reinforcement level, the glass fibre orientation and the matrix type.

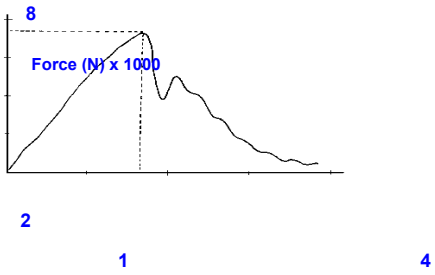
Twintex® PP and PET MECHANICAL PROPERTIES (non standard)

			PP 60 1/1	PP75 1/1	PET65 1/1	PP60 4/1	PP75 UD
GLASS Content	by weight	%	60	75	65	60	75
	by volume	%	35	50	50	35	50
TENSILE (ISO 527)	Strength	MPa	350	420	440	500/180	700
	Modulus	GPa	15	21	25	24/8	38
FLEXURAL (ISO 178)	Strength	MPa	280	340	600	380/160	400
	Modulus	GPa	13	17.5	22.5	18/6.1	32
	Elongation	%	2.5	2.5	3.25	2.5/3.6	2
COMPRESSION (ISO 8515)	Strength	MPa	140	160	410	230/100	170
SHEAR (ISO 14130)	Strength	MPa	22.5	22.5	43	24/15	22.5
Impact CHARPY (ISO 179)	un-notched	kJ/m^2	220	300	300	330/90	445
		J/cm^3	8	10	10	11/3	15
HDT (1.82 MPa)		°C	159	159	257	159	159
THEORETICAL DENSITY		g/cm^3	1.50	1.75	1.95	1.50	1.75

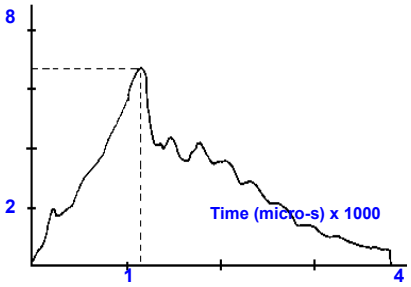
Twintex® PP: EXCEPTIONAL IMPACT STRENGTH

Particularly notable is the excellent impact behaviour resulting from the combination of the PP matrix ductility and the tensile strength of continuous glass fibres. The first cracks appear only after high deformation. The energy is absorbed during a time 50 % longer.

Twintex ® PP 60 (35 vol %)



SMC 42 % (30 vol %)



Twintex® PP : EXCEPTIONAL RESISTANCE TO WATER

The high chemical inertness of PP provides Twintex® with exceptional resistance to the presence of the water.

72 h boiling water	Twintex® PP	Polyester TD
TENSILE		
Strength (Mpa)	-10%	- 40 -60%
Modulus (Gpa)	-0.7 %	- 5-15%
SHEAR		
Strength (Mpa)	-9%	- 25-50%

Ageing in boiling water shows only a 10 % loss in tensile and shear strengths.

1200 h 65°C water Amoco test	Twintex® PP	Polyester TD
BEND		
Strength (Mpa)	- 0 %	- 25-40%

No sign of ageing, either surface aspect or mechanical properties, was seen after 1200 hrs of immersion in 65°C water.
After continuation to 4800 hrs, the loss in properties did not exceed 10 %.

EFFECT OF TEMPERATURE TWINTEX® PP

The loss of strength and rigidity with temperature increase is highest for bend loadings.

	23°C	80°C	100°C
TENSILE			
Strength (Mpa)	240	220	210
Modulus (Gpa)	13	13	10
BEND			
Strength (Mpa)	291	120	95
Modulus (Gpa)	12.5	9.2	8.5
Elongation (%)	3.6	2.1	1.8

	-20°C	23°C
Charpy impact un-notched (kJ/m^2)	210	200

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