

Physical 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	ASTM D790-80
Flexural modulus	1400	MPa	
Modulus in compression	1400	MPa	ASTM D695-80
Resistance to compression (23°C)			ISO 604
0,2% off set	40 – 45	MPa	ASTM D747-70
1% deformation	11 - 14	MPa	
Module de rigidité en flexion			
- 183°C	5600	MPa	
- 100°C	3500	MPa	
0°C	1800	MPa	ASTM D526-81
+ 100°C	160	MPa	
+ 200°C	32	MPa	
IZOD impact resistance, notched (23°C)	80	J/m	ASTM D676 DIN 53456 on polished steel
Shore hardness	75 – 80	échelle D	
Hardness DIN H 358 (30 sec)	80	MPa	
Friction coefficient	0,26 – 0,45		
Deformation under load 7 MPa 24 h			ASTM D621
+ 25°C	1,0	%	ASTM D621
+ 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 water from its molten state and crystalline a piece which has been cooled slowly. In reality, pieces quenched 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.