

Styrolux® 3G55

Styrene Butadiene Block Copolymer

INEOS Styrolution Group GmbH

Message:

Styrolux® 3G55 is a clear styrene butadiene copolymer (SBC) used mainly in sheet extrusion and thermoforming applications. It is specifically designed for improved performance in blends with general-purpose polystyrene, providing parts with an excellent balance of toughness, transparency and economics. Because of the tendency of blocking, 3G55 is mainly used in inline thermoforming. 3G55 is difficult to print and decorate since it contains a microcrystalline wax.

General Information			
Features	Block Copolymer		
	High Clarity		
	Ultra High Toughness		
Uses	Blending		
	Cups		
	Film		
	Food Packaging		
	Non-specific Food Applications		
Appearance	Clear/Transparent		
Forms	Pellets		
Processing Method	Injection Molding		
	Sheet Extrusion		
	Thermoforming		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.01	g/cm ³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR) (200°C/5.0 kg)	13	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (200°C/5.0 kg)	14.0	cm ³ /10min	ISO 1133
Molding Shrinkage			
Flow	0.65	%	ASTM D955
--	0.30 to 1.0	%	ISO 294-4
Water Absorption (Saturation, 23°C)	0.070	%	ASTM D570, ISO 62
Hardness	Nominal Value	Unit	Test Method
Shore Hardness			ISO 868
Shore A	97		
Shore D	58		
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			

--	1170	MPa	ASTM D638
--	900	MPa	ISO 527-2
Tensile Strength			
Yield, 23°C	16.0	MPa	ASTM D638
Yield, 23°C	15.0	MPa	ISO 527-2
Tensile Strain			
Yield, 23°C	2.0	%	ISO 527-2
Break, 23°C	> 300	%	ASTM D638
Nominal Tensile Strain at Break (23°C)	> 300	%	ISO 527-2
Flexural Modulus			
--	758	MPa	ASTM D790
--	900	MPa	ISO 178
Flexural Strength			
--	17.0	MPa	ASTM D790
5.0% Strain	18.0	MPa	
--	18.0	MPa	ISO 178
Films	Nominal Value	Unit	Test Method
Elastic Modulus - MD	834	MPa	ASTM D882
Elastic Modulus - TD	685	MPa	ASTM D882
Tensile Elongation			ASTM D882
MD : Break	310	%	
TD : Break	350	%	
Elmendorf Tear Strength			ASTM D1922
MD	830	g	
TD	340	g	
Oxygen Transmission Rate (23°C, 0% RH)	120000	cm ³ /m ² /24 hr	ASTM D3985
Water Vapor Transmission Rate ¹ (23°C)	410	g/m ² /24 hr	ASTM F1249
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (23°C)	85	kJ/m ²	ISO 179
Charpy Unnotched Impact Strength (23°C)	No Break		ISO 179
Notched Izod Impact			
23°C	No Break		ASTM D256
-30°C	4.0	kJ/m ²	ISO 180/A
23°C	5.0	kJ/m ²	ISO 180/A
Instrumented Dart Impact			ASTM D3763
Peak force	10.0	J	
Total energy	21.1	J	
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, Unannealed	66.7	°C	ASTM D648
0.45 MPa, Annealed	62.0	°C	ISO 75-2/B
1.8 MPa, Unannealed	45.6	°C	ASTM D648

1.8 MPa, Annealed	51.0	°C	ISO 75-2/A
Vicat Softening Temperature			
--	71.7	°C	ASTM D1525 ²
--	67.0	°C	ISO 306/A50
--	35.0	°C	ISO 306/B50
CLTE - Flow			
--	1.3E-4	cm/cm/°C	ASTM D696
--	6.0E-5 to 9.0E-5	cm/cm/°C	ISO 11359-2
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+15	ohms	IEC 60093
Volume Resistivity	> 1.0E+15	ohms·cm	IEC 60093
Dielectric Constant (100 Hz)	2.50		IEC 60250
Dissipation Factor			IEC 60250
100 Hz	3.0E-4		
1 MHz	8.0E-4		
Comparative Tracking Index	600	V	IEC 60112
Optical	Nominal Value	Unit	Test Method
Refractive Index ³	1.570		ASTM D542, ISO 489
Transmittance (550 nm)	90.0	%	ASTM D1003
Haze	1.6	%	ASTM D1003
Injection	Nominal Value	Unit	
Processing (Melt) Temp	180 to 250	°C	
Mold Temperature	30.0 to 50.0	°C	
NOTE			
1.	0% to 85% RH gradient		
2.	Rate B (120°C/h), Loading 1 (10 N)		
3.	Sodium D Line		

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