

# Sarlink® TPV 4165

Teknor Apex Company - Thermoplastic Vulcanizate

Thursday, March 17, 2016

## General Information

### Product Description

SARLINK® TPV 4100 series are engineered materials designed primarily for demanding automotive and industrial applications. Available in both black and natural, SARLINK® 4165 is a low density, medium hardness thermoplastic vulcanizate that exhibits excellent compression set, flex fatigue, high and low temperature performance. The material can be processed by injection molding, blow molding and extrusion for applications such as seals, gaskets, chemical resistant hose and tube, boots and bellows.

### General

Material Status	• Commercial: Active		
Availability	• Asia Pacific • Europe	• Latin America • North America	
Features	• Excellent Elastic Recovery • Fatigue Resistant • Good Adhesion • Good Chemical Resistance • Good Flexibility	• Good Moldability • Good Processability • Good Surface Finish • High Melt Stability • Low Density	• Medium Hardness • Medium Heat Resistance • Resilient
Uses	• Appliance Components • Automotive Applications • Automotive Exterior Parts • Automotive Interior Parts • Automotive Under the Hood • Blow Molding Applications	• Gaskets • Grommets • Hose • Industrial Applications • O-rings • Pipe Seals	• Plugs • Rubber Replacement • Seals • Tubing • White Goods & Small Appliances
Automotive Specifications	• CHRYSLER MS-AR-100 BGN Color: Black • CHRYSLER MS-AR-100 BGN Color: Natural • FORD ESB-M4D495-A1 Color: Black • FORD ESB-M4D495-A1 Color: Natural	• FORD WSD-M2D379-A1 Color: Black • FORD WSD-M2D379-A1 Color: Natural • GM GMP.E/P.002 Color: Black • GM GMP.E/P.002 Color: Natural	• GM GMW15813 Type 5 Color: Black • GM GMW15813 Type 5 Color: Natural • GM QK 3521 Type 1 Color: Black • GM QK 3521 Type 1 Color: Natural
Appearance	• Black	• Natural Color	• Opaque
Forms	• Pellets		
Processing Method	• Blow Molding	• Extrusion	• Injection Molding

## ASTM & ISO Properties <sup>1</sup>

Physical	Nominal Value	Unit	Test Method
Specific Gravity	0.960		ASTM D792
Density	0.960	g/cm <sup>3</sup>	ISO 1183
Elastomers	Nominal Value	Unit	Test Method
Tensile Stress			
Across Flow : 100% Strain	363	psi	ASTM D412
Across Flow : 100% Strain	363	psi	ISO 37
Flow : 100% Strain	609	psi	ISO 37
Flow : 100% Strain	609	psi	ASTM D412
Tensile Stress			
Across Flow : Break	986	psi	ASTM D412
Across Flow : Break	986	psi	ISO 37
Flow : Break	841	psi	ASTM D412
Flow : Break	841	psi	ISO 37

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<b>Elastomers</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
<b>Tensile Elongation</b>			
Across Flow : Break	570	%	ASTM D412
Across Flow : Break	570	%	ISO 37
Flow : Break	280	%	ASTM D412
Flow : Break	280	%	ISO 37
<b>Tear Strength - Across Flow</b>			
--	170	lbf/in	ASTM D624
-- <sup>2</sup>	170	lbf/in	ISO 34-1
<b>Compression Set</b>			
73°F, 22 hr	17	%	ASTM D395
73°F, 22 hr	17	%	ISO 815
158°F, 22 hr	27	%	ASTM D395
158°F, 22 hr	27	%	ISO 815
257°F, 70 hr	40	%	ASTM D395
257°F, 70 hr	40	%	ISO 815
<b>Hardness</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
<b>Shore Hardness</b>			
Shore A, 5 sec, Extruded	63		ASTM D2240
Shore A, 5 sec, Extruded	63		ISO 868
Shore A, 5 sec, Injection Molded	65		ASTM D2240
Shore A, 5 sec, Injection Molded	65		ISO 868
<b>Thermal</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
RTI Elec	212	°F	UL 746
RTI Imp	149	°F	UL 746
RTI Str	212	°F	UL 746
<b>Aging</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
<b>Change in Tensile Strength in Air - Across Flow</b>			
275°F, 1000 hr	-9.0	%	ISO 188
275°F, 1000 hr	-9.0	%	ASTM D573
302°F, 168 hr	-11	%	ASTM D573
302°F, 168 hr	-11	%	ISO 188
100% Strain 302°F, 168 hr	0.0	%	ISO 188
100% Strain 302°F, 168 hr	0.0	%	ASTM D573
100% Strain 302°F, 1000 hr	4.0	%	ISO 188
100% Strain 302°F, 1000 hr	4.0	%	ASTM D573
<b>Change in Tensile Strain at Break in Air - Across Flow</b>			
275°F, 1000 hr	-8.0	%	ASTM D573
275°F, 1000 hr	-8.0	%	ISO 188
302°F, 168 hr	-11	%	ISO 188
302°F, 168 hr	-11	%	ASTM D573
<b>Change in Shore Hardness in Air</b>			
Shore A, 275°F, 1000 hr	2.0		ASTM D573
Shore A, 275°F, 1000 hr	2.0		ISO 188
Shore A, 302°F, 168 hr	2.0		ISO 188
Shore A, 302°F, 168 hr	2.0		ASTM D573
<b>Change in Volume</b>			
257°F, 70 hr, in IRM 903 Oil	83	%	ASTM D471
257°F, 70 hr, in IRM 903 Oil	83	%	ISO 1817

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## Teknor Apex Company - Thermoplastic Vulcanizate

Flammability	Nominal Value	Unit	Test Method
Flame Rating (0.0394 in, All Colors)		HB	UL 94

Additional Information	Nominal Value	Unit	Test Method
Apparent Shear Viscosity - Capillary, @ 206/s			
392°F	340	Pa·s	ASTM D3835
392°F	340	Pa·s	ISO 11443

**Legal Statement**

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### Processing Information

Injection	Nominal Value	Unit
Drying Temperature	180	°F
Drying Time	3.0	hr
Rear Temperature	356 to 419	°F
Middle Temperature	356 to 419	°F
Front Temperature	356 to 419	°F
Nozzle Temperature	369 to 428	°F
Processing (Melt) Temp	365 to 428	°F
Mold Temperature	50.0 to 131	°F
Back Pressure	14.5 to 145	psi
Screw Speed	100 to 200	rpm

Extrusion	Nominal Value	Unit
Drying Temperature	180	°F
Drying Time	3.0	hr
Cylinder Zone 1 Temp.	356 to 392	°F
Cylinder Zone 2 Temp.	356 to 401	°F
Cylinder Zone 3 Temp.	369 to 410	°F
Cylinder Zone 4 Temp.	369 to 410	°F
Melt Temperature	383 to 419	°F
Die Temperature	383 to 419	°F
Take-Off Roll	68.0 to 122	°F

**Extrusion Notes**

Screen Pack: 20 to 60 mesh  
 Screw: general purpose  
 Compression Ratio: 3:1

### Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.

<sup>2</sup> Method Ba, Angle (Unnicked)

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## Teknor Apex Company - Thermoplastic Vulcanizate

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