

Mechanical Properties

Mechanical properties of TROGAMID® CX

Property	Test method	Unit	TROGAMID®				
			CX7323	CX9701	CX9704	CX9710	
Tensile test 23 °C	50 mm/min	ISO 527-1/2					
Stress at yield		MPa	60	60	60	60	
Strain at yield		%	8	8	8	8	
Nominal strain at break		%	> 50	> 50	> 50	> 50	
Tensile test 80 °C	50 mm/min	ISO 527-1/2					
Stress at yield		MPa	48	48	–	48	
Strain at yield		%	5.5	5.5	–	5.5	
Nominal strain at break		%	> 50	> 50	–	> 50	
Tensile modulus	23 °C	ISO 527-1/2	MPa	1400	1500	1400	1400
	80 °C		MPa	1270	1270	–	1270
Tensile creep modulus		ISO 899-1					
	1 h		MPa	1300	1400	–	1400
	1000 h		MPa	700	700	–	700
Flexural test	5 mm/min	ISO 178					
Flexural strength			MPa	90	90	90	90
Flexural strength at 3.5 % strain			MPa	50	50	50	50
Outer fiber strain at maximum stress			%	9	9	> 10	9
Outer fiber strain at break			%	n. r.	n. r.	n. r.	n. r.
Flexural modulus		ISO 178	MPa	1700	1700	1500	1700
CHARPY impact strength		ISO 179/1eU					
	23 °C		kJ/m ²	N	N	N	N
	0 °C		kJ/m ²	N	N	N	N
	-30 °C		kJ/m ²	N	N	N	N
CHARPY notched impact strength		ISO 179/1eA					
	23 °C		kJ/m ²	14 C	16 C	11 C	14 C
	0 °C		kJ/m ²	12 C	15 C	11 C	14 C
	-30 °C		kJ/m ²	11 C	14 C	10 C	13 C
Shore hardness D		ISO 868		81	81	81	81
Ball indentation hardness H30		ISO 2039-1	N/mm ²	110	110	110	110
Dynamical behavior under load (filter cup)		DIN EN 13443-1	Cycles	> 2 · 10 ⁵	–	–	–

N = no break, C = complete break; n. r. = not reached

Physical, Thermal, and Electrical Properties

Physical, thermal, and electrical properties of TROGAMID® CX

Property	Test method	Unit	TROGAMID®				
			CX7323	CX9701	CX9704	CX9710	
Density	23 °C	ISO 1183	g/cm ³	1.02	1.02	1.02	1.02
Viscosity number*		ISO 307	cm ³ /g	160±10	190±10	> 120	> 150
Vicat softening temperature		ISO 306					
Method A	10 N		°C	137	137	132	135
Method B	50 N		°C	130	130	125	130
Temperature of deflection under load		ISO 75-1/2					
Method A	1.8 MPa		°C	108	108	102	108
Method B	0.45 MPa		°C	122	122	120	122
Linear thermal expansion	23 °C - 55 °C	ISO 11359					
	longitudinal		10 ⁻⁴ K ⁻¹	0.9	0.9	0.9	0.9
	transverse		10 ⁻⁴ K ⁻¹	0.9	0.9	0.9	0.9
Temperature index (Criterion: stress at yield)		IEC 216	°C	100	100	–	100
Glass transition temperature Tg	10 K/min	ISO 11357	°C	140	140	132	140
Melt temperature DSC, 2nd heating			°C	250	250	–	250
Relative permittivity	23 °C	IEC 60250					
	100 Hz	DIN VDE		3.6	3.6	3.4	3.6
	1 MHz	0303-Part 4		3.2	3.2	3.3	3.2
Dissipation factor	23 °C	IEC 60250					
	100 Hz	DIN VDE	10 ⁻⁴	115	115	130	115
	1 MHz	0303-Part 4	10 ⁻⁴	325	325	215	325
Electric strength	K20/P50	IEC 60243-1	kV/mm	27	27	–	27
Comparative tracking index		IEC 60112					
Test solution A	CTI			600	600	600	600
	100 drops value			575	575	575	575
Glow wire test	Test thickness = 1 mm	IEC 60695-2-12/13					
	GWIT		°C	800	800	825	775
	GWFI		°C	960	960	960	800
Volume resistivity		IEC 60093	Ohm m	10 ¹⁴	10 ¹⁴	10 ¹³	10 ¹⁴
Surface resistance R _{OA}		IEC 60093	Ohm	10 ¹³	10 ¹³	10 ¹⁴	10 ¹³
Flammability acc. UL 94		IEC 60695					
	0.8 mm			HB	HB	HB	HB
	1.6 mm			HB	HB	HB	HB

* Further viscosities upon request