

# Sarlink® TPV 4180

Teknor Apex Company - Thermoplastic Vulcanizate

Friday, October 7, 2016

## General Information

### Product Description

SARLINK® 4100 series are engineered materials designed primarily for demanding automotive and industrial applications. Available in both black and natural, SARLINK® 4180 is a low density, higher hardness thermoplastic vulcanizate featuring excellent flex fatigue resistance, compression set, heat aging and resilience to be used in injection molded parts, extruded profiles, hose and tubing. It can be blow molded into boots, ducts and other articles.

### General

Material Status	• Commercial: Active		
Availability	• Asia Pacific • Europe	• Latin America • North America	
Features	• Chemical Resistant • Fatigue Resistant • Good Adhesion • Good Melt Strength	• Good Moldability • Good Processability • Good Surface Finish • Heat Aging Resistant	• High Hardness • High Melt Stability • Medium Heat Resistance • Resilient
Uses	• Agricultural Applications • Appliance Components • Automotive Applications • Automotive Exterior Parts • Automotive Interior Parts	• Automotive Under the Hood • Blow Molding Applications • Hose • Industrial Applications • Plugs	• Profiles • Rubber Replacement • Tubing • White Goods & Small Appliances
Agency Ratings	• UL 94		
RoHS Compliance	• RoHS Compliant		
Automotive Specifications	• CHRYSLER MS-AR-100 DGN Color: Black • CHRYSLER MS-AR-100 DGN Color: Natural • FORD WSD-M2D381-A1 Color: Black • FORD WSD-M2D381-A1 Color: Natural	• GM GMP.E/P.004 Color: Black • GM GMP.E/P.004 Color: Natural • GM GMW15813 Type 7 Color: Black • GM GMW15813 Type 7 Color: Natural	• GM QK 3525 Type 5 Color: Black • GM QK 3525 Type 5 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	0.958	g/cm <sup>3</sup>	ASTM D792
Density	0.960	g/cm <sup>3</sup>	ISO 1183
Elastomers	Nominal Value	Unit	Test Method
<b>Tensile Stress</b>			
Across Flow : 100% Strain	4.50	MPa	ASTM D412
Across Flow : 100% Strain	4.50	MPa	ISO 37
Flow : 100% Strain	6.80	MPa	ISO 37
Flow : 100% Strain	6.80	MPa	ASTM D412
<b>Tensile Stress</b>			
Across Flow : Break	10.2	MPa	ASTM D412
Across Flow : Break	10.2	MPa	ISO 37
Flow : Break	9.00	MPa	ISO 37
Flow : Break	9.00	MPa	ASTM D412

Revision Date: 6/1/2016

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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	620	%	ASTM D412
Across Flow : Break	620	%	ISO 37
Flow : Break	330	%	ISO 37
Flow : Break	330	%	ASTM D412
<b>Tear Strength - Across Flow</b>			
--	48	kN/m	ASTM D624
-- <sup>2</sup>	48	kN/m	ISO 34-1
<b>Compression Set</b>			
23°C, 22 hr	26	%	ASTM D395
23°C, 22 hr	26	%	ISO 815
70°C, 22 hr	40	%	ASTM D395
70°C, 22 hr	40	%	ISO 815
125°C, 70 hr	58	%	ASTM D395
125°C, 70 hr	58	%	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	79		ASTM D2240
Shore A, 5 sec, Extruded	79		ISO 868
Shore A, 5 sec, Injection Molded	83		ASTM D2240
Shore A, 5 sec, Injection Molded	83		ISO 868
<b>Thermal</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
RTI Elec	100	°C	UL 746
RTI Imp	65.0	°C	UL 746
RTI Str	100	°C	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>			
135°C, 1000 hr	-9.0	%	ISO 188
135°C, 1000 hr	-9.0	%	ASTM D573
100% Strain 135°C, 1000 hr	10	%	ISO 188
100% Strain 135°C, 1000 hr	10	%	ASTM D573
150°C, 168 hr	-10	%	ASTM D573
150°C, 168 hr	-10	%	ISO 188
100% Strain 150°C, 168 hr	5.0	%	ASTM D573
100% Strain 150°C, 168 hr	5.0	%	ISO 188
<b>Change in Tensile Strain at Break in Air - Across Flow</b>			
135°C, 1000 hr	-15	%	ASTM D573
135°C, 1000 hr	-15	%	ISO 188
150°C, 168 hr	-15	%	ASTM D573
150°C, 168 hr	-15	%	ISO 188
<b>Change in Shore Hardness in Air</b>			
Shore A, 135°C, 1000 hr	3.0		ASTM D573
Shore A, 135°C, 1000 hr	3.0		ISO 188
Shore A, 150°C, 168 hr	2.0		ASTM D573
Shore A, 150°C, 168 hr	2.0		ISO 188
<b>Change in Volume</b>			
125°C, 70 hr, in IRM 903 Oil	64	%	ASTM D471
125°C, 70 hr, in IRM 903 Oil	64	%	ISO 1817

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## Teknor Apex Company - Thermoplastic Vulcanizate

Flammability	Nominal Value	Unit	Test Method
Flame Rating (1.0 mm, All Colors)		HB	UL 94
Additional Information	Nominal Value	Unit	Test Method
Apparent Shear Viscosity - Capillary @ 206/s			
200°C	340	Pa·s	ASTM D3835
200°C	340	Pa·s	ISO 11443

**Legal Statement**

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### Processing Information

Injection	Nominal Value	Unit
Drying Temperature	82	°C
Drying Time	3.0	hr
Rear Temperature	180 to 215	°C
Middle Temperature	180 to 215	°C
Front Temperature	180 to 215	°C
Nozzle Temperature	187 to 220	°C
Processing (Melt) Temp	185 to 220	°C
Mold Temperature	10 to 55	°C
Back Pressure	0.100 to 1.00	MPa
Screw Speed	100 to 200	rpm
Extrusion	Nominal Value	Unit
Drying Temperature	82	°C
Drying Time	3.0	hr
Cylinder Zone 1 Temp.	180 to 200	°C
Cylinder Zone 2 Temp.	180 to 205	°C
Cylinder Zone 3 Temp.	187 to 210	°C
Cylinder Zone 4 Temp.	187 to 210	°C
Melt Temperature	195 to 215	°C
Die Temperature	195 to 215	°C
Take-Off Roll	20 to 50	°C

**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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