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TEKNOR APEX

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	• Chemical Resistant • Filled • Good Adhesion • Good Processability • High Density	• High Specific Gravity • Low Flow • Low to No Fogging • Lubricated • Medium Hardness	• Slip • UV Resistant • 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 [1]

Physical	Nominal Value	Unit	Test Method
Density	1.18	g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR) (230°C/2.16 kg)	5.0	g/10 min	ASTM D1238
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Taber Abrasion Resistance			SAE J948
1000 Cycles, 1000 g, CS-10 Wheel	181	mg	
Elastomers	**Nominal Value**	**Unit**	**Test Method**
Tensile Stress [2]			ISO 37
Across Flow : 100% Strain	252	psi	
Flow : 100% Strain	300	psi	
Tensile Stress [2]			ISO 37
Across Flow : Break	827	psi	
Flow : Break	725	psi	
Tensile Elongation [2]			ISO 37
Across Flow : Break	740	%	
Flow : Break	640	%	
Tear Strength [3]			ISO 34-1
Across Flow	140	lbf/in	
Flow	140	lbf/in	
Compression Set [4]			ISO 815
73°F, 22 hr	24	%	
158°F, 22 hr	51	%	
194°F, 70 hr	88	%	

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Hardness	Nominal Value	Unit	Test Method
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		
Thermal	**Nominal Value**	**Unit**	**Test Method**
Brittleness Temperature	< -76.0	°F	ASTM D746
Aging	**Nominal Value**	**Unit**	**Test Method**
Change in Tensile Strength in Air			ISO 188
Across Flow : 176°F, 1000 hr [5]	24	%	
Flow : 176°F, 1000 hr [5]	19	%	
Across Flow : 100% Strain 176°F, 1000 hr [5]	1.5	%	
Flow : 100% Strain 176°F, 1000 hr [5]	2.5	%	
Across Flow : 230°F, 1008 hr [5]	6.3	%	
Flow : 230°F, 1008 hr [5]	5.6	%	
Across Flow : 100% Strain 230°F, 1008 hr [5]	4.1	%	
Flow : 100% Strain 230°F, 1008 hr [5]	6.0	%	
Across Flow : 257°F, 168 hr [5]	10	%	
Flow : 257°F, 168 hr [5]	8.1	%	
Across Flow : 100% Strain 257°F, 168 hr	-1.8	%	
Flow : 100% Strain 257°F, 168 hr [5]	0.80	%	
Change in Tensile Strain at Break in Air [5]			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 [6]	0.80		
Shore A, 176°F, 1000 hr [7]	0.60		
Shore A, 176°F, 1000 hr [8]	0.10		
Shore A, 230°F, 1008 hr [6]	3.6		
Shore A, 230°F, 1008 hr [7]	3.4		
Shore A, 230°F, 1008 hr [8]	3.2		
Shore A, 257°F, 168 hr [6]	0.70		
Shore A, 257°F, 168 hr [7]	0.60		
Shore A, 257°F, 168 hr [8]	0.20		
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^-1)	167	Pa·s	ASTM D3835
Additional Information	**Nominal Value**	**Unit**	**Test Method**
Tear Strength			ISO 34-1
1000 hrs @ 80°C (Across Flow)	12	%	
1000 hrs @ 80°C (Flow)	8.3	%	

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Additional Information	Nominal Value	Unit	Test Method
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	%	

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	95 to 150	°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

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

[2] Type 1, 20 in/min

[3] Method Ba, Angle (Unnicked), 20 in/min

[4] Type A

[5] Type 1

[6] 15 sec

[7] 5 sec

[8] 1 sec