

SUPPLY SERVICES

performance engineering products

Technical Data Sheet GEHR PP natural[®]



I. Physical Properties¹⁾

	Test method	Unit	Value
1. Specific gravity (ρ)	ISO 1183	g/cm ³	0,9
2. Water absorption ⁹⁾	ISO 62	%	0,2
3. Humidity absorption ⁹⁾			0,01
4a. Maximum permissible service temp.. ⁹⁾	UL746B	°C	100
4b. Lower permissible service temp.. ⁹⁾			5

II. Mechanical Properties

	Test method	Unit	Value
1. Tensile strength at yield (σ_S)	ISO 527	MPa	36
2. Elongation at yield (ϵ_S)		%	9
3. Tensile strength at break (σ_R)		MPa	-
4. Elongation at break (ϵ_R)		%	≥ 70
5. Impact strength (a_n) ⁹⁾	ISO 179	kJ/m ²	n.b.
6. Notch impact strength (a_k) ⁹⁾			9
7. Ball indentation (H_k)/Rockwell hardness ⁹⁾	ISO 2039	MPa	67
8. Shore-D	ISO 868		76
9. Flexural strength (σ_B 3,5%) ⁹⁾	ISO 178	MPa	-
10. Modulus of elasticity (E_t)	ISO 527		1725

III. Thermal Properties⁹⁾

	Test method	Unit	Value
1. Vicat-softening point VST/B/50	ISO 306	°C	90
			VST/A/50
2. Heat deflection temperature HDT/B	ISO 75	°C	90
			HDT/A
3. Coef. of linear thermal expansion (α)	ISO 11359	K ⁻¹ ·10 ⁻⁴	1,5
4. Thermal conductivity at 20 °C (λ)	ISO 22007-4	W/(m·K)	-
5. Glass transition temperature (T_g)	ISO 3146	°C	10
6. Melting temperature (T_m)			165

IV. Electrical Properties

	Test method	Unit	Value
1. Volume resistivity (ρ_D) ⁸⁾	IEC 60093	Ω·cm	-
2. Surface resistivity (R_a) ⁸⁾		Ω	≥ 10 ¹³
3. Dielectric constant at 1MHz (ϵ_r) ⁹⁾	IEC 60250	-	-
4. Dielectric loss factor at 1 MHz ($\tan\delta$) ⁹⁾		-	-
5. Dielectric strength ⁹⁾	IEC 60243-1	kV/mm	40
6. Tracking resistance ⁹⁾	IEC 60112	V	-

V. Additional Data

	Test method	Unit	Value
1. Bondability	-	-	+
2. Physiological indifference ⁵⁾ according	EEC	-	+
	FDA	-	+
3. Flammability ⁹⁾	UL 94	-	HB
4. Limiting Oxygen Index (LOI)	ASTM D2863	%	18
5. UV stabilisation ⁸⁾	-	-	0

1) The physical data contained in this table are typical values and reflect the current state of our knowledge. The data are arithmetic average values which are tested by test specimens made out of rods (ø 40-60 mm). These data has to be understood as guidelines, and shall not be used for specification purposes for finished parts. Missing data are completed by data of the raw materials.

2) Pretreatment necessary

5) Physiological indifferences are valid for nature coloured materials on the raw material side. There are also approvals for our semi-finished products available or in preparation. Please check this separately with us.

6) valid for nature coloured materials. An additional UV protection can be taken over by special pigments e.g. carbon black.

7) Test results without UL registration

8) Data are only valid for natural colours

9) Data taken from raw material

*Self-assessment with-

out test certificate. * Own classification without official test report n.b.= no break += yes o = limited -= no/no data available

Technical Data Sheet

GEHR PP grey[®]

PLASTICS ENGINEERED BY



I. Physical Properties¹⁾

	Test method	Unit	Value
1. Specific gravity (ρ)	ISO 1183	g/cm ³	0,91
2. Water absorption ⁹⁾	ISO 62	%	0,2
3. Humidity absorption ⁹⁾			0,01
4a. Maximum permissible service temp. ⁹⁾	UL746B	°C	100
4b. Lower permissible service temp. ⁹⁾			5

II. Mechanical Properties

	Test method	Unit	Value
1. Tensile strength at yield (σ_S)	ISO 527	MPa	32
2. Elongation at yield (ϵ_S)		%	16
3. Tensile strength at break (σ_R)		MPa	28
4. Elongation at break (ϵ_R)		%	≥ 30
5. Impact strength (a_n) ⁹⁾	ISO 179	kJ/m ²	n.b.
6. Notch impact strength (a_k) ⁹⁾			50
7. Ball indentation (H_k)/Rockwell hardness	ISO 2039	MPa	-
8. Shore-D	ISO 868		77
9. Flexural strength ($\sigma_{B,3.5\%}$) ⁹⁾	ISO 178	MPa	-
10. Modulus of elasticity (E_t)	ISO 527		1635

III. Thermal Properties⁹⁾

	Test method	Unit	Value
1. Vicat-softening point VST/B/50	ISO 306	°C	91
VST/A/50			-
2. Heat deflection temperature HDT/B	ISO 75		96
HDT/A			45
3. Coef. of linear thermal expansion (α)	ISO 11359	K ⁻¹ ·10 ⁻⁴	1,5
4. Thermal conductivity at 20 °C (λ)	ISO 22007-4	W/(m·K)	-
5. Glass transition temperature (T_g)	ISO 3146	°C	10
6. Melting temperature (T_m)			160

IV. Electrical Properties

	Test method	Unit	Value
1. Volume resistivity (ρ_D)	IEC 60093	$\Omega \cdot \text{cm}$	> 10 ¹³
2. Surface resistivity (R_o)		Ω	≥ 10 ¹³
3. Dielectric constant at 1MHz (ϵ_r) ⁹⁾	IEC 60250	-	2,3
4. Dielectric loss factor at 1 MHz ($\tan\delta$) ⁹⁾		-	0,0002
5. Dielectric strength ⁹⁾	IEC 60243-1	kV/mm	40
6. Tracking resistance ⁹⁾	IEC 60112	V	-

V. Additional Data

	Test method	Unit	Value
1. Bondability	-	-	+
2. Physiological indifference ⁵⁾ according	EEC	-	+
	FDA	-	+
3. Flammability ^{7) *}	UL 94	-	HB
4. Limiting Oxygen Index (LOI)	ASTM D2863	%	18
5. UV stabilisation ⁶⁾	-	-	0

1) The physical data contained in this table are typical values and reflect the current state of our knowledge. The data are arithmetic average values which are tested by test specimens made out of rods (ø 40-60 mm). These data has to be understood as guidelines, and shall not be used for specification purposes for finished parts. Missing data are completed by data of the raw materials.

2) Pretreatment necessary 5) Physiological indifferences are valid for nature coloured materials on the raw material side. There are also approvals for our semi-finished products available or in preparation. Please check this separately with us. 6) valid for nature coloured materials. An additional UV protection can be taken over by special pigments e.g. carbon black.

7) Test results without UL registration 9) Data taken from raw material *Self-assessment without test certificate. The technical data of electrical properties can be influenced by the dyes used in grey semi-finished products. * Own classification without official test report

n.b.= no break + = yes o = limited - = no/no data available



Densetec Homopolymer Polypropylene Sheet: Typical Properties

Property*	ASTM Test Method	Typical Values	
		English Units	Metric Units
Polypropylene Classification	ASTM 4101	PP0112	PP0112
Density	D792	56.5 lbs/ft ³	.905 g/cc
Melt Index, Condition 230 °C / 2.16 kg	D1238	---	.5 g / 10 min
Flexural Modulus	D790A	200,000 psi	1,379 MPa
Notched Izod Impact Strength	D256	1.3 ft-lbf/in	69 J/m
Melting Point	---	327 °F	163 °C
Tensile Strength @ Yield	D638	5,000 psi	34.5 MPa
Durometer Hardness	D2240	75 Shore D	75 Shore D
Compressive Stress @ Yield	D695	6,000 psi	41.4 MPa

*The nominal properties reported herein are typical of the product but do not reflect normal testing variance and therefore should not be used for specification purposes.