

High-flow injection molding grade

CARILON® Polymer D26VM700

CARILON® Thermoplastic Polymers are aliphatic polyketones, a revolutionary new class of semi-crystalline thermoplastics. Shell Chemicals companies are the first to have developed a commercial process for manufacturing these materials.

CARILON Polymer D26VM700 is a high-flow injection molding grade with mechanical properties which classify it as an engineering thermoplastic. This grade exhibits very good processability, good impact resistance, high resilience and good creep performance. CARILON Polymer D26VM700 can also withstand short-term exposure to elevated temperatures. Moreover, this polymer exhibits high resistance to hydrocarbons, solvents, salt solutions, weak acids and weak bases.

CARILON Polymer D26VM700 is a high-flow, low-viscosity polymer that should be considered for moldings with long flow paths or thin walls. This grade is very easy to process on standard injection molding equipment. Cycle times are generally short. Parts show good mold definition with glossy, mar-resistant surfaces. CARILON Polymers' low moisture sensitivity means that no conditioning of parts before assembly or use is necessary.

Applications for CARILON Polymer D26VM700 may be found in the automotive, electrical, electronics, industrial and consumer appliance markets.

TABLE 1: TYPICAL MECHANICAL PROPERTIES OF CARILON® POLYMER D26VM700 – Measured at 23°C (74°F)

	Test Method & Conditions		ASTM Values		ISO Values
	ASTM	ISO	US	SI	SI
Tensile strength at yield	D638	527-1	8700 psi	60 MPa	60 MPa
Tensile strength at break	D638	527-1	6500 psi	45 MPa	45 MPa
Tensile modulus	D638	527-1	220 kpsi	1.5 GPa	1.4 GPa
Tensile elongation at yield	D638	527-1	20%	20%	20%
Tensile elongation at break	D638	527-1	>250%	>250%	>250%
Flexural strength	D790	178	8500 psi	59 MPa	44 MPa
	5% strain	3.5% strain			
Flexural modulus	D790	178	220 kpsi	1.5 GPa	1.4 GPa
Unnotched Izod impact strength	D256	180/1A	N.B.	N.B.	N.B.
Notched Izod impact strength	D256	180/1A	1.8 ft-lb/in	95 J/m	8 kJ/m ²
Gardner impact strength	D3029	–	>400 in-lb	>45 J	–

TABLE 2: TYPICAL PHYSICAL PROPERTIES OF CARILON® POLYMER D26VM700 – Measured at 23°C (74°F)

	Test Method & Conditions		ASTM Values	ISO Values
	ASTM	ISO	US	SI
Specific gravity	D792	1183	1.24	1.24
Shore D hardness	–	868	–	77
Hardness Rockwell	D785	–	105	–
Water absorption, 24-hour immersion	D570	62	0.45%	0.45%
Water absorption, equilibrium at 50% RH	D570	62	0.5%	0.5%
Water absorption at saturation	D570	62	2.2%	2.2%

TABLE 3: TYPICAL THERMAL PROPERTIES OF CARILON® POLYMER D26VM700

	Test Method & Conditions		ASTM Values		ISO Values
	ASTM	ISO	US	SI	SI
Melting temperature	–	–	428°F	220°C	220°C
Coefficient of linear thermal expansion, 25°C to 55°C	E831	–	1.1x10 ⁻⁴ in/in/°C	1.1x10 ⁻⁴ K ⁻¹	
Heat deflection temperature	D648	75			
	66 psi	0.45 MPa	398°F	203°C	–
	264 psi	1.8 MPa	221°F	105°C	100°C

TABLE 4: TYPICAL PROCESS-RELATED PROPERTIES OF CARILON® POLYMER D26VM700

	Test Method & Conditions		ASTM Values		ISO Values
	ASTM	ISO	US	SI	SI
	Melt flow rate 240°C/2.16 kg	D1238	1133	—	64 g/10 min
Mold shrinkage	D955	294-4			
Flow direction	1/8"	—	0.022 in/in	2.0%	2.0%
	1/4"	—	0.028 in/in	2.8%	—
Transverse direction	1/8"	—	0.021 in/in	2.1%	2.0%

TABLE 6: TYPICAL FLAMMABILITY PROPERTIES OF CARILON® POLYMER D26VM700

Test Method & Conditions	Values	Values
Flame resistance	UL94	HB
Glow wire flammability index	IEC 695-2-1	650°C
Limiting Oxygen index	ISO 4589	22%
Fire behavior (Smoke index)	NF F 16-101	F1
Global fire index	NF F 16-101	16

TABLE 5: TYPICAL ELECTRICAL PROPERTIES OF CARILON® POLYMER D26VM700

	Test Method & Conditions		ASTM Values		IEC Values
	ASTM	IEC	US	SI	SI
	Dielectric strength, short term	D149	243-1	—	—
		1.6mm	—	—	17 kV/mm
	1/8"	—	300 V/mil	12 kV/mm	—
	1/16"	—	450 V/mil	18 kV/mm	—
	1/32"	—	750 V/mil	30 kV/mm	—
Volume resistivity	D257	93	10 ¹³ ohm cm	10 ¹³ ohm cm	10 ¹³ ohm cm
Surface resistivity	D257	93	10 ¹⁴ ohm	10 ¹⁴ ohm	10 ¹⁴ ohm
Arc resistance	D495	—	130 sec	—	—
CTI	UL 746A	112	600 V	—	600 V
Dielectric constant	D150	250	—	—	—
at 1kHz	—	—	6.0	6.0	6.0
at 1MHz	—	—	—	—	5.3
Dissipation factor	D150	250	—	—	—
at 1kHz	—	—	0.01	0.01	0.01
at 1MHz	—	—	—	—	0.05

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Shell strongly suggests that all those who come in contact with CARILON® Polymers and compounds read and follow all information presented in the Material Safety Data Sheet (MSDS) for this product. Also refer to all safety information provided with processing equipment.

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