Plenco 04304 (Injection)

Phenolic

Plastics Engineering Co.

Message:

PLENCO 04304 is a heat resistant, mineral filled phenolic molding compound offering improved mechanical strength properties along with excellent dimensional stability. UL recognized under component file E40654. 04304 is available in black.

UL YellowCard E40654-231605 Filler / Reinforcement Mineral filler Features Good dimensional stability Good strength Heat resistance, high UL File Number £40654 Appearance Black Forms Tumor Processing Method Injection molding Physical Nominal Value Unit Test Method Physical Nominal Value Unit Test Method Specific Gravity 1.7 g/cm³ ASTM D792 Apparent Density 0.67 g/cm³ ASTM D792 Apparent Density 0.67 g/cm³ ASTM D792 Molding Shrinkage - Flow 0.64 % ASTM D793 Mater Absorption (24 hr) 0.18 % ASTM D790 Hardness Nominal Value Unit Test Method Rockwell Hardness (E-Scale) 70 ASTM D785 Moehanical Nominal Value Unit Test Method Tensile Etiongation (Break) 5.18 MPa ASTM D638 <tr< th=""><th>General Information</th><th></th><th></th><th></th></tr<>	General Information			
Condition	UL YellowCard	E40654-231605		
	Filler / Reinforcement	Mineral filler		
Heat resistance, high UL File Number E40654 Appearance Black Forms Tumor Processing Method Injection molding Physical Nominal Value Unit Test Method Specific Gravity 1.57 g/cm² ASTM D792 Apparent Density 0.67 g/cm² ASTM D895 Molding Shrinkage - Flow 0.64 % ASTM D895 Moster Absorption (24 hr) 0.18 % ASTM D70 Hardness Nominal Value Unit Test Method Mechanical Nominal Value Unit Test Method Tensile Modulus 9900 MPa ASTM D638 Tensile Elongation (Break) 0.78 % ASTM D638 Tensile Strength 8.6 MPa ASTM D638 Elexural Modulus 8490 MPa ASTM D698 Elexural Strength 86.5 MPa ASTM D698 Impact Nominal Value Unit Test Method	Features	Good dimensional stability		
UL File Number E40654 Appearance Black Forms Tumor Processing Method Injection molding Physical Nominal Value Unit Test Method Specific Gravity 1.57 g/cm³ ASTM D792 Apparent Density 0.67 g/cm² ASTM D985 Molding Shrinkage - Flow 0.64 % ASTM D955 Water Absorption (24 hr) 0.18 % ASTM D770 Hardnesse Nominal Value Unit Test Method Rockwell Hardness (E-Scale) 70 ASTM D785 Mechanical Nominal Value Unit Test Method Tensile Modulus 9900 MPa ASTM D638 Tensile Elongation (Break) 0.78 % ASTM D638 Tensile Elongation (Break) 8.49 MPa ASTM D790 Flexural Strength 8.6.5 MPa ASTM D695 Impact Nominal Value Unit Test Method Charpy Notched Impact Strength 21.8 J/m		Good strength		
Appearance Black Forms Tumor Processing Method Injection molding Physical Nominal Value Unit Test Method Specific Gravity 1.57 g/cm³ ASTM D792 Apparent Density 0.67 g/cm³ ASTM D895 Molding Shrinkage - Flow 0.64 % ASTM D955 Water Absorption (24 hr) 0.18 % ASTM D570 Hardness Nominal Value Unit Test Method Rockwell Hardness (E-Scale) 70 Water Absorption (24 hr) ASTM D785 Mechanical Nominal Value Unit Test Method Tensile Bodudus 9900 MPa ASTM D638 Tensile Strength 51.8 MPa ASTM D638 Tensile Elongation (Break) 0.78 % ASTM D638 Flexural Modulus 8490 MPa ASTM D638 Flexural Strength 86.5 MPa ASTM D656 Compressive Strength 152 MPa ASTM D256 Charpy		Heat resistance, high		
Appearance Black Forms Tumor Processing Method Injection molding Physical Nominal Value Unit Test Method Specific Gravity 1.57 g/cm³ ASTM D792 Apparent Density 0.67 g/cm³ ASTM D895 Molding Shrinkage - Flow 0.64 % ASTM D955 Water Absorption (24 hr) 0.18 % ASTM D570 Hardness Nominal Value Unit Test Method Rockwell Hardness (E-Scale) 70 Water Absorption (24 hr) ASTM D785 Mechanical Nominal Value Unit Test Method Tensile Bodudus 9900 MPa ASTM D638 Tensile Strength 51.8 MPa ASTM D638 Tensile Elongation (Break) 0.78 % ASTM D638 Flexural Modulus 8490 MPa ASTM D638 Flexural Strength 86.5 MPa ASTM D656 Compressive Strength 152 MPa ASTM D256 Charpy				
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Processing Method Injection molding Physical Nominal Value Unit Test Method Specific Gravity 1.57 g/cm³ ASTM D792 Apparent Density 0.67 g/cm³ ASTM D1895 Molding Shrinkage - Flow 0.64 % ASTM D955 Water Absorption (24 hr) 0.18 % ASTM D570 Hardness Nominal Value Unit Test Method Rockwell Hardness (E-Scale) 70 Link Test Method Rockwell Hardness (E-Scale) 70 MPa ASTM D638 Mechanical Nominal Value Unit Test Method Tensile Modulus 9900 MPa ASTM D638 Tensile Strength 51.8 MPa ASTM D638 Flexural Modulus 8490 MPa ASTM D790 Flexural Strength 86.5 MPa ASTM D695 Impact Nominal Value Unit Test Method Charpy Notched Impact Strength 21.8 J/m ASTM D256 Notched Izod Impact </td <td>Appearance</td> <td>Black</td> <td></td> <td></td>	Appearance	Black		
Physical Nominal Value Unit Test Method Specific Gravity 1.57 g/cm³ ASTM D792 Apparent Density 0.67 g/cm³ ASTM D1895 Molding Shrinkage - Flow 0.64 % ASTM D855 Water Absorption (24 hr) 0.18 % ASTM D570 Hardness Nominal Value Unit Test Method Rockwell Hardness (E-Scale) 70 MPa ASTM D785 Mechanical Nominal Value Unit Test Method Tensile Modulus 9900 MPa ASTM D638 Tensile Strength 51.8 MPa ASTM D638 Tensile Elongation (Break) 0.78 % ASTM D638 Flexural Modulus 8490 MPa ASTM D790 Flexural Strength 86.5 MPa ASTM D695 Impact Nominal Value Unit Test Method Charpy Notched Impact Strength 21.8 J/m ASTM D256 Notched Izod Impact 21 J/m ASTM D256	Forms	Tumor		
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Water Absorption (24 hr) 0.18 % ASTM D570 Hardness Nominal Value Unit Teet Method Rockwell Hardness (E-Scale) 70 ASTM D785 Mechanical Nominal Value Unit Teet Method Tensile Modulus 9900 MPa ASTM D638 Tensile Elongation (Break) 51.8 MPa ASTM D638 Tensile Elongation (Break) 0.78 % ASTM D638 Flexural Modulus 8490 MPa ASTM D790 Compressive Strength 152 MPa ASTM D695 Impact Nominal Value Unit Teet Method Charpy Notched Impact Strength 21.8 J/m ASTM D256 Notched Izod Impact 21.8 J/m ASTM D256 Notched Impact Strength 21 J/m ASTM D256 Nemal Nominal Value Unit Teet Method Deflection Temperature Under Load (1.8 MPa, Unannealed) "C ASTM D648 Continuous Use Temperature 190 "C ASTM D794	Apparent Density	0.67	g/cm³	ASTM D1895
Hardness Nominal Value Unit Test Method Rockwell Hardness (E-Scale) 70 XSTM D785 Mechanical Nominal Value Unit Test Method Tensile Modulus 9900 MPa ASTM D638 Tensile Strength 51.8 MPa ASTM D638 Tensile Elongation (Break) 0.78 % ASTM D638 Flexural Modulus 8490 MPa ASTM D790 Flexural Strength 86.5 MPa ASTM D790 Compressive Strength 152 MPa ASTM D695 Impact Nominal Value Unit Test Method Charpy Notched Impact Strength 21.8 J/m ASTM D256 Notched Izod Impact 21.8 J/m ASTM D256 Notched Izod Impact 21 J/m ASTM D256 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load (1.8 MPa, Unannealed) 178 C ASTM D794 Electrical Nominal Value Unit Test Method </td <td>Molding Shrinkage - Flow</td> <td>0.64</td> <td>%</td> <td>ASTM D955</td>	Molding Shrinkage - Flow	0.64	%	ASTM D955
Rockwell Hardness (E-Scale) 70 Mechanical Nominal Value MPa ASTM D638 Tensile Modulus 9900 MPa MPa ASTM D638 Tensile Strength 51.8 MPa ASTM D638 Tensile Elongation (Break) 70 78 MPa MPa ASTM D638 Tensile Elongation (Break) 70 MPa ASTM D638 Tensile Elongation (Break) 8490 MPa ASTM D790 Flexural Strength 86.5 MPa ASTM D790 Compressive Strength 152 MPa MPa ASTM D695 Impact Nominal Value Unit Test Method Test Method Test Method Deffection Temperature Under Load (1.8 MPa, Unannealed) Test Method Deffection Temperature Nominal Value Unit Test Method Deffection Temperature Under Load (1.8 MPa, Unannealed) Nominal Value Unit Test Method Deffection Temperature Under Load (1.8 MPa, Unannealed) Nominal Value Unit Test Method	Water Absorption (24 hr)	0.18	%	ASTM D570
MechanicalNominal ValueUnitTest MethodTensile Modulus9900MPaASTM D638Tensile Strength51.8MPaASTM D638Tensile Elongation (Break)0.78%ASTM D638Flexural Modulus8490MPaASTM D790Flexural Strength86.5MPaASTM D790Compressive Strength152MPaASTM D695ImpactNominal ValueUnitTest MethodCharpy Notched Impact Strength21.8J/mASTM D256Notched Izod Impact21J/mASTM D256ThermalNominal ValueUnitTest MethodDeflection Temperature Under Load (1.8 MPa, Unannealed)178°CASTM D648Continuous Use Temperature190°CASTM D794ElectricalNominal ValueUnitTest Method	Hardness	Nominal Value	Unit	Test Method
Tensile Modulus 9900 MPa ASTM D638 Tensile Strength 51.8 MPa ASTM D638 Tensile Elongation (Break) 0.78 % ASTM D638 Flexural Modulus 8490 MPa ASTM D790 Flexural Strength 86.5 MPa ASTM D790 Compressive Strength 152 MPa ASTM D695 Impact Nominal Value Unit Test Method Charpy Notched Impact Strength 21.8 J/m ASTM D256 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load (1.8 MPa, Unannealed) 178 °C ASTM D648 Continuous Use Temperature 190 °C ASTM D794 Electrical Nominal Value Unit Test Method	Rockwell Hardness (E-Scale)	70		ASTM D785
Tensile Strength 51.8 MPa ASTM D638 Tensile Elongation (Break) 0.78 % ASTM D638 Flexural Modulus 8490 MPa ASTM D790 Flexural Strength 86.5 MPa ASTM D790 Compressive Strength 152 MPa ASTM D695 Impact Nominal Value Unit Test Method Charpy Notched Impact Strength 21.8 J/m ASTM D256 Notched Izod Impact 12.8 J/m ASTM D256 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load (1.8 MPa, Unannealed) 178 °C ASTM D648 Continuous Use Temperature 190 °C ASTM D794 Electrical Nominal Value Unit Test Method	Mechanical	Nominal Value	Unit	Test Method
Tensile Elongation (Break) 0.78 % ASTM D638 Flexural Modulus 8490 MPa ASTM D790 Flexural Strength 86.5 MPa ASTM D790 Compressive Strength 152 MPa ASTM D695 Impact Nominal Value Unit Test Method Charpy Notched Impact Strength 21.8 J/m ASTM D256 Notched Izod Impact 21 J/m ASTM D256 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load (1.8 MPa, Unannealed) 178 °C ASTM D648 Continuous Use Temperature 190 °C ASTM D794 Electrical Nominal Value Unit Test Method	Tensile Modulus	9900	MPa	ASTM D638
Flexural Modulus 8490 MPa ASTM D790 Flexural Strength 86.5 MPa ASTM D790 Compressive Strength 152 MPa ASTM D695 Impact Nominal Value Unit Test Method Charpy Notched Impact Strength 21.8 J/m ASTM D256 Notched Izod Impact 21 J/m ASTM D256 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load (1.8 MPa, Unannealed) 178 °C ASTM D648 Continuous Use Temperature 1900 °C ASTM D794 Electrical Nominal Value Unit Test Method	Tensile Strength	51.8	MPa	ASTM D638
Flexural Strength 86.5 MPa ASTM D790 Compressive Strength 152 MPa ASTM D695 Impact Nominal Value Unit Test Method Charpy Notched Impact Strength 21.8 J/m ASTM D256 Notched Izod Impact 21 J/m ASTM D256 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load (1.8 MPa, Unannealed) 178 °C ASTM D648 Continuous Use Temperature 190 °C ASTM D794 Electrical Nominal Value Unit Test Method	Tensile Elongation (Break)	0.78	%	ASTM D638
Compressive Strength152MPaASTM D695ImpactNominal ValueUnitTest MethodCharpy Notched Impact Strength21.8J/mASTM D256Notched Izod Impact21J/mASTM D256ThermalNominal ValueUnitTest MethodDeflection Temperature Under Load (1.8 MPa, Unannealed)178°CASTM D648Continuous Use Temperature190°CASTM D794ElectricalNominal ValueUnitTest Method	Flexural Modulus	8490	MPa	ASTM D790
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Notched Izod Impact 21 J/m ASTM D256 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load (1.8 MPa, Unannealed) 178 °C ASTM D648 Continuous Use Temperature 190 °C ASTM D794 Electrical Nominal Value Unit Test Method	Impact	Nominal Value	Unit	Test Method
Thermal Nominal Value Unit Test Method Deflection Temperature Under Load (1.8 MPa, Unannealed) 178 °C ASTM D648 Continuous Use Temperature 190 °C ASTM D794 Electrical Nominal Value Unit Test Method	Charpy Notched Impact Strength	21.8	J/m	ASTM D256
Deflection Temperature Under Load (1.8 MPa, Unannealed) 178 °C ASTM D648 Continuous Use Temperature 190 °C ASTM D794 Electrical Nominal Value Unit Test Method	Notched Izod Impact	21	J/m	ASTM D256
MPa, Unannealed) 178 °C ASTM D648 Continuous Use Temperature 190 °C ASTM D794 Electrical Nominal Value Unit Test Method	Thermal	Nominal Value	Unit	Test Method
Electrical Nominal Value Unit Test Method	•	178	°C	ASTM D648
	Continuous Use Temperature	190	°C	ASTM D794
Volume Resistivity 1.4E+11 ohms·cm ASTM D257	Electrical	Nominal Value	Unit	Test Method
	Volume Resistivity	1.4E+11	ohms·cm	ASTM D257

Dielectric Strength			ASTM D149
1	11	kV/mm	ASTM D149
2	9.3	kV/mm	ASTM D149
Dielectric Constant (1 MHz)	6.00		ASTM D150
Dissipation Factor (1 MHz)	0.056		ASTM D150
Arc Resistance	182	sec	ASTM D495
Comparative Tracking Index (CTI)	200	V	UL 746
Flammability	Nominal Value	Unit	Test Method
Flame Rating (6.00 mm)	V-0		UL 94
Oxygen Index	38	%	ASTM D2863
A 1 100 11 6 10			

Additional Information

The value listed as Mold Shrink, Linear-Flow, ASTM D955 was tested according to the ASTM D6289 standard. The value listed as Comparative Tracking Index, UL 746 was tested according to ASTM D3638. Post Shrinkage, ASTM D6289, 72hr, 120°C: 0.15% Heat Resistance, ASTM D794: 190°CDrop Ball Impact, PLENCO Method: 140 J/m

Injection	Nominal Value	Unit	
Suggested Shot Size	20 - 80	%	
Rear Temperature	66.0 - 82.0	°C	
Front Temperature	82.0 - 99.0	°C	
Processing (Melt) Temp	104 - 115	°C	
Mold Temperature	165 - 182	°C	
Injection Pressure	6.20 - 11.0	МРа	
Back Pressure	0.300	МРа	
Screw Speed	< 60	rpm	
Cushion	3.00	mm	
Injection instructions			

Injection Time: 3-8 sec

NOTE

1. Method A (short time)

2. Method B (step by step)

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