

TECAFINE PE

Chemical Designation:	Polyethylene
DIN Abbreviation:	PE - HD
Colour, Filler:	Natural or black

TECAFINE PE is a semi-crystalline, thermoplastic engineering material with high toughness and good low temperature properties

- Main characteristics:
- Tough
 - Very low water absorption
 - Good sliding properties
 - Resistant to dilute acids, cleaning agents, numerous solvents
 - Very good electrical insulation (See note re black)
 - Difficult to bond
 - Easily welded
 - Lightweight
 - Black – UV resistant

Preferred fields: Mechanical engineering, transport and conveyor technology, electrical engineering, general engineering, household appliances, plant construction, food industry

- Applications:
- Chemical apparatus
 - Plugs
 - Seals
 - Food processing
 - Insulators
 - Low load rollers
 - Pallets
 - Spools

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TECAFINE PE

The following information corresponds with our current knowledge and indicates our products and possible applications. We cannot give a legally binding guarantee of certain properties or the suitability for a specific application. Existing commercial patents must be observed. A definitive quality guarantee is given in our general conditions of sales. Unless otherwise stated, these values represent averages taken from injection moulding samples. We reserve the right of technical alterations.

Properties	Unit	Test method DIN EN ISO / ASTM	
Mechanical			
Density	g/cm ³	527 / D 792	0.95 – 0.96
Tensile strength at yield	MPa	527 / D 638	25
Tensile strength at break	MPa	527 / D 638	
Elongation at break	%	527 / D 638	
Modulus of elasticity in tension	MPa	527 / D 638	1000
Modulus of elasticity in flexure	MPa	178 / D 790	1000 - 1400
Ball indentation hardness	MPa	2039 / 1	50
Impact strength	kJ/m ²	179 / D 256	no br.
Creep rupture strength after 1000 hrs with static load	MPa		12.5
Time yield limit for 1% elongation after 1000 hrs.	MPa		3
Coefficient of friction against hardened and ground steel p = 0,05 N/mm ² , v = 0,6 m/s	–		0.29
Wear conditions as above	µm/km		
Thermal			
Crystalline melting point	°C	DIN 53 736	130
Glass transition temperature	°C	DIN 53 736	-95
Heat distortion temperature Method A Method B	°C °C	R 75 R 75	42 - 49 70 - 85

Properties	Unit	Test method DIN EN ISO / ASTM	
Thermal			
Max. service temperature short term long term	°C °C		90 80
Coefficient of thermal conductivity	W/(m · K)		0.35 - 0.43
Specific heat	J/(g · K)		1.7 - 2
Coefficient of thermal expansion	10 ⁻⁵ /K	DIN 53 483 / D 696	13 - 15
Electrical			
Dielectric constant at 10 ⁵ Hz		DIN 53 483	2.4 ***
Dielectric loss factor at 10 ⁵ Hz		DIN 53 483	0.0002 ***
Specific volume resistance	Ω · cm	DIN 60093	>10 ¹⁵ ***
Surface resistance	Ω	DIN 60093	>10 ¹³ ***
Dielectric strength 1 mm	kV/mm	ASTM 149	>50 ***
Tracking resistance		53 480	KA 3c ***
Miscellaneous			
Moisture absorption: Equilibrium in standard atmosphere (23 °C / 50 % relative humidity)	%	62	< 0.05
Water absorption at saturation at 23 °C	%	62	0.02
Resistance to hot water, washing soda			resistant
Flammability according to UL standard 94			HB
Resistance to weathering			Natural: not resistant, Black: resistance

*** Electrical values may be reduced for black material. Testing of part is recommended.

ENSINGER: Production and stock programme

- Semi-finished product, finished parts, injection moulded parts and profiles in more than 500 materials and modifications.
- Engineering plastics: PA extruded or cast, POM, PC, PET, PBT, PPE, PP, PE
- High temperature plastics: PI, TPI, PEEK, PPS, PES, PPSU, PEI, PSU, PVDF, PCTFE, PTFE
- Stock length: Standard 3 metres. Cast rod and sheet 2 mts. Tube up to 3.5 mts. PE, PP, PVC, and PTFE 2 mts
- Pressed/sintered semi-finished product: PI, PEEK, PPS, PTFE/PI and modifications, as well as PCTFE in special sizes ie, large discs, tubes and rings with diameters up to about 1400 mm
- Material modifications: eg. glass, carbon and aramid fibre, talc, MoS₂, graphite, PTFE, PE, silicone oil, internal lubrication