TEKNOR APEX

# Sarlink® TPV 3180

## Teknor Apex Company - Thermoplastic Vulcanizate

Wednesday, February 7, 2024

## General Information

**Product Description**

SARLINK® TPV 3100 series are engineered materials designed primarily for general purpose, automotive and industrial applications requiring a good balance of thermal, mechanical, and physical properties. SARLINK® 3180, available in NAT and BLK, is a medium hardness, low density, multi-purpose thermoplastic vulcanizate that can be processed by injection molding, blow molding or extrusion for applications such as grips, seals, gaskets, profiles, hose & tubes, bellows, and other articles.

**General**

| | | | |
|---|---|---|---|
| Material Status | • Commercial: Active | | |
| Availability | • Africa & Middle East<br>• Asia Pacific | • Europe<br>• Latin America | • North America |
| Features | • Chemical Resistant<br>• General Purpose<br>• Good Adhesion<br>• Good Flexibility | • Good Moldability<br>• Good Processability<br>• Good Surface Finish<br>• Good Weather Resistance | • Heat Aging Resistant<br>• Medium Hardness<br>• Resilient |
| Uses | • Agricultural Applications<br>• Appliance Components<br>• Automotive Applications<br>• Automotive Exterior Parts<br>• Automotive Interior Parts | • Automotive Under the Hood<br>• Blow Molding Applications<br>• General Purpose<br>• Industrial Applications<br>• Profiles | • Rubber Replacement<br>• Seals<br>• Weatherstripping |
| Agency Ratings | • UL 94 | | |
| RoHS Compliance | • RoHS Compliant | | |
| Automotive Specifications | • CHRYSLER MS-AR-80 Type D Color: Black<br>• CHRYSLER MS-AR-80 Type D Color: Natural<br>• DAIMLER DBL 5562.30 Color: Black<br>• FORD WSD-M2D381-A1 Color: Black | • GM QK 3525 Type 5 Color: Black<br>• GM QK 3525 Type 5 Color: Natural<br>• SAE J3000 Color: Black<br>• SAE J3000 Color: Natural | • VAG VW501 79 Color: Black<br>• VAG VW-TL 526 22 Color: Black<br>• VOLKSWAGEN VW 50180 Color: Black |
| UL File Number | • QMFZ2.E54709 | | |
| Appearance | • Black | • Natural Color | • Opaque |
| Forms | • Pellets | | |
| Processing Method | • Blow Molding | • Extrusion | • Injection Molding |

## ASTM & ISO Properties [1]

| Physical | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Density / Specific Gravity | 0.948 | g/cm³ | ASTM D792 |
| Density | 0.950 | g/cm³ | ISO 1183 |
| **Elastomers** | **Nominal Value** | **Unit** | **Test Method** |
| Tensile Stress | | | ASTM D412 |
| Across Flow : 100% Strain | 4.50 | MPa | |
| Flow : 100% Strain | 6.70 | MPa | |
| Tensile Stress | | | ISO 37 |
| Across Flow : 100% Strain | 4.50 | MPa | |
| Flow : 100% Strain | 6.70 | MPa | |
| Tensile Strength | | | ASTM D412 |
| Across Flow : Break | 9.38 | MPa | |
| Flow : Break | 8.48 | MPa | |

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| Elastomers | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Tensile Stress | | | ISO 37 |
| Across Flow : Break | 9.40 | MPa | |
| Flow : Break | 8.50 | MPa | |
| Tensile Elongation | | | ASTM D412 |
| Across Flow : Break | 690 | % | |
| Flow : Break | 330 | % | |
| Tensile Elongation | | | ISO 37 |
| Across Flow : Break | 690 | % | |
| Flow : Break | 330 | % | |
| Tear Strength - Across Flow | 50.8 | kN/m | ASTM D624 |
| Tear Strength - Across Flow [2] | 51.0 | kN/m | ISO 34-1 |
| Compression Set | | | ASTM D395 |
| 23°C, 22 hr | 32 | % | |
| 70°C, 22 hr | 50 | % | |
| 125°C, 70 hr | 65 | % | |
| Compression Set | | | ISO 815 |
| 23°C, 22 hr | 32 | % | |
| 70°C, 22 hr | 50 | % | |
| 125°C, 70 hr | 65 | % | |

| Hardness | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Durometer Hardness | | | ASTM D2240 |
| Shore A, 5 sec, Extruded | 80 | | |
| Shore A, 5 sec, Injection Molded | 84 | | |
| Shore Hardness | | | ISO 868 |
| Shore A, 5 sec, Extruded | 80 | | |
| Shore A, 5 sec, Injection Molded | 84 | | |

| Thermal | Nominal Value | Unit | Test Method |
|---|---|---|---|
| RTI Elec | 50.0 | °C | UL 746B |
| RTI Imp | 50.0 | °C | UL 746B |
| RTI Str | 50.0 | °C | UL 746B |

| Aging | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Change in Tensile Strength in Air - Across Flow | | | ASTM D573 |
| 135°C, 1000 hr | -9.0 | % | |
| 100% Strain, 135°C, 1000 hr | 17 | % | |
| 150°C, 168 hr | -8.0 | % | |
| 100% Strain, 150°C, 168 hr | 9.0 | % | |
| Change in Tensile Strength in Air - Across Flow | | | ISO 188 |
| 135°C, 1000 hr | -9.0 | % | |
| 100% Strain 135°C, 1000 hr | 17 | % | |
| 150°C, 168 hr | -8.0 | % | |
| 100% Strain 150°C, 168 hr | 9.0 | % | |
| Change in Ultimate Elongation in Air - Across Flow | | | ASTM D573 |
| 135°C, 1000 hr | -15 | % | |
| 150°C, 168 hr | -16 | % | |
| Change in Tensile Strain at Break in Air - Across Flow | | | ISO 188 |
| 135°C, 1000 hr | -15 | % | |
| 150°C, 168 hr | -16 | % | |

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| Aging | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Change in Durometer Hardness in Air | | | ASTM D573 |
| Shore A, 135°C, 1000 hr | 0.0 | | |
| Shore A, 150°C, 168 hr | 2.0 | | |
| Change in Shore Hardness in Air | | | ISO 188 |
| Shore A, 135°C, 1000 hr | 0.0 | | |
| Shore A, 150°C, 168 hr | 2.0 | | |
| Change in Volume (125°C, 70 hr, in IRM 903 Oil) | 95 | % | ASTM D471 |
| Change in Volume (125°C, 70 hr, in IRM 903 Oil) | 95 | % | ISO 1817 |

| Flammability | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Flame Rating (1.5 mm, Natural and Black Colors) | HB | | UL 94 |

| Additional Information | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Apparent Shear Viscosity | | | |
| Capillary : 200°C | 290 | Pa·s | ASTM D3835 |
| Capillary, @ 206/s : 200°C | 290 | Pa·s | ISO 11443 |

**Legal Statement**



## 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

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### Notes

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

[2] Method Ba, Angle (Unnicked)


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Revision Date: 4/9/2018