ENSINGER
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Material Data Sheet, October 2005

TECANAT

Chemical Designation :	Polycarbonate
DIN−Abbreviation:	PC
Colours, fillers:	transparent

Main features

- tough
- good electrical insulation
- easily machined and polished
- easily welded and bonded
- good heat deformation resistance
- sensitive to stress cracking

Preferred Fields

- mechanical engineering
- medical technology
- electrical engineering
- model construction
- lighting technology
- construction industry
- food technology
- transport and conveyor technology
- automotive engineering
- precision engineering
- domestic appliance

Applications

Transparent working models, housing parts, insulators, plugs, plug strips, sight glasses, masking covers, optical components, photo couplers, weather protection

Properties

Mechanical	dry / moist		standard
Tensile strength at yield	60	MPa	DIN EN ISO 527
Elongation at yield	6	%	DIN EN ISO 527

Tensile strength at break		MPa	
Elongation at break		%	
Modulus of elasticity in tension	2300	MPa	DIN EN ISO 527
Modulus of elasticity after flexural test		MPa	
Hardness	100		DIN 53 456
Impact strength 23º C (Charpy)	n.b.	KJ/m²	DIN EN ISO 179 (Charpy)
Creep rupture strength after 1000 h with static load	48	MPa	
Time yield limit for 1% elongation after 1000 h	18	MPa	
Co−efficient of friction p = 0,05 N/mm²v=0,6 m/s on steel, hardened and ground	0,52−0,58		
Wear p = 0,05 N/mm²v=0,6 m/s on steel, hardened and ground	22	µm/km	

Thermal	**dry / moist**		**standard**
Crystalline melting point		°C	
Glass transition temperature	148	°C	DIN 53 765
Heat distortion temperature HDT, Method A	135	°C	ISO−R 75 Verfahren A (DIN 53 461)
Heat distortion temperature HDT, Method B	140	°C	ISO−R 75 Verfahren B (DIN 53 461)
Max. service temperature			
short term	140	°C	
long term	120	°C	
Thermal conductivity (23º C)	0,19	W/(K·m)	
Specific heat (23º C)	1,2	J/g.K	
Coefficient of thermal expansion (23−55ºC)	7	10^{-5}1/K	DIN 53 752

Properties

Electrical	dry / moist		standard
Dielectric constant (10^6 Hz)	3		DIN 53 483, IEC−250
Dielectric loss factor (10^6 Hz)	0,006		DIN 53 483, IEC−250
Specific volume resistance	10^13	Ω*cm	DIN IEC 60093
Surface resistance	10^15	Ω	DIN IEC 60093
Dielectric strength	27	kV/mm	DIN 53 481, IEC−243, VDE 0303 Teil 2
Resistance to tracking	KA 1		DIN 53 480, VDE 0303 Teil 1

Miscellaneous	dry / moist		standard
Density	1,20	g/cm^3	DIN 53 479
Moisture absorption (23°C/50RH)	0,15	%	DIN EN ISO 62
Water absorption to equilibrium	0,36	%	DIN EN ISO 62
Flammability acc. to UL standard 94	HB		

(1) Testing of semi−finished products

The above information corresponds with our current knowledge and indicates our products and possible applications. We cannot give a legally binding guarantee of chemical resistance, of certain properties and the suitability of our products and their applications. Our products are not destined for use in medical and dental implants. Existing commercial patents must be observed. Unless otherwise stated, these values represent averages taken from injection moulding samples, dry as moulded. We reserve the right to make technical alterations.