Union Petrochemical Public Company Limited



ExxonMobil™ PP1304E4

Polypropylene Homopolymer

Product Description

Rockwell Hardness

Shore Hardness (15 sec)

A homopolymer resin designed for injection molding applications requiring excellent flow and good mechanical properties. It is suitable for general purpose applications such as toys, household goods, caps and closures.

Key Features

- Medium transparency
- High stiffness
- High surface hardness
- High heat
- Medium impact strength

Melt Mass-Flow Rate (MFR)	General						
Closures Toys	Availability ¹ •	Asia Pacific					
Appearance	Uses •	Caps		Household Goods			
Processing Method Compounding Injection Molding				• Toys			
Processing Method Compounding Injection Molding	<u>''</u>						
Physical Typical Value (English) Typical Value (SI) Test Based Melt Mass-Flow Rate (MFR) 13 g/10 min 13 g/10 min ASTM D12 (230°C)2-16 kg) 0.900 g/cm³ 0.900 g/cm³ ExxonMobil Mechanical Typical Value (English) Typical Value (SI) Test Based Tensile Strength at Yield (2.0 in/min (51 mm/min)) 5110 psi 35.2 MPa ASTM D6 (2.0 in/min (61 mm/min)) 5110 psi 35.2 MPa ASTM D6 (2.0 in/min (61 mm/min)) 9.4 % 9.4 % ASTM D6 (2.0 in/min (61 mm/min)) 9.4 % 9.4 % ASTM D6 (2.0 in/min (61 mm/min)) 1500 psi 1580 MPa ISO 527-2 (2.0 in/min (15 mm/min)) 9.4 % 150 527-2 (2.0 in/min (1.3 mm/min)) 9.4 % 150 527-2 (2.0 mm/min) 9.4 % 150 527-2 (2.0 mm/min) 9.4 % 150 527-2 (2.0 mm/min) 9.4 %							
Physical Typical Value (English) Typical Value (SI) Test Based Melt Mass-Flow Rate (MFR) 13 g/10 min 13 g/10 min ASTM D12 (230°C/2·16 kg) 0.900 g/cm³ 0.900 g/cm³ ExxonMobil Mochanical Typical Value (English) Typical Value (SI) Test Based Tensile Strength at Yield (2.0 in/min (51 mm/min)) 5110 psi 35.2 MPa ASTM D6 (2.0 in/min (51 mm/min)) 544 psi 33.4 MPa ISO 527-2 Elongation at Yield 4840 psi 33.4 MPa ISO 527-2 Elongation at Yield 4840 psi 33.4 MPa ISO 527-2 Elongation at Yield 7.1 % 7.1 % ISO 527-2 Tensile Stress at Yield 7.1 % 7.1 % ISO 527-2 Tensile Modulus - Chord 230000 psi 1580 MPa ISO 527-2 Tensile Modulus - Chord 230000 psi 1580 MPa ISO 527-2 Tensile Modulus - 19% Secant 0.051 in/min (1.3 mm/min) 248000 psi 1500 MPa ASTM D76 0.51 in/min (1.3 mm/min) 256000 psi 1770 MPa ASTM D76 0.51 in/min (1.3 mm/min) 256000 psi 1770 MPa ASTM D76 0.79 in/min (2.0 mm/min)) 207000 psi 1430 MPa ISO 176 Impact Typical Value (English) Typical Value (SI) Test Based Notched Izod Impact Strength 73°F (23°C)) 1.5 ft-lb/in² 3.1 kJ/m² ISO 180/C Charpy Notched Impact Strength 1.0 ft-lb/in² 2.2 kJ/m² ISO 179/1 (73°F (23°C)) 1.5 ft-lb/in² 3.1 kJ/m² ISO 179/1 (73°F (23°C)) 1.5 ft-lb/in² 3	Processing Method	Compounding		 Injection Molding 			
Melt Mass-Flow Rate (MFR)	Revision Date •	03/01/2013					
C230°C/2.16 kg)	Physical		Typical Val	ue (English)	Typical	Value (SI)	Test Based On
Typical Value (English) Typical Value (SI) Test Based (2.0 in/min (51 mm/min)) 5110 psi 35.2 MPa ASTM D6 (2.0 in/min (51 mm/min)) 5110 psi 35.2 MPa ASTM D6 (2.0 in/min (51 mm/min)) 5110 psi 33.4 MPa ISO 527-2 Elongation at Yield (2.0 in/min (51 mm/min)) 9.4 % 9.4 % ASTM D6 (2.0 in/min (51 mm/min)) 9.4 % 7.1 % ISO 527-2 (2.0 in/min (51 mm/min)) 9.4 % 7.1 % ISO 527-2 (2.0 in/min (51 mm/min)) 9.4 % 7.1 % ISO 527-2 (2.0 in/min (1.3 mm/min)) 218000 psi 1580 MPa ISO 527-2 (2.0 in/min (1.3 mm/min)) 218000 psi 1500 MPa ASTM D75 (2.0 in/min (1.3 mm/min)) 256000 psi 1770 MPa ASTM D75 (2.0 in/min (1.3 mm/min)) 207000 psi 1430 MPa ISO 176 (2.0 in/min (2.0 mm/min)) 207000 psi 1430 MPa ISO 176 (2.0 in/min (2.0 mm/min)) 207000 psi 1430 MPa ISO 176 (2.0 in/min (2.0 in	` ,		13	g/10 min	13	g/10 min	ASTM D1238
Tensile Strength at Yield (2.0 in/min (51 mm/min))	Density		0.900	g/cm ³	0.900	g/cm ³	ExxonMobil Method
(2.0 in/min (51 mm/min)) Tensile Stress at Yield 4840 psi 33.4 MPa ISO 527-2 Elongation at Yield (2.0 in/min (51 mm/min)) 9.4 % 9.4 % ASTM D6 (2.0 in/min (51 mm/min)) Tensile Strain at Yield 7.1 % 7.1 % ISO 527-2 Tensile Modulus - Chord 230000 psi 1580 MPa ISO 527-2 Flexural Modulus - 1% Secant 0.051 in/min (1.3 mm/min) 218000 psi 1500 MPa ASTM D75 Flexural Modulus 0.51 in/min (1.3 mm/min) 256000 psi 1770 MPa ASTM D75 Flexural Modulus (0.079 in/min (2.0 mm/min)) 207000 psi 1430 MPa ISO 176 Impact Typical Value (English) Typical Value (SI) Test Based Notched Izod Impact (73°F (23°C)) 75 (1-1b/in² 73°F (23°C)) 76 (23°C)) 77 (1-1b/in² 73°F (23°C)) 78 (1-1b/in² 73°F (23°C)) 79 (1-1b/in² 73°F (23°C)) 79 (1-1b/in² 73°F (23°C)) 79 (1-1b/in² 73°F (23°C)) 79 (1-1b/in² 73°F (23°C)) 70 (1-1b/in² 73°F (23°C)) 70 (1-1b/in² 73°F (23°C)) 71 (1-1b/in² 73°F (23°C)) 72 (1-1b/in² 73°F (23°C)) 73 (1-1b/in² 73°F (23°C)) 74 (1-1b/in² 73°F (23°C)) 75 (23°C) 76 (1-1b/in² 77	Mechanical		Typical Val	ue (English)	Typical	Value (SI)	Test Based On
Tensile Stress at Yield			5110	psi	35.2	MPa	ASTM D638
(2.0 in/min (51 mm/min)) Tensile Strain at Yield 7.1 % 7.1 % 8.5 S27-2 Tensile Modulus - Chord 230000 psi 1580 MPa ISO 527-2 Flexural Modulus - 1% Secant 0.051 in/min (1.3 mm/min) 218000 psi 1500 MPa ASTM D75 Flexural Modulus 0.51 in/min (1.3 mm/min) 228000 psi 1770 MPa ASTM D75 Flexural Modulus (0.079 in/min (2.0 mm/min)) 207000 psi 1430 MPa ISO 178 Impact Typical Value (English) Typical Value (SI) Test Based Notched Izod Impact (73°F (23°C)) Notched Izod Impact Strength (73°F (23°C)) Charpy Notched Impact Strength (73°F (23°C)) Gardner Impact 73°F (23°C)) Gardner Impact 73°F (23°C)) Geometry GC Thermal Typical Value (English) Typical Value (SI) Test Based ASTM D54 73°F (23°C), 0.125 in (3.18 mm), Geometry GC Thermal Typical Value (English) Typical Value (SI) Test Based ASTM D54 Tysical Value (SI) Test Based ASTM D64 Tysical Value (SI) Test Based ASTM D65 Typical Value (SI) Test Based ASTM D66 Typical Value (SI) Test Based ASTM D66 Thermal Typical Value (SI) Test Based ASTM D66 Typical Value (SI) T			4840	psi	33.4	MPa	ISO 527-2/50
Tensile Modulus - Chord 230000 psi 1580 MPa ISO 527-2	0		9.4	%	9.4	%	ASTM D638
Flexural Modulus - 1% Secant	Tensile Strain at Yield		7.1	%	7.1	%	ISO 527-2/50
0.051 in/min (1.3 mm/min) 218000 psi 1500 MPa ASTM D75 0.51 in/min (13 mm/min) 256000 psi 1770 MPa ASTM D75 Flexural Modulus (0.079 in/min (2.0 mm/min)) 207000 psi 1430 MPa ISO 178 Impact Typical Value (English) Typical Value (SI) Test Based Notched Izod Impact (73°F (23°C)) 0.41 ft-Ib/in 22 J/m ASTM D25 Notched Izod Impact Strength (73°F (23°C)) 1.5 ft-Ib/in² 3.1 kJ/m² ISO 180/m² Charpy Notched Impact Strength (73°F (23°C)) 1.0 ft-Ib/in² 2.2 kJ/m² ISO 179/1 Gardner Impact 73°F (23°C), 0.125 in (3.18 mm), Geometry GC 86.1 in-Ib 9.73 J ASTM D54 Thermal Federature (1.80 MPa) 126 °F 52.0 °C ISO 75-2/m² Heat Deflection Temperature (1.80 MPa) 177 °F 80.6 °C ISO 75-2/m² Deflection Temperature Under Load (DTUL) at 66psi – Unannealed 198 °F 92.4 °C ASTM D6 DTUL at 66psi – Annealed 237 °F 114 °C ASTM D6	Tensile Modulus - Chord		230000	psi	1580	MPa	ISO 527-2/1
Impact	0.051 in/min (1.3 mm/min)						ASTM D790A ASTM D790B
Notched Izod Impact (73°F (23°C)) 0.41 ft-lb/in 22 J/m ASTM D26 Notched Izod Impact Strength (73°F (23°C)) 1.5 ft-lb/in² 3.1 kJ/m² ISO 180/m² Charpy Notched Impact Strength (73°F (23°C)) 1.0 ft-lb/in² 2.2 kJ/m² ISO 179/1 Gardner Impact 73°F (23°C), 0.125 in (3.18 mm), Geometry GC 86.1 in-lb 9.73 J ASTM D54 Thermal Typical Value (English) Typical Value (SI) Test Based Heat Deflection Temperature (1.80 MPa) 126 °F 52.0 °C ISO 75-2/m Heat Deflection Temperature (0.45 MPa) 177 °F 80.6 °C ISO 75-2/m Deflection Temperature Under Load (DTUL) at 66psi – Unannealed 198 °F 92.4 °C ASTM D6 DTUL at 66psi – Annealed 237 °F 114 °C ASTM D6			207000	psi	1430	MPa	ISO 178
Notched Izod Impact Strength (73°F (23°C)) 1.5 ft-lb/in² 3.1 kJ/m² ISO 180/m² Charpy Notched Impact Strength (73°F (23°C)) 1.0 ft-lb/in² 2.2 kJ/m² ISO 179/1 Gardner Impact 73°F (23°C), 0.125 in (3.18 mm), Geometry GC 86.1 in-lb 9.73 J ASTM D54 Thermal Typical Value (English) Typical Value (SI) Test Based Heat Deflection Temperature (1.80 MPa) 126 °F 52.0 °C ISO 75-2/m Heat Deflection Temperature (0.45 MPa) 177 °F 80.6 °C ISO 75-2/m Deflection Temperature Under Load (DTUL) at 66psi – Unannealed 198 °F 92.4 °C ASTM D6 DTUL at 66psi – Annealed 237 °F 114 °C ASTM D6	Impact		Typical Val	ue (English)	Typical	Value (SI)	Test Based On
Charpy Notched Impact Strength (73°F (23°C)) Gardner Impact 73°F (23°C), 0.125 in (3.18 mm), Geometry GC Thermal Typical Value (English) Typical Value (SI) Test Based Heat Deflection Temperature (1.80 MPa) Heat Deflection Temperature (0.45 MPa) Deflection Temperature Under Load (DTUL) at 66psi – Unannealed DTUL at 66psi – Annealed 1.0 ft-lb/in² 2.2 kJ/m² Sylva ASTM D54 ASTM D54 ASTM D64 ASTM D66 ASTM D66	Notched Izod Impact (73°F (23°C)))	0.41	ft-lb/in	22	J/m	ASTM D256A
(73°F (23°C)) 1.0 ft-lb/ln² 2.2 kJ/m² ISO 179/1 Gardner Impact 73°F (23°C), 0.125 in (3.18 mm), Geometry GC 86.1 in-lb 9.73 J ASTM D54 Fhermal Typical Value (English) Typical Value (SI) Test Based Heat Deflection Temperature (1.80 MPa) 126 °F 52.0 °C ISO 75-2/ Heat Deflection Temperature (0.45 MPa) 177 °F 80.6 °C ISO 75-2/ Deflection Temperature Under Load (DTUL) at 66psi – Unannealed 198 °F 92.4 °C ASTM D6 DTUL at 66psi – Annealed 237 °F 114 °C ASTM D6	Notched Izod Impact Strength (73°	°F (23°C))	1.5	ft-lb/in ²	3.1	kJ/m²	ISO 180/1A
Thermal Typical Value (English) Typical Value (SI) Test Based Heat Deflection Temperature (1.80 MPa) 126 °F 52.0 °C ISO 75-2/ Heat Deflection Temperature (0.45 MPa) 177 °F 80.6 °C ISO 75-2/ Deflection Temperature Under Load (DTUL) at 66psi – Unannealed 237 °F 114 °C ASTM D6			1.0	ft-lb/in ²	2.2	kJ/m²	ISO 179/1eA
Heat Deflection Temperature (1.80 MPa) Heat Deflection Temperature (0.45 MPa) Deflection Temperature Under Load (DTUL) at 66psi – Unannealed DTUL at 66psi – Annealed 126 °F 52.0 °C ISO 75-2/ PF 92.4 °C ASTM D6 ASTM D6	73°F (23°C), 0.125 in (3.18 mm)),	86.1	in-lb	9.73	J	ASTM D5420
Heat Deflection Temperature (0.45 MPa) Deflection Temperature Under Load (DTUL) at 66psi – Unannealed DTUL at 66psi – Annealed 237 °F 114 °C ASTM D6	Thermal		Typical Val	ue (English)	Typical	Value (SI)	Test Based On
Deflection Temperature Under Load (DTUL) at 66psi – Unannealed 237 °F 92.4 °C ASTM D6 DTUL at 66psi – Annealed 237 °F 114 °C ASTM D6	Heat Deflection Temperature (1.80) MPa)	126	°F	52.0	°C	ISO 75-2/Af
at 66psi – Unannealed 198 °F 92.4 °C ASTM D6 DTUL at 66psi – Annealed 237 °F 114 °C ASTM D6	Heat Deflection Temperature (0.45	MPa)	177	°F	80.6	°C	ISO 75-2/Bf
	•	ad (DTUL)	198	°F	92.4	°C	ASTM D648
Hardness Typical Value (English) Typical Value (SI) Test Based	DTUL at 66psi – Annealed		237	°F	114	°C	ASTM D648
	Hardness		Typical Val	ue (English)	Typical	Value (SI)	Test Based On

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ASTM D785

ISO 868

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Notes

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

¹ Product may not be available in one or more countries in the identified Availability regions. Please contact your Sales Representative for complete Country Availability.

For additional technical, sales and order assistance please contact our sales representative

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