

Technical Data

Product Description

ENGAGE™ 8842 Polyolefin Elastomer is an ultra-low density ethylene-octene copolymer which offers exceptional properties of an ultra-low density elastomer with the added potential of handling this polymer in pellet form.

ENGAGE 8842 has excellent flow characteristics and provides superb impact properties in blends with polypropylene (PP) and polyethylene (PE). It performs well in TPO applications where superior low temperature impact properties are desired.

ENGAGE™
8842

Main Characteristics:

- Pellet form
- Excellent flow characteristics
- Improved impact in polypropylene and polyethylene

Applications:

- Injection molded industrial and consumer durable goods
- Impact modification of TPO

Generic
POE

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

This information is provided for comparative purposes only.

General	ENGAGE™ 8842	Generic POE
Manufacturer / Supplier	• The Dow Chemical Company	• Generic
Generic Symbol	• POE	• POE
Material Status	• Commercial: Active	• Commercial: Active
Search for UL Yellow Card	• The Dow Chemical Company	--
Availability	<ul style="list-style-type: none"> • Asia Pacific • Europe • Latin America • North America 	<ul style="list-style-type: none"> • Africa & Middle East • Asia Pacific • Europe • Latin America • North America
Forms	• Pellets	--

Physical	ENGAGE™ 8842	Generic POE	Unit	Test Method
Density / Specific Gravity				
--	0.857	0.861 to 1.02	g/cm ³	ASTM D792
--	--	0.870 to 1.03	g/cm ³	ISO 1183
--	--	0.862 to 0.887	g/cm ³	ASTM D1505
Melt Mass-Flow Rate (MFR)				
190°C/2.16 kg	1.0	--	g/10 min	ASTM D1238
230°C/2.16 kg	--	0.50 to 22	g/10 min	ASTM D1238
230°C/2.16 kg	--	0.50 to 18	g/10 min	ISO 1133
Molding Shrinkage				
Flow	--	0.30 to 1.9	%	ASTM D955
--	--	0.79 to 2.0	%	ISO 294-4
Mooney Viscosity				ASTM D1646
--	--	1 to 38	MU	
ML 1+4, 121°C	25	--	MU	



Mechanical	ENGAGE™ 8842	Generic POE	Unit	Test Method
Tensile Modulus				
--	--	1.21 to 34.9	MPa	ASTM D638
100% Secant : Compression Molded ²	1.40	--	MPa	ASTM D638
--	--	80.0 to 2740	MPa	ISO 527-1
Tensile Strength				
Yield	--	13.7 to 24.4	MPa	ASTM D638
Yield	--	9.60 to 27.2	MPa	ISO 527-2
Break	--	1.20 to 28.8	MPa	ASTM D638
Break, Compression Molded ²	3.00	--	MPa	ASTM D638
Break	--	8.00 to 26.6	MPa	ISO 527-2
--	--	1.50 to 2.96	MPa	ASTM D638
Tensile Elongation				
Yield	--	8.0 to 1100	%	ASTM D638
Yield	--	5.0 to 12	%	ISO 527-2
Break	--	370 to 1200	%	ASTM D638
Break, Compression Molded ²	1200	--	%	ASTM D638
Break	--	14 to 670	%	ISO 527-2
Flexural Modulus				
--	--	1.20 to 89.1	MPa	ASTM D790
1% Secant : Compression Molded	4.50	--	MPa	ASTM D790
2% Secant : Compression Molded	4.00	--	MPa	ASTM D790
--	--	20.0 to 2870	MPa	ISO 178
Flexural Stress				
--	--	25.8 to 40.0	MPa	ISO 178
Elastomers	ENGAGE™ 8842	Generic POE	Unit	Test Method
Tensile Stress				
100% Strain	--	1.03 to 9.72	MPa	ASTM D412
100% Strain	--	0.900 to 11.0	MPa	ISO 37
300% Strain	--	3.30 to 12.5	MPa	ASTM D412
300% Strain	--	0.588 to 7.05	MPa	ISO 37
Tensile Stress				
Yield	--	8.16 to 22.0	MPa	ISO 37
Break	--	3.23 to 15.1	MPa	ASTM D412
Break	--	5.36 to 25.1	MPa	ISO 37
--	--	3.21 to 11.8	MPa	ASTM D412
Tensile Elongation				
Break	--	440 to 510	%	ASTM D412
Break	--	510 to 980	%	ISO 37
Tear Strength				
--	--	14.0 to 91.3	kN/m	ASTM D624
-- ³	25.4	--	kN/m	ASTM D624
--	--	22.0 to 121	kN/m	ISO 34-1
Compression Set				
--	--	16 to 79	%	ASTM D395
--	--	25 to 53	%	ISO 815



Impact	ENGAGE™ 8842	Generic POE	Unit	Test Method
Charpy Notched Impact Strength	--	3.8 to 57	kJ/m ²	ISO 179
Notched Izod Impact				
--	--	28 to 740	J/m	ASTM D256
--	--	1.5 to 52	kJ/m ²	ISO 180
Instrumented Dart Impact				
--	--	16.0 to 24.1	J	ASTM D3763
--	--	17.8 to 25.0	J	ISO 6603-2
Hardness	ENGAGE™ 8842	Generic POE	Unit	Test Method
Durometer Hardness				
--	--	11 to 97		ASTM D2240
Shore A, 1 sec, Compression Molded	54	--		ASTM D2240
Shore D, 1 sec, Compression Molded	11	--		ASTM D2240
--	--	40 to 95		ISO 868
Thermal	ENGAGE™ 8842	Generic POE	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, Unannealed	--	52.9 to 105	°C	ISO 75-2/B
1.8 MPa, Unannealed	--	37.0 to 57.3	°C	ISO 75-2/A
Brittleness Temperature				
--	--	-75.0 to -49.5	°C	ASTM D746
--	--	-60.0 to -59.6	°C	ISO 812
Glass Transition Temperature				
--	--	-56.2 to -50.4	°C	ASTM E1356
--	-58.0	--	°C	Internal Method
--	--	-56.3 to -30.2	°C	DSC
Vicat Softening Temperature	--	35.4 to 97.0	°C	ASTM D1525
Melting Temperature				
--	--	35.3 to 100	°C	
-- ⁴	38.0	--	°C	Internal Method
--	--	34.0 to 120	°C	ISO 3146
Peak Crystallization Temperature (DSC)				
--	20.0	--	°C	Internal Method
--	--	28.4 to 90.0	°C	ASTM D3418
CLTE - Flow				
--	--	4.8E-5 to 1.0E-4	cm/cm/°C	ASTM E228
--	--	9.8E-5 to 1.0E-4	cm/cm/°C	ISO 11359-2
Aging	ENGAGE™ 8842	Generic POE	Unit	Test Method
Change in Tensile Stress	--	-15 to 96	%	ISO 1817
Change in Tensile Strain at Break	--	9.0 to 13	%	ISO 1817
Change in Volume	--	9.0 to 13	%	ISO 1817
Electrical	ENGAGE™ 8842	Generic POE	Unit	Test Method
Volume Resistivity	--	1.0E+3 to 2.5E+15	ohms-cm	ASTM D257



Injection	ENGAGE™ 8842	Generic POE	Unit
Drying Temperature	--	75 to 80	°C
Drying Time	--	1.9 to 3.1	hr
Suggested Max Moisture	--	0.028 to 0.030	%
Rear Temperature	--	150 to 206	°C
Middle Temperature	--	160 to 216	°C
Front Temperature	--	170 to 226	°C
Nozzle Temperature	--	175 to 226	°C
Processing (Melt) Temp	--	195 to 228	°C
Mold Temperature	--	29 to 51	°C
Injection Pressure	--	101 to 103	MPa
Back Pressure	--	0.431 to 8.08	MPa
Screw Speed	--	124 to 150	rpm

Injection Notes

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Extrusion	ENGAGE™ 8842	Generic POE	Unit
Cylinder Zone 1 Temp.	--	90 to 200	°C
Cylinder Zone 2 Temp.	--	97 to 203	°C
Cylinder Zone 3 Temp.	--	97 to 203	°C
Cylinder Zone 4 Temp.	--	105 to 204	°C
Cylinder Zone 5 Temp.	--	180 to 206	°C
Adapter Temperature	--	103 to 200	°C
Melt Temperature	--	190 to 210	°C
Die Temperature	--	119 to 211	°C

Extrusion Notes

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Notes

¹ Typical properties: these are not to be construed as specifications.

² 510 mm/min

³ Die C

⁴ 10°C/min

