ZYLAR® 650

INEOS Styrolution - Methyl Methacrylate Butadiene Styrene

Monday, November 4, 2019

General Information

Product Description

Zylar® 650 is an impact modified styrene acrylic copolymer that provides a balance of clarity and toughness, with outstanding strength and rigidity. Zylar® 650 also has superior processing characteristics for demanding injection molded applications.

FEATURES

- Good balance of toughness, stiffness, and clarity
- Low density
- Ease of processing
- Gamma & ETO sterilizable
- Meets USP XXIII specifications for Class VI plastics
- UL 94 HB approved

APPLICATIONS

- Appliances and consumer goods
- Medical devices
- Toys
- Office accessories
- Industrial housings and covers
- Reusable drinkware

General			
Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Additive	• Impact Modifier		
Features	• Copolymer • Ethylene Oxide Sterilizable • Good Processability	• High Rigidity • High Strength • Impact Modified	• Low Density • Radiation Sterilizable
Uses	• Appliances • Consumer Applications	• Housings • Industrial Applications	• Medical Devices • Toys
Agency Ratings	• USP XXIII, Class VI		
Forms	• Pellets		
Processing Method	• Injection Molding		

ASTM & ISO Properties [1]

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	1.04		ASTM D792
Density	1.05	g/cm³	ISO 1183
Melt Mass-Flow Rate (200°C/5.0 kg)	4.0	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR)			ISO 1133
200°C/5.0 kg	4.00	cm³/10min	
220°C/10.0 kg	45	cm³/10min	
Molding Shrinkage - Flow	2.0E-3 to 6.0E-3	in/in	ASTM D955
Molding Shrinkage	0.20 to 0.60	%	ISO 294-4
Water Absorption (Saturation, 73°F)	0.10	%	ASTM D570
Water Absorption (Saturation, 73°F)	0.10	%	ISO 62

ZYLAR® 650

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Physical	Nominal Value	Unit	Test Method
Water Absorption (Equilibrium, 73°F, 50% RH)	0.050	%	ISO 62
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus	310000	psi	ASTM D638
Tensile Modulus	305000	psi	ISO 527-2
Tensile Strength (Yield, 73°F)	3800	psi	ASTM D638
Tensile Stress (Yield, 73°F)	3770	psi	ISO 527-2
Tensile Elongation (Break)	40	%	ASTM D638
Tensile Strain (Break, 73°F)	40	%	ISO 527-2
Flexural Modulus (73°F)	280000	psi	ASTM D790
Flexural Modulus (73°F)	280000	psi	ISO 178
Flexural Strength (73°F)	7000	psi	ASTM D790
Flexural Stress (73°F)	6960	psi	ISO 178
Impact	**Nominal Value**	**Unit**	**Test Method**
Charpy Notched Impact Strength (73°F)	0.95	ft·lb/in²	ISO 179/1eA
Charpy Unnotched Impact Strength (73°F)	12	ft·lb/in²	ISO 179/1eU
Notched Izod Impact (73°F)	3.0	ft·lb/in	ASTM D256
Notched Izod Impact Strength (73°F)	1.4	ft·lb/in²	ISO 180/A
Unnotched Izod Impact Strength	9.5	ft·lb/in²	ISO 180
Gardner Impact	150	in·lb	ASTM D5420
Hardness	**Nominal Value**	**Unit**	**Test Method**
Rockwell Hardness (R-Scale)	84		ASTM D785
Rockwell Hardness (R-Scale)	84		ISO 2039-2
Thermal	**Nominal Value**	**Unit**	**Test Method**
Deflection Temperature Under Load [2] (264 psi, Annealed)	197	°F	
Vicat Softening Temperature	210	°F	ASTM D1525 [3]
Vicat Softening Temperature			
--	210	°F	ISO 306/A120
--	162	°F	ISO 306/B50
Maximum Service Temperature	480	°F	
Electrical	**Nominal Value**	**Unit**	**Test Method**
Surface Resistivity	> 1.0E+14	ohms	IEC 60093
Volume Resistivity	> 1.0E+15	ohms·cm	IEC 60093
Dielectric Constant (100 Hz)	2.50		IEC 60250
Flammability	**Nominal Value**	**Unit**	**Test Method**
Flame Rating	HB		UL 94
Optical	**Nominal Value**	**Unit**	**Test Method**
Refractive Index [4]	1.570		ASTM D542
Refractive Index	1.570		ISO 489
Transmittance (550 nm)	90.0	%	ASTM D1003
Haze	2.00	%	ASTM D1003

Processing Information

Injection	Nominal Value	Unit
Drying Temperature	150	°F
Drying Time	2.0	hr
Rear Temperature	355 to 415	°F
Middle Temperature	365 to 425	°F
Front Temperature	375 to 435	°F

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Injection	Nominal Value	Unit
Processing (Melt) Temp	400 to 460	°F
Mold Temperature	80 to 130	°F

Notes

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

[2] 4h/80°C

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

[4] Sodium D Line