

## Technical Data

### Product Description

Evolve™ SP1510

Evolve™ SP1510 is a Linear Low Density Polyethylene product. It can be processed by blown film and is available in Asia Pacific, Europe, or North America. Applications of Evolve™ SP1510 include film, coating applications and industrial applications.

Characteristics include:

- Good Sealability
- Impact Resistant

Generic LLDPE

This data represents typical values that have been calculated from all products classified as: Generic LLDPE

This information is provided for comparative purposes only.

General	Evolve™ SP1510	Generic LLDPE
Manufacturer / Supplier	• Prime Polymer Co., Ltd.	• Generic
Generic Symbol	• LLDPE	• LLDPE
Material Status	• Commercial: Active	• Commercial: Active
Literature <sup>1</sup>	• <a href="#">Technical Datasheet (English)</a>	--
Search for UL Yellow Card	• <a href="#">Prime Polymer Co., Ltd.</a>	--
Availability	<ul style="list-style-type: none"> <li>• Asia Pacific</li> <li>• Europe</li> <li>• North America</li> </ul>	<ul style="list-style-type: none"> <li>• Africa &amp; Middle East</li> <li>• Asia Pacific</li> <li>• Europe</li> <li>• Latin America</li> <li>• North America</li> </ul>
Features	<ul style="list-style-type: none"> <li>• High Impact Resistance</li> <li>• Low Density</li> <li>• Low Temperature Heat Sealability</li> </ul>	--
Uses	<ul style="list-style-type: none"> <li>• Blown Film</li> <li>• Film</li> <li>• Industrial Applications</li> <li>• Laminates</li> </ul>	--
Agency Ratings	• JHOSPA	--
Processing Method	• Blown Film	--

Physical	Evolve™ SP1510	Generic LLDPE	Unit	Test Method
Density / Specific Gravity				
--	--	0.870 to 1.08	g/cm <sup>3</sup>	ASTM D792
--	0.915	--	g/cm <sup>3</sup>	JIS K7112
--	--	0.905 to 0.943	g/cm <sup>3</sup>	ISO 1183
--	--	0.917 to 0.937	g/cm <sup>3</sup>	ASTM D1505
--	--	0.917 to 0.926	g/cm <sup>3</sup>	ASTM D4883
Apparent (Bulk) Density				
--	--	0.55 to 0.56	g/cm <sup>3</sup>	ASTM D1895
--	--	0.34 to 0.39	g/cm <sup>3</sup>	ISO 60
Melt Mass-Flow Rate (MFR)				
190°C/2.16 kg	--	0.14 to 4.6	g/10 min	ASTM D1238
190°C/2.16 kg	1.0	--	g/10 min	JIS K7210
190°C/2.16 kg	--	0.20 to 5.2	g/10 min	ISO 1133



Physical	Evolve™ SP1510	Generic LLDPE	Unit	Test Method
Spiral Flow	--	32.0 to 47.3	cm	
Environmental Stress-Cracking Resistance (ESCR)	> 1000	0.300 to 1780	hr	ASTM D1693
Carbon Black Content	--	2.1 to 50	%	ASTM D1603
Mechanical	Evolve™ SP1510	Generic LLDPE	Unit	Test Method
Tensile Modulus	--	181 to 556	MPa	ASTM D638
Tensile Strength				
Yield	--	7.52 to 22.4	MPa	ASTM D638
Yield	--	8.45 to 20.5	MPa	ISO 527-2
Break	--	7.26 to 30.0	MPa	ASTM D638
Break	> 18.0	--	MPa	JIS K7161
Break	--	7.00 to 28.4	MPa	ISO 527-2
--	--	8.27 to 17.8	MPa	ASTM D638
Tensile Elongation				
Yield	--	2.0 to 23	%	ASTM D638
Yield	--	3.0 to 1000	%	ISO 527-2
Break	--	8.0 to 1000	%	ASTM D638
Break	--	60 to 840	%	ISO 527-2
Nominal Tensile Strain at Break				
--	> 500	--	%	JIS K7161
--	--	350 to 500	%	ISO 527-2
Apparent Bending Modulus	--	5.00 to 420	MPa	ASTM D747
Flexural Modulus				
--	--	245 to 781	MPa	ASTM D790
--	240	--	MPa	JIS K7171
--	--	110 to 750	MPa	ISO 178
Flexural Strength	--	7.82 to 13.2	MPa	ASTM D790
Coefficient of Friction	--	0.079 to 1.0		ASTM D1894
Films	Evolve™ SP1510	Generic LLDPE	Unit	Test Method
Film Thickness - Tested	--	15 to 65	µm	
Film Puncture Energy	--	4.45	J	
Film Puncture Force	--	4.31 to 76.5	N	
Film Puncture Resistance	--	13.7	J/cm³	
Film Toughness				ASTM D882
MD	--	208	J/cm³	
TD	--	215	J/cm³	
Secant Modulus				
MD	--	143 to 224	MPa	ASTM D882
TD	--	127 to 265	MPa	ASTM D882
--	--	138 to 451	MPa	ISO 527-3



Films	Evolve™ SP1510	Generic LLDPE	Unit	Test Method
<b>Tensile Strength</b>				
MD : Yield	--	7.03 to 13.5	MPa	ASTM D882
TD : Yield	--	8.06 to 12.7	MPa	ASTM D882
Yield	--	9.73 to 12.4	MPa	ISO 527-3
MD : Break	--	23.7 to 60.6	MPa	ASTM D882
TD : Break	--	16.9 to 46.5	MPa	ASTM D882
Break	--	24.3 to 45.3	MPa	ISO 527-3
--	--	24.5 to 50.5	MPa	ISO 527-3
<b>Tensile Elongation</b>				
MD : Yield	--	8.0 to 1100	%	ASTM D882
TD : Yield	--	4.0 to 38	%	ASTM D882
MD : Break	--	440 to 870	%	ASTM D882
TD : Break	--	670 to 940	%	ASTM D882
Break	--	550 to 1000	%	ISO 527-3
<b>Flexural Modulus</b>				ASTM D790
MD	--	192	MPa	
TD	--	221	MPa	
<b>Dart Drop Impact</b>				
--	--	39 to 230	g	ASTM D1709
--	--	57 to 170	g	ISO 7765-1
<b>Elmendorf Tear Strength</b>				
MD	--	0.0 to 490	g	ASTM D1922
TD	--	210 to 810	g	ASTM D1922
--	--	0.50 to 6.2	N	ISO 6383-2
<b>Seal Initiation Temperature</b>				°C
<b>Impact</b>	<b>Evolve™ SP1510</b>	<b>Generic LLDPE</b>	<b>Unit</b>	<b>Test Method</b>
<b>Charpy Unnotched Impact Strength</b>				
--	No Break	--		JIS K7111
--	--	4.6 to 87	kJ/m²	ISO 179
<b>Notched Izod Impact</b>				
Unnotched Izod Impact	--	15 to 600	J/m	ASTM D256
Multi-Axial Instrumented Impact Energy	--	500 to 700	J/m	ASTM D4812
Tensile Impact Strength	--	15.0 to 80.5	J	ISO 6603-2
Drop Impact Resistance	--	52.5 to 259	kJ/m²	ASTM D1822
Impact Strength	--	158 to 200	J/cm	ASTM D4226
Impact Strength	--	40 to 259	J	ARM
<b>Hardness</b>	<b>Evolve™ SP1510</b>	<b>Generic LLDPE</b>	<b>Unit</b>	<b>Test Method</b>
<b>Durometer Hardness</b>				
--	--	20 to 94		ASTM D2240
Shore D	55	--		JIS K7215
--	--	47 to 68		ISO 868



Thermal	Evolve™ SP1510	Generic LLDPE	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, Unannealed	--	42.0 to 65.4	°C	ASTM D648
0.45 MPa, Unannealed	--	53.8 to 72.0	°C	ISO 75-2/B
1.8 MPa, Unannealed	--	35.8 to 43.0	°C	ASTM D648
Brittleness Temperature				
--	--	-76.5 to -59.8	°C	ASTM D746
--	--	-71.0 to -39.5	°C	ISO 974
Vicat Softening Temperature				
--	--	84.9 to 120	°C	ASTM D1525
--	98.0	--	°C	JIS K7206
--	--	89.5 to 122	°C	ISO 306
Melting Temperature				
--	--	120 to 129	°C	
--	--	120 to 126	°C	DSC
--	118	--	°C	JIS K7121
--	--	115 to 127	°C	ISO 11357-3
--	--	119 to 128	°C	ASTM D3418
--	--	116 to 126	°C	ISO 3146
Peak Crystallization Temperature (DSC)				
--	--	107 to 127	°C	ASTM D3418
--	--	106 to 127	°C	ISO 3146
Electrical	Evolve™ SP1510	Generic LLDPE	Unit	Test Method
Surface Resistivity	--	1.0E+11 to 1.0E+17	ohms	IEC 60093
Volume Resistivity	--	1.1 to 1.0E+17	ohms·cm	ASTM D257
Dielectric Strength	--	20 to 56	kV/mm	ASTM D149
Dielectric Constant	--	2.17 to 2.54		ASTM D150
Dissipation Factor	--	6.0E-5 to 25		ASTM D150
Optical	Evolve™ SP1510	Generic LLDPE	Unit	Test Method
Gloss	--	35 to 81		ASTM D523
Gloss	--	22 to 100		ASTM D2457
Clarity	--	48.8 to 75.0		ASTM D1746
Haze	--	0.400 to 22.3	%	ASTM D1003
Injection	Evolve™ SP1510	Generic LLDPE	Unit	
Rear Temperature	--	173 to 186	°C	
Middle Temperature	--	185 to 201	°C	
Front Temperature	--	184 to 235	°C	
Nozzle Temperature	--	204 to 220	°C	
Processing (Melt) Temp	--	170 to 221	°C	
Mold Temperature	--	18 to 30	°C	



**Injection Notes**

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Extrusion	Evolve™ SP1510	Generic LLDPE	Unit
Cylinder Zone 1 Temp.	--	168 to 203	°C
Cylinder Zone 2 Temp.	--	178 to 213	°C
Cylinder Zone 3 Temp.	--	180 to 232	°C
Cylinder Zone 4 Temp.	--	180 to 220	°C
Cylinder Zone 5 Temp.	--	189 to 231	°C
Adapter Temperature	--	210 to 228	°C
Melt Temperature	--	68 to 59809	°C
Die Temperature	--	170 to 271	°C

**Extrusion Notes**

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**Notes**

<sup>1</sup> These links provide you with access to supplier literature. We work hard to keep them up to date; however you may find the most current literature from the supplier.

<sup>2</sup> Typical properties: these are not to be construed as specifications.

