K-Resin® KR01

INEOS Styrolution - Styrene Butadiene Block Copolymer

Wednesday, December 8, 2021

General Information

Product Description

K-Resin® KR01 process very well in injection molding, providing good cycle times and design flexibility. Applications range from containers and packaging with living hinges to medical applications, toys, displays, overcaps and hangers. INEOS Styrolution has several grades of KResin ® SBC tailored for your injection molded needs.

FEATURES

- Excellent Clarity
- Good Stiffness
- Good Toughness
- High Surface Gloss
- Warpage Resistance

APPLICATIONS

- Display Housings
- Medical Devices
- Toys
- Molded Boxes

General

Material Status	• Commercial: Active		
Regional Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Features	• Block Copolymer • Good Processability • Good Stiffness	• Good Toughness • High Clarity • High Gloss	• Warp Resistant
Uses	• Containers • Displays	• Housings • Medical Devices	• Medical/Healthcare Applications • Toys
Appearance	• Clear/Transparent		
Forms	• Pellets		
Processing Method	• Injection Molding		

ASTM & ISO Properties [1]

Physical	Typical Value (English)		Typical Value (SI)		Test Method
Density / Specific Gravity					
--	1.01		1.01		ASTM D792
--	1.02	g/cm³	1.02	g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR) (200°C/5.0 kg)	8.0	g/10 min	8.0	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (200°C/5.0 kg)	8.0	cm³/10min	8.0	cm³/10min	ISO 1133
Molding Shrinkage	0.30 to 1.0	%	0.30 to 1.0	%	ISO 294-4
Water Absorption					ISO 62
Equilibrium, 73°F (23°C), 50% RH	0.070	%	0.070	%	
Mechanical	**Typical Value (English)**		**Typical Value (SI)**		**Test Method**
Tensile Modulus	260000	psi	1790	MPa	ASTM D638

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Mechanical	Typical Value (English)		Typical Value (SI)		Test Method
Tensile Strength					
Yield, 73°F (23°C) [2]	4900	psi	33.8	MPa	ASTM D638
Yield, 73°F (23°C)	4790	psi	33.0	MPa	ISO 527-2/1/50
Break, 73°F (23°C)	3480	psi	24.0	MPa	ISO 527-2
Tensile Elongation					
Break, 73°F (23°C) [2]	30	%	30	%	ASTM D638
Break, 73°F (23°C)	15	%	15	%	ISO 527-2/1/50
Flexural Modulus [3]					
73°F (23°C), 0.125 in (3.18 mm)	261000	psi	1800	MPa	ASTM D790
73°F (23°C), 0.125 in (3.18 mm)	218000	psi	1500	MPa	ISO 178
Flexural Strength					
73°F (23°C), 0.125 in (3.18 mm) [3]	7800	psi	53.8	MPa	ASTM D790
73°F (23°C)	6530	psi	45.0	MPa	ISO 178

Impact	Typical Value (English)		Typical Value (SI)		Test Method
Charpy Notched Impact Strength (73°F (23°C))	0.71	ft·lb/in²	1.5	kJ/m²	ISO 179/1eA
Charpy Unnotched Impact Strength					ISO 179/1eU
73°F (23°C)	14	ft·lb/in²	30	kJ/m²	
Notched Izod Impact Strength (73°F (23°C))	1.4	ft·lb/in²	3.0	kJ/m²	ISO 180/A
Instrumented Dart Impact [4]					ASTM D3763
0.125 in (3.18 mm), Total Energy	19.0	in·lb	2.15	J	

Hardness	Typical Value (English)		Typical Value (SI)		Test Method
Durometer Hardness					
Shore D	69		69		ASTM D2240
Shore D	70		70		ISO 868

Thermal	Typical Value (English)		Typical Value (SI)		Test Method
Deflection Temperature Under Load					
66 psi (0.45 MPa), Unannealed	172	°F	78.0	°C	ISO 75-2/B
264 psi (1.8 MPa), Unannealed	149	°F	65.0	°C	ISO 75-2/A
264 psi (1.8 MPa), Annealed	148	°F	64.4	°C	ASTM D648
Vicat Softening Temperature					
--	194	°F	90.0	°C	ASTM D1525 [5]
--	149	°F	65.0	°C	ISO 306/B50
--	196	°F	91.0	°C	ISO 306/A120

Optical	Typical Value (English)		Typical Value (SI)		Test Method
Gloss [6]	164		164		ASTM D2457
Refractive Index [7]	1.570		1.570		ISO 489
Light Transmittance (550 nm)	92.0	%	92.0	%	ASTM D1003
Haze	< 0.900	%	< 0.900	%	ASTM D1003

Processing Information

Injection	Typical Value (English)		Typical Value (SI)	
Processing (Melt) Temp	356 to 464	°F	180 to 240	°C
Mold Temperature	86 to 122	°F	30 to 50	°C

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Notes

[1] Typical properties: these are not to be construed as specifications.

[2] Type I, 2.0 in/min (50 mm/min)

[3] 0.50 in/min (13 mm/min)

[4] 12.5 ft/sec (3.81 m/sec)

[5] Rate B (120°C/h), Loading 1 (10 N)

[6] mold temperature 100°F

[7] Sodium D Line