

Product Comparison

Technical Data

Product Description					
Prisma® 3410	Prisma 3410 is a medium melt flow rate random copolymer, designed for injection moulding. This product exhibits exceptional transparency, very good stiffness/impact strength balance and excellent processability. Applications: High transparency parts with an excellent balance stiffness / impact. Processing: Injection Moulding				
Moplen RP441N	Moplen RP441N is a polypropylene random copolymer manufactured using the Spheripol process. With its excellent gloss, clarity and flow, combined with its balance of rigidity and impact, this grade is particularly suitable for injection molding. Potential end use applications include housewares and Injection Stretch Blow Moulding (ISBM) of bottles.				
Clyrell RC5056	Clyrell RC5056 is a polypropylene random copolymer, with high gloss, excellent clarity, balance of rigidity and impact. Typical customer applications are injection molding of high clarity containers, housewares.				
COSMOPLENE® AW161	COSMOPLENE AW161 is medium flow, high stiffness and high impact PP copolymer manufactured by gas phase process licensed from Sumitomo Chemical Co. Japan. COSMOPLENE AW161 is suitable for commodity products such as chair, containers, toys, tool boxes, battery case etc.				
Moplen EP440M	Moplen EP440M is a high isotacticity polypropylene impact copolymer with an optimized balance of stiffness and toughness, high impact strength at low temperature, high stiffness and low warpage. Typical customer application is injection molding of battery cases.				
General	Prisma® 3410	Moplen RP441N	Clyrell RC5056	COSMOPLENE® AW161	Moplen EP440M
Manufacturer / Supplier	• Braskem	• LyondellBasell Industries	• LyondellBasell Industries	• TPC, The Polyolefin Company (Singapore) Pte Ltd	• LyondellBasell Industries
Generic Symbol	• PP Random Copolymer	• PP Random Copolymer	• PP Random Copolymer	• PP Copolymer	• PP Impact Copolymer



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General	Prisma® 3410	Moplen RP441N	Clyrell RC5056	COSMOPLENE® AW161	Moplen EP440M
Features	• Good Impact Resistance • Good Processability • Good Stiffness • High Clarity • Medium Flow • Random Copolymer	• Good Flow • Good Impact Resistance • Good Rigidity • Good Strength • High Clarity • High Gloss • Low Odor • Random Copolymer	• Good Impact Resistance • Good Stiffness • High Clarity • High Gloss • Random Copolymer	• High Impact Resistance • High Stiffness • Impact Copolymer • Medium Flow	• Good Flow • Good Impact Resistance • Good Toughness • High Impact Resistance • High Isotactic • High Stiffness • Impact Copolymer • Low Temperature Impact Resistance • Low Warpage • Weldable
Uses	--	• Bottles • Containers • Household Goods	• Containers • Household Goods	• Containers • Furniture • Tool/Tote Box • Toys	• Automotive Applications • Battery Cases • Consumer Applications
Agency Ratings	• FDA 21 CFR 177.1520	--	--	• FDA 21 CFR 177.1520(c) 3.2a	--
UL File Number	--	--	--	• E108370	--
Forms	--	• Pellets	--	• Pellets	--
Processing Method	• Injection Molding	• Injection Molding • Injection Stretch Blow Molding	• Injection Blow Molding • Injection Molding • Injection Stretch Blow Molding	--	• Injection Molding

Physical	Prisma® 3410	Moplen RP441N	Clyrell RC5056	COSMOPLEN E® AW161	Moplen EP440M	Unit	Test Method
Density / Specific Gravity							
--	0.902	0.900	0.900	0.900	0.900	g/cm³	ASTM D792
--	0.902	--	--	--	--	g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR)							
--	--	--	--	9.0	--	g/10 min	ASTM D1238
230°C/2.16 kg	10	10	10	--	9.0	g/10 min	ASTM D1238
230°C/2.16 kg	10	--	--	--	--	g/10 min	ISO 1133
Molding Shrinkage							Internal Method
Flow : 2.00 mm	--	--	--	1.5	--	%	
Across Flow : 2.00 mm	--	--	--	1.5	--	%	



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Mechanical	Prisma® 3410	Moplen RP441N	Clyrell RC5056	COSMOPLEN E® AW161	Moplen EP440M	Unit	Test Method
Tensile Strength							
Yield	--	33.3	35.0	28.5	28.0	MPa	ASTM D638
Yield, Injection Molded	30.0	--	--	--	--	MPa	ASTM D638
Yield, Injection Molded	29.0	--	--	--	--	MPa	ISO 527-2
Break	--	--	--	23.5	--	MPa	ASTM D638
Tensile Elongation							
Yield	--	8.0	10	--	6.0	%	ASTM D638
Yield, Injection Molded	13	--	--	--	--	%	ASTM D638 ISO 527-2
Break	--	--	--	400	--	%	ASTM D638
Flexural Modulus							
--	--	1370	1400	1170	1200	MPa	ASTM D790
1% Secant : Injection Molded	1050	--	--	--	--	MPa	ASTM D790 ISO 178
Impact	Prisma® 3410	Moplen RP441N	Clyrell RC5056	COSMOPLEN E® AW161	Moplen EP440M	Unit	Test Method
Notched Izod Impact							
-20°C	--	20	--	38	40	J/m	ASTM D256
-20°C, Injection Molded	20	--	--	--	--	J/m	ASTM D256
23°C	--	54	50	75	100	J/m	ASTM D256
23°C, Injection Molded	45	--	--	--	--	J/m	ASTM D256
-20°C, Injection Molded	1.3	--	--	--	--	kJ/m²	ISO 180
23°C, Injection Molded	3.5	--	--	--	--	kJ/m²	ISO 180
Hardness	Prisma® 3410	Moplen RP441N	Clyrell RC5056	COSMOPLEN E® AW161	Moplen EP440M	Unit	Test Method
Rockwell Hardness							
R-Scale	--	98	102	90	97		ASTM D785
R-Scale, Injection Molded	83	--	--	--	--		ASTM D785
R-Scale ³	82	--	--	--	--		ISO 2039-2



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Thermal	Prisma® 3410	Moplen RP441N	Clyrell RC5056	COSMOLEN E® AW161	Moplen EP440M	Unit	Test Method
Deflection Temperature Under Load							
0.45 MPa, Unannealed	--	104	100	117	100	°C	ASTM D648
0.45 MPa, Unannealed, Injection Molded	80.0	--	--	--	--	°C	ASTM D648
0.45 MPa, Unannealed	85.0	--	--	--	--	°C	ISO 75-2/B
1.8 MPa, Unannealed, Injection Molded	51.0	--	--	--	--	°C	ASTM D648
1.8 MPa, Unannealed	51.0	--	--	--	--	°C	ISO 75-2/A
Vicat Softening Temperature							
--	--	--	134	--	150	°C	ASTM D1525
--	129	--	--	--	--	°C	ASTM D1525 ⁴ ISO 306/A ⁴
Flammability	Prisma® 3410	Moplen RP441N	Clyrell RC5056	COSMOLEN E® AW161	Moplen EP440M	Unit	Test Method
Flame Rating	--	--	--	HB	--		UL 94
Optical	Prisma® 3410	Moplen RP441N	Clyrell RC5056	COSMOLEN E® AW161	Moplen EP440M	Unit	Test Method
Haze							
--	--	18.0	--	--	--	%	ASTM D1003
1000 µm, Injection Molded	9.00	--	--	--	--	%	ASTM D1003
1000 µm, Injection Molded	7.00	--	--	--	--	%	ISO 13468-1
Injection	Prisma® 3410	Moplen RP441N	Clyrell RC5056	COSMOLEN E® AW161	Moplen EP440M	Unit	
Rear Temperature	--	--	--	190 to 230	--	°C	
Middle Temperature	--	--	--	190 to 230	--	°C	
Front Temperature	--	--	--	190 to 230	--	°C	
Mold Temperature	--	--	--	30	--	°C	
Injection Pressure	--	--	--	6.86	--	MPa	
Clamp Tonnage	--	--	--	0.98	--	kN/cm ²	

