TECAFINE PE 5

Chemical Designation:	High density Polyethylene (500 grade)
DIN Abbreviation:	PE – HMW
Colour, Filler:	Opaque or black

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

Main characteristics:

- Tough
- Good sliding properties
- Resistant to dilute acids, cleaning agents, numerous solvents
- Suitable for food contact – natural only.
- Very good electrical insulation (not black)
- Difficult to bond
- Easily welded
- Lightweight
- Black – UV resistant
- Very low water absorption

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

Applications:

- Chemical apparatus
- Plugs
- Seals
- Food processing (natural)
- Insulators
- Low load rollers
- Pallets
- Spools

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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/cm³	527 / D 792	0.96
Tensile strength at yield	MPa	527 / D 638	27
Tensile strength at break	MPa	527 / D 638	
Elongation at break	%	527 / D 638	100
Modulus of elasticity in tension	MPa	527 / D 638	1060
Modulus of elasticity in flexure	MPa	178 / D 790	
Ball indentation hardness	MPa	2039 /1	46
Impact strength	kJ/m^2	179 / D 256	no br.
Creep rupture strength after 1000 hrs with static load	MPa		
Time yield limit for 1% elongation after 1000 hrs.	MPa		
Coefficient of friction against hardened and ground steel p = 0,05 N/mm², v = 0,6 m/s	–		
Wear conditions as above	µm/km		
Thermal			
Crystalline melting point	°C	DIN 53 736	130 - 135
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 1S0 / ASTM	
Thermal			
Max. service temperature short term long term	 °C °C		 90 80
Coefficient of thermal conductivity	W/(m · K)		0.41
Specific heat at 23^0C	J/(g · K)		1.8
Coefficient of thermal expansion	10^{-5}/K	DIN 53 483 / D 696	~20
Electrical			
Dielectric constant at 50 Hz		DIN 53 485	2.4 **
Dielectric loss factor at 10^5 Hz		DIN 53 483	
Specific volume resistance	Ω · cm	DIN 53482	$>10^{14}$ **
Surface resistance	Ω	DIN 53482	$>10^{11}$ **
Dielectric strength	kV/mm	DIN 53481	40 **
Tracking resistance		53 480	
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 apply to natural material

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, MoS_2, graphite, PTFE, PE, silicone oil, internal lubrication