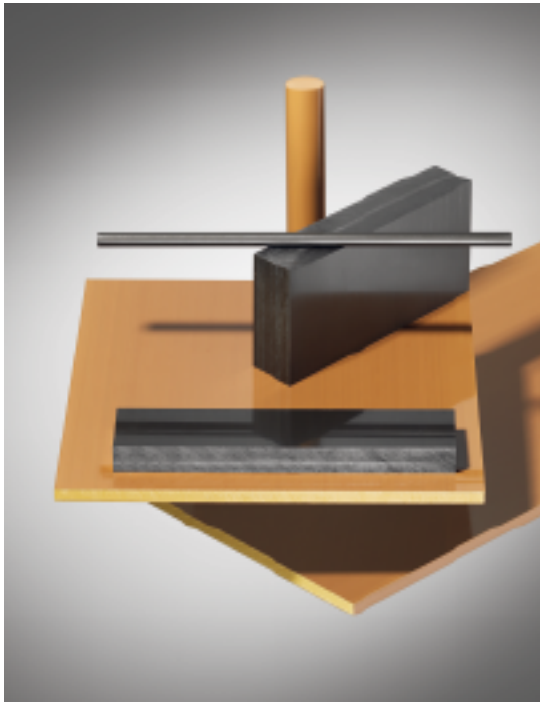


Improved precision and performance with TECATOR



The choice of which high performance material to use is often based on slight variations in their properties.

TECATOR (PAI) is a high performance polyamide-imide thermoplastic which excels particularly in cryogenic applications.

In comparison to metal components TECATOR parts are much lighter and are used when reduced weight is required.

Preferred fields

Cryotechnology, electrics and electronics, precision engineering, mechanical engineering, medical technology, vacuum technology, aerospace technology, automotive.

Applications

Switches and connector parts, valve seats and balls, plain bearings, bushes, discs, piston rings, sliding tracks, ball bearings, ball valves, casters, insulating parts, burn-in sockets, test sockets, mechanically and thermally stressed engineering parts.



Properties

- | High thermal resilience at cryogenic temperatures and up to 270 °C
- | Very rigid, tough and strong
- | High long term stability and high fatigue strength
- | Extremely high creep resistance
- | Good chemical resistance to conventional solvents, lubricants, fuels and acids.
- | Very resistant to high energy radiation.
- | Self-extinguishing according to sUL 94 V-0
- | Easily machined using conventional tools and machinery

Availability

The unfilled yellow-brown type **TECATOR 5013** and the black tribologically modified **TECATOR 5031 PVX** are supplied as semi-finished rods and plates.

Range of sizes

- | Rods: diameter 5 - 50 mm, length 1220 mm
- | Plates: diameter 5 - 40 mm, width 300 mm, length 1220 mm

TECATOR GF 30 is modified for injection moulding.

Technical properties		TECATOR 5013	TECATOR 5031 PVX	TECATOR GF 30**
DIN-abbreviation		PAI	PAI CS TF	PAI GF 30
Density (ASTM D 792, DIN 53 479)	ρ g/cm ³	1,42	1,46	1,61
Tensile strength at yield (ASTM D 638, DIN EN ISO 527)	σ_S MPa	147		
Tensile strength at break (ASTM D 638, DIN EN ISO 527, ASTM D 1708 (a))	σ_B MPa	137	125	205
Elongation at break (ASTM D 638, DIN EN ISO 527, ASTM D 1708 (a))	ϵ_R %	21	4	7
Modulus of elasticity after tensile test (ASTM D 638, DIN EN ISO 527)	E_Z MPa	3800	5300	10800
Modulus of elasticity after flexural test (ASTM D 790, DIN EN ISO 178)	E_B MPa	3750	6100	11700
Hardness (Rockwell: ASTM D 785)	H_K MPa	86	72	94
Impact resistance (Izod: ASTM D 256)	a_n J/m	142	63	79
Glass transition temperature (DIN 53 765)	T_g °C	275	275	275
Heat distortion temperature (DIN 53 461 acc. ISO R 75 method A, ASTM 648)	HDT/A °C	278	279	282
Service temperature short term	°C	270	270	270
Service temperature long term	°C			
Thermal conductivity (23°C)	λ W/(K·m)	0,26	0,54	0,37
Specific heat (23°C)	c J/(g·K)	0,24	0,24	0,23
Coefficient of linear thermal expansion (23 °C, ASTM D 696, DIN 53 752, ASTM E 831)	α 10 ⁻⁵ 1/K	3,1	2,5	1,6
Dielectric constant (ASTM D 150)	ϵ_R -	3,9	5,4	4,2
Dielectric loss factor (10 ⁶ Hz, ASTM D 150, DIN 53 483, IEC-250)	$\tan \delta$	0,031	0,042	0,05
Specific volume resistance (ASTM D 257, EC 93, DIN IEC 60093)	ρ_D Ω·cm	>10 ¹⁸	8x10 ¹³	2x10 ¹⁷
Surface resistance (DIN IEC 93 / DIN 54 345 T1)	R_o Ω	>10 ¹⁸	8x10 ¹³	10 ¹⁸
Dielectric strength (ASTM D 149)	E_d kV/mm	23,6		34
Moisture absorption to equilibrium 23 °C / 50% rel. humidity (DIN EN ISO 62)	W(H ₂ O) %	2,5	1,9	2,5
Water absorption at saturation (DIN EN ISO 62)	W _s %	4,5	3,5	3,5
Flammability acc. to UL-Standard 94		V0	V0	V0

** Only available for injection moulding

TECATOR absorbs water easily. Parts must be dried prior to rapid exposure to temperature above 200 °C (drying procedure 24 h per 3 mm thickness at 150 °C).

Please find information concerning the exclusion of liability and Terms and Conditions of Delivery in our Semi-finished products catalogue or at

www.ensinger-online.com.

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