

# SUPPLY SERVICES

## performance engineering products

### TECADUR PET natural - Stock Shapes

#### Chemical Designation

PET (Polyethylene terephthalate)

#### Colour

white opaque

#### Density

1.39 g/cm<sup>3</sup>

#### Main features

- high strength
- good slide and wear properties
- good wear resistance
- good weldable and bondable
- not hot water resistant over 60°C
- high toughness
- good chemical resistance
- high stiffness

#### Target Industries

- mechanical engineering
- automotive industry
- electronics
- food technology
- medical technology

Mechanical properties	parameter	value	unit	norm	comment
Modulus of elasticity (tensile test)	1mm/min	3300	MPa	DIN EN ISO 527-2	1)
Tensile strength	50mm/min	91	MPa	DIN EN ISO 527-2	
Tensile strength at yield	50mm/min	91	MPa	DIN EN ISO 527-2	
Elongation at yield	50mm/min	4	%	DIN EN ISO 527-2	
Elongation at break	50mm/min	14	%	DIN EN ISO 527-2	
Flexural strength	2mm/min, 10 N	134	MPa	DIN EN ISO 178	2)
Modulus of elasticity (flexural test)	2mm/min, 10 N	3400	MPa	DIN EN ISO 178	
Compression strength	1% / 2% / 5% 5mm/min, 10 N	21/38/89	MPa	EN ISO 604	3)
Compression modulus	5mm/min, 10 N	2800	MPa	EN ISO 604	4)
Impact strength (Charpy)	max. 7.5J	150	kJ/m <sup>2</sup>	DIN EN ISO 179-1eU	5)
Ball indentation hardness		194	MPa	ISO 2039-1	6)
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		81	°C	DIN EN ISO 11357	1)
Melting temperature		244	°C	DIN EN ISO 11357	
Service temperature	short term	170	°C		2)
Service temperature	long term	110	°C		
Thermal expansion (CLTE)	23-60°C, long.	8	10 <sup>-5</sup> K <sup>-1</sup>	DIN EN ISO 11359-1;2	
Thermal expansion (CLTE)	23-100°C, long.	10	10 <sup>-5</sup> K <sup>-1</sup>	DIN EN ISO 11359-1;2	
Electrical properties	parameter	value	unit	norm	comment
Specific surface resistance		10 <sup>14</sup>	Ω	DIN IEC 60093	
Specific volume resistance		10 <sup>14</sup>	Ω*cm	DIN IEC 60093	
Other properties	parameter	value	unit	norm	comment
Water absorption	24h / 96h (23°C)	0.02 / 0.03	%	DIN EN ISO 62	1)
Resistance to hot water/ bases		-	-	-	2)
Resistance to weathering		-	-	-	
Flammability (UL94)	corresponding to	HB		DIN IEC 60695-11-10;	3)

# TECAPET white - Stock Shapes

## Chemical Designation

PET (Polyethylene terephthalate)

## Colour

white opaque

## Density

1.36 g/cm<sup>3</sup>

## Main features

- very high strength
- good chemical resistance
- electrically insulating
- easy to polish
- good slide and wear properties
- good weldable and bondable
- good machinability
- high toughness

## Target Industries

- mechanical engineering
- automotive industry
- electronics
- energy industry
- food technology

<b>Mechanical properties</b>	<b>parameter</b>	<b>value</b>	<b>unit</b>	<b>norm</b>	<b>comment</b>
Modulus of elasticity (tensile test)	1mm/min	3100	MPa	DIN EN ISO 527-2	1) (1) For tensile test: specimen type 1b
Tensile strength	50mm/min	79	MPa	DIN EN ISO 527-2	(2) For flexural test: support span 64mm, norm specimen.
Tensile strength at yield	50mm/min	79	MPa	DIN EN ISO 527-2	(3) Specimen 10x10x10mm
Elongation at yield	50mm/min	5	%	DIN EN ISO 527-2	(4) Specimen 10x10x50mm, modulus range between 0,5 and 1% compression.
Elongation at break	50mm/min	10	%	DIN EN ISO 527-2	(5) For Charpy test: support span 64mm, norm specimen.
Flexural strength	2mm/min, 10 N	121	MPa	DIN EN ISO 178	(6) Specimen in 4mm thickness
Modulus of elasticity (flexural test)	2mm/min, 10 N	3200	MPa	DIN EN ISO 178	
Compression strength	1% / 2% / 5% 5mm/min, 10 N	19/35/83	MPa	EN ISO 604	3)
Compression modulus	5mm/min, 10 N	2700	MPa	EN ISO 604	4)
Impact strength (Charpy)	max. 7.5J	81	kJ/m <sup>2</sup>	DIN EN ISO 179-1eU	5)
Notched impact strength (Charpy)	max. 7.5J	4	kJ/m <sup>2</sup>	DIN EN ISO 179-1eA	
Ball indentation hardness		175	MPa	ISO 2039-1	6)
<b>Thermal properties</b>	<b>parameter</b>	<b>value</b>	<b>unit</b>	<b>norm</b>	<b>comment</b>
Glass transition temperature		81	°C	DIN EN ISO 11357	1) (1) Found in public sources.
Melting temperature		244	°C	DIN EN ISO 11357	(2) Found in public sources.
Service temperature	short term	170	°C		2) Individual testing regarding application conditions is mandatory.
Service temperature	long term	110	°C		
Thermal expansion (CLTE)	23-60°C, long.	8	10 <sup>-5</sup> K <sup>-1</sup>	DIN EN ISO 11359-1:2	
Thermal expansion (CLTE)	23-100°C, long.	10	10 <sup>-5</sup> K <sup>-1</sup>	DIN EN ISO 11359-1:2	
Specific heat		1.2	J/(g*K)	ISO 22007-4:2008	
Thermal conductivity		0.31	W/(K*m)	ISO 22007-4:2008	
<b>Electrical properties</b>	<b>parameter</b>	<b>value</b>	<b>unit</b>	<b>norm</b>	<b>comment</b>
Specific surface resistance		10 <sup>14</sup>	Ω	DIN IEC 60093	
Specific volume resistance		10 <sup>14</sup>	Ω*cm	DIN IEC 60093	
Resistance to tracking (CTI)		600	V	DIN EN 60112	
<b>Other properties</b>	<b>parameter</b>	<b>value</b>	<b>unit</b>	<b>norm</b>	<b>comment</b>
Water absorption	24h / 96h (23°C)	0.02 / 0.03	%	DIN EN ISO 62	1) (1) Ø ca. 50mm, h=13mm
Resistance to hot water/ bases		-	-	-	2) (2) - poor resistance
Resistance to weathering		-	-	-	3) (3) Corresponding means no listing at UL (yellow card). The information might be taken from resin, stock shape or estimation. Individual testing regarding application conditions is mandatory.
Flammability (UL94)	corresponding to	HB		DIN IEC 60695-11-10;	3)

# TECAPET black - Stock Shapes

## Chemical Designation

PET (Polyethylene terephthalate)

## Colour

black opaque

## Density

1.39 g/cm<sup>3</sup>

## Main features

- good chemical resistance
- very high strength
- easy to polish
- good weldable and bondable
- good slide and wear properties
- good machinability
- high toughness

## Target Industries

- mechanical engineering
- automotive industry
- electronics
- food technology

<i>Mechanical properties</i>	<i>parameter</i>	<i>value</i>	<i>unit</i>	<i>norm</i>		<i>comment</i>
Modulus of elasticity (tensile test)	1mm/min	3400	MPa	DIN EN ISO 527-2	1)	(1) For tensile test: specimen type 1b
Tensile strength	50mm/min	91	MPa	DIN EN ISO 527-2		(2) For flexural test: support span 64mm, norm specimen.
Tensile strength at yield	50mm/min	91	MPa	DIN EN ISO 527-2		(3) Specimen 10x10x10mm
Elongation at yield	50mm/min	4	%	DIN EN ISO 527-2		(4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression.
Elongation at break	50mm/min	15	%	DIN EN ISO 527-2		(5) For Charpy test: support span 64mm, norm specimen.
Flexural strength	2mm/min, 10 N	134	MPa	DIN EN ISO 178	2)	(6) Specimen in 4mm thickness
Modulus of elasticity (flexural test)	2mm/min, 10 N	3400	MPa	DIN EN ISO 178		
Compression strength	1% / 2% / 5% 5mm/min, 10 N	19/36/86	MPa	EN ISO 604	3)	
Compression modulus	5mm/min, 10 N	2800	MPa	EN ISO 604	4)	
Impact strength (Charpy)	max. 7,5J	27	kJ/m <sup>2</sup>	DIN EN ISO 179-1eU	5)	
Ball indentation hardness		195	MPa	ISO 2039-1	6)	
<i>Thermal properties</i>	<i>parameter</i>	<i>value</i>	<i>unit</i>	<i>norm</i>		<i>comment</i>
Glass transition temperature		81	°C	DIN EN ISO 11357	1)	(1) Found in public sources.
Melting temperature		244	°C	DIN EN ISO 11357		(2) Found in public sources. Individual testing regarding application conditions is mandatory.
Service temperature	short term	170	°C		2)	
Service temperature	long term	110	°C			
Thermal expansion (CLTE)	23-60°C, long.	8	10 <sup>-5</sup> K <sup>-1</sup>	DIN EN ISO 11359-1;2		
Thermal expansion (CLTE)	23-100°C, long.	10	10 <sup>-5</sup> K <sup>-1</sup>	DIN EN ISO 11359-1;2		
<i>Electrical properties</i>	<i>parameter</i>	<i>value</i>	<i>unit</i>	<i>norm</i>		<i>comment</i>
Specific surface resistance		10 <sup>14</sup>	Ω	DIN IEC 60093		(1) Due to the black colourant and moisture uptake of the material the electrical insulation properties cannot be 100% guaranteed, despite single measurements suggesting otherwise.
Specific volume resistance		10 <sup>14</sup>	Ω*cm	DIN IEC 60093	1)	
<i>Other properties</i>	<i>parameter</i>	<i>value</i>	<i>unit</i>	<i>norm</i>		<i>comment</i>
Water absorption	24h / 96h (23°C)	0.02 / 0.03	%	DIN EN ISO 62	1)	(1) Ø ca. 50mm, h=13mm (2) - poor resistance (3) (+) limited resistance (4) Corresponding means no listing at UL (yellow card). The information might be taken from resin, stock shape or estimation. Individual testing regarding application conditions is mandatory.
Resistance to hot water/ bases		-	-	-	2)	
Resistance to weathering		(+)	-	-	3)	
Flammability (UL94)	corresponding to	HB		DIN IEC 60695-11-10;	4)	

# TECAPET TF grey - Stock Shapes

## Chemical Designation

PET (Polyethylene terephthalate)

## Colour

grey opaque

## Density

1.43 g/cm<sup>3</sup>

## Fillers

PTFE

## Main features

- high strength
- good wear properties
- good chemical resistance
- high toughness
- good slide and wear properties
- high stiffness
- not hot water resistant over 60°C

## Target Industries

- electronics
- food technology
- mechanical engineering
- automotive industry

<b>Mechanical properties</b>	<b>parameter</b>	<b>value</b>	<b>unit</b>	<b>norm</b>	<b>comment</b>
Modulus of elasticity (tensile test)	1mm/min	3200	MPa	DIN EN ISO 527-2	1) (1) For tensile test: specimen type 1b
Tensile strength	50mm/min	78	MPa	DIN EN ISO 527-2	(2) For flexural test: support span 64mm, norm specimen.
Tensile strength at yield	50mm/min	78	MPa	DIN EN ISO 527-2	(3) Specimen 10x10x10mm
Elongation at yield	50mm/min	4	%	DIN EN ISO 527-2	(4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression.
Elongation at break	50mm/min	6	%	DIN EN ISO 527-2	(5) For Charpy test: support span 64mm, norm specimen.
Flexural strength	2mm/min, 10 N	119	MPa	DIN EN ISO 178	(6) Specimen in 4mm thickness
Modulus of elasticity (flexural test)	2mm/min, 10 N	3300	MPa	DIN EN ISO 178	
Compression strength	1% / 2% / 5% 5mm/min, 10 N	21/36/86	MPa	EN ISO 604	3)
Compression modulus	5mm/min, 10 N	2700	MPa	EN ISO 604	4)
Impact strength (Charpy)	max. 7.5J	42	kJ/m <sup>2</sup>	DIN EN ISO 179-1eU	5)
Ball indentation hardness		183	MPa	ISO 2039-1	6)
<b>Thermal properties</b>	<b>parameter</b>	<b>value</b>	<b>unit</b>	<b>norm</b>	<b>comment</b>
Glass transition temperature		82	°C	DIN EN ISO 11357	1) (1) Found in public sources.
Melting temperature		249	°C	DIN EN ISO 11357	(2) Found in public sources. Individual testing regarding application conditions is mandatory.
Service temperature	short term	170	°C		2)
Service temperature	long term	110	°C		
Thermal expansion (CLTE)	23-60°C, long.	8	10 <sup>-5</sup> K <sup>-1</sup>	DIN EN ISO 11359-1;2	
Thermal expansion (CLTE)	23-100°C, long.	10	10 <sup>-5</sup> K <sup>-1</sup>	DIN EN ISO 11359-1;2	
Specific heat		1.1	J/(g*K)	ISO 22007-4:2008	
Thermal conductivity		0.30	W/(K*m)	ISO 22007-4:2008	
<b>Electrical properties</b>	<b>parameter</b>	<b>value</b>	<b>unit</b>	<b>norm</b>	<b>comment</b>
Specific surface resistance		10 <sup>14</sup>	Ω	DIN IEC 60093	
Specific volume resistance		10 <sup>14</sup>	Ω*cm	DIN IEC 60093	
<b>Other properties</b>	<b>parameter</b>	<b>value</b>	<b>unit</b>	<b>norm</b>	<b>comment</b>
Water absorption	24h / 96h (23°C)	0.02 / 0.03	%	DIN EN ISO 62	1) (1) Ø ca. 50mm, h=13mm
Resistance to hot water/ bases		-	-		2) (2) - poor resistance
Resistance to weathering		-	-		(3) Corresponding means no listing at UL (yellow card). The information might be taken from resin, stock shape or estimation. Individual testing regarding application conditions is mandatory.
Flammability (UL94)	corresponding to	HB		DIN IEC 60695-11-10;	3)