ULRAPLAST GmbH

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Pysical properties PCTFE natur **VOLTALEF 302**

	VOLTALEF® PCTFE	Unit	Test method
Density	2,11 - 2,16		ASTM D1050-68
Yield strength (23°C)	34 – 50	MPa	ASTM D638
Strength at rupture (23°C)	32 – 40	MPa	
Yield strength (120°C)	3 – 6	MPa	
Strength at rupture (120°C)	13 - 16	MPa	
Elongation at rupture (23°C)	100-250	%	
Tensile modulus (23°C)	1400	MPa	
Flexural modulus	1400	MPa	ASTM D790-80
Modulus in compression	1400	MPa	ASTM D695-80
Resistance to compression (23°C)			ISO 604
0,2% off set	40 – 45	MPa	
1% deformation	11 - 14	MPa	
Module de rigidité en flexion			ASTM D747-70
- 183°C	5600	MPa	
- 100°C	3500	MPa	
0°C	1800	MPa	
+ 100°C	160	MPa	
+ 200°C	32	MPa	
IZOD impact resistance, notched (23°C)	80	J/m	ASTM D526-81
Shore hardness	75 – 80	échelle D	ASTM D676
Hardness DIN H 358 (30 sec)	80	MPa	DIN 53456
Friction coefficient	0,26 – 0,45		on polished steel
Deformation under load 7 MPa 24 h			ASTM D621
+ 25°C	1,0	%	
+ 70°C	2,5	%	
+ 125°C	12	%	

Crystalline and amorphous state

VOLATLEF ® is a semicrystalline polymer whose type and degree of crystallinity depend strongly on its molecular weight and thermal history.
Practically it is impossible to obtain after some transformation either 100 % crystalline or 100 % amorphous polymer. It has become conventional to call amorphous a polymer which has been obtained by a rapid cooling in waterfrom its molten state and crystalline a piece which has been cooled slowly. In reality, pieces quneched in water have a degree of crystallinity of approx 30 % and annealed pieces of about 70 %.
The crystallinity of a piece can also be increased by annealing at a temperature between 160 and 200°C.
Amorphous pieces with high transparency have a slightly lower specific mass. Crystalline pieces are opaque and have higher mechanical strength as well as better creep resistance.