



# Sarlink® TPE FM-2166

Teknor Apex Company - Thermoplastic Elastomer

## General Information

### Product Description

Sarlink TPE FM-2166 is a general purpose thermoplastic elastomer, available in NAT, BLK, and colors, designed for various applications in the transportation industry including automotive floor mats. Sarlink TPE FM-2166 is a medium hardness, high density, UV stabilized grade that exhibits excellent wear resistance, low fogging and is suitable for injection molding and extrusion.

### General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Features	• Bondability • Chemical Resistant • Filled • Good Adhesion • Good Colorability • Good Melt Strength • Good Processability	• Good Processability • Good Processing Stability • Halogen Free • High Density • High Specific Gravity • Low Flow • Low Fogging	• Low Viscosity • Lubricated • Medium Hardness • Slip • Wear Resistant
Uses	• Automotive Applications	• Automotive Interior Parts	
RoHS Compliance	• RoHS Compliant		
Appearance	• Black • Colors Available	• Grey • Natural Color	• Tan
Forms	• Pellets		
Processing Method	• Extrusion	• Injection Molding	

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

Physical	Nominal Value	Unit	Test Method
Density	1.18	g/cm <sup>3</sup>	ISO 1183
Melt Mass-Flow Rate (MFR) (230°C/2.16 kg)	5.0	g/10 min	ASTM D1238
Volatiles			SAE J1756
Fogging, 3 hrs @ 100°C, 21°C Plate 1 hr post	94	%	
Fogging, 3 hrs @ 100°C, 21°C Plate 16 hrs post	92	%	
Mechanical	Nominal Value	Unit	Test Method
Taber Abrasion Resistance			SAE J948
1000 Cycles, 1000 g, CS-10 Wheel	181	mg	
Tear Strength			ISO 34-1
1000 hrs @ 80°C (Across Flow)	12	%	
1000 hrs @ 80°C (Flow)	8.3	%	
Elastomers	Nominal Value	Unit	Test Method
Tensile Stress <sup>2</sup>			ISO 37
Across Flow : 100% Strain	252	psi	
Flow : 100% Strain	300	psi	
Tensile Stress <sup>2</sup>			ISO 37
Across Flow : Break	827	psi	
Flow : Break	725	psi	
Tensile Elongation <sup>2</sup>			ISO 37
Across Flow : Break	740	%	
Flow : Break	640	%	

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<b>Elastomers</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
Tear Strength <sup>3</sup>			ISO 34-1
Across Flow	138	lbf/in	
Flow	140	lbf/in	
Compression Set <sup>4</sup>			ISO 815
73°F, 22 hr	24	%	
158°F, 22 hr	51	%	
194°F, 70 hr	88	%	
<b>Hardness</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
Shore Hardness			ISO 868
Shore A, 1 sec, Injection Molded	68		
Shore A, 5 sec, Injection Molded	66		
Shore A, 15 sec, Injection Molded	64		
<b>Thermal</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
Brittleness Temperature	< -76.0	°F	ASTM D746
<b>Aging</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
Change in Tensile Strength in Air			ISO 188
Across Flow : 176°F, 1000 hr <sup>5</sup>	24	%	
Flow : 176°F, 1000 hr <sup>5</sup>	19	%	
Across Flow : 100% Strain 176°F, 1000 hr <sup>5</sup>	1.5	%	
Flow : 100% Strain 176°F, 1000 hr <sup>5</sup>	2.5	%	
Across Flow : 230°F, 1008 hr <sup>5</sup>	6.3	%	
Flow : 230°F, 1008 hr <sup>5</sup>	5.6	%	
Across Flow : 100% Strain 230°F, 1008 hr <sup>5</sup>	4.1	%	
Flow : 100% Strain 230°F, 1008 hr <sup>5</sup>	6.0	%	
Across Flow : 257°F, 168 hr <sup>5</sup>	10	%	
Flow : 257°F, 168 hr <sup>5</sup>	8.1	%	
Across Flow : 100% Strain 257°F, 168 hr	-1.8	%	
Flow : 100% Strain 257°F, 168 hr <sup>5</sup>	0.80	%	
Change in Tensile Strain at Break in Air <sup>5</sup>			ISO 188
Across Flow : 176°F, 1000 hr	1.3	%	
Flow : 176°F, 1000 hr	3.9	%	
Across Flow : 230°F, 1008 hr	2.2	%	
Flow : 230°F, 1008 hr	5.3	%	
Across Flow : 257°F, 168 hr	14	%	
Flow : 257°F, 168 hr	19	%	
Change in Shore Hardness in Air			ISO 188
Shore A, 176°F, 1000 hr <sup>6</sup>	0.10		
Shore A, 176°F, 1000 hr <sup>7</sup>	0.60		
Shore A, 176°F, 1000 hr <sup>8</sup>	0.80		
Shore A, 230°F, 1008 hr <sup>6</sup>	3.2		
Shore A, 230°F, 1008 hr <sup>7</sup>	3.4		
Shore A, 230°F, 1008 hr <sup>8</sup>	3.6		
Shore A, 257°F, 168 hr <sup>6</sup>	0.20		
Shore A, 257°F, 168 hr <sup>7</sup>	0.60		
Shore A, 257°F, 168 hr <sup>8</sup>	0.70		

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## Teknor Apex Company - Thermoplastic Elastomer

Flammability	Nominal Value	Unit	Test Method
Burning Rate	1.5	in/min	ISO 3795

  

Fill Analysis	Nominal Value	Unit	Test Method
Apparent Viscosity (392°F, 206 sec <sup>-1</sup> )	167	Pa·s	ASTM D3835

### Processing Information

Injection	Nominal Value	Unit
Rear Temperature	390 to 410	°F
Middle Temperature	400 to 420	°F
Front Temperature	410 to 430	°F
Nozzle Temperature	420 to 440	°F
Processing (Melt) Temp	420 to 440	°F
Mold Temperature	60 to 90	°F
Injection Pressure	200 to 1000	psi
Injection Rate	Fast	
Back Pressure	25.0 to 125	psi
Screw Speed	50 to 120	rpm
Cushion	0.150 to 1.00	in

#### Injection Notes

Drying is not necessary. However, if moisture is a problem, dry the pellets for 2 to 4 hours at 150°F (65°C).

#### Extrusion

	Nominal Value	Unit
Cylinder Zone 1 Temp.	380 to 400	°F
Cylinder Zone 2 Temp.	390 to 410	°F
Cylinder Zone 3 Temp.	400 to 420	°F
Cylinder Zone 4 Temp.	399 to 421	°F
Cylinder Zone 5 Temp.	410 to 430	°F
Die Temperature	420 to 440	°F

#### Extrusion Notes

Screw Speed: 30 to 100 rpm

#### Notes

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

<sup>2</sup> Type 1, 20 in/min

<sup>3</sup> Method Ba, Angle (Unnicked), 20 in/min

<sup>4</sup> Type A

<sup>5</sup> Type 1

<sup>6</sup> 1 sec

<sup>7</sup> 5 sec

<sup>8</sup> 15 sec