AvaSpire® AV-755 SL45
polyaryletherketone

AV-755 SL45 is a wear resistant grade of AvaSpire® polyaryletherketone (PAEK) designed to provide low wear rates and high pressure-velocity (PV) tolerance in lubricated wear environments. Like the other members of the AvaSpire® AV-700 series, AV-755 SL45 offers more attractive economics than PEEK while retaining most of PEEK's key attributes. In addition to the outstanding wear resistance, the resin also offers the outstanding combination of chemical resistance, mechanical strength and stiffness at elevated temperatures, as well as long-term and high temperature thermal-oxidative stability. AV-755 SL45 is formulated with a binary anti-friction/anti-wear additive system comprised of carbon fiber and graphite. By virtue of its additive system, this resin also offers, exceptionally high stiffness and very low moisture absorption.

Potential applications for AV-755 SL45 include bushings, bearings, wear strips, wear rings, rollers, and other parts used in sliding friction components.

This high flow (low viscosity) resin is black.

General		
Material Status	• Commercial: Active	
Availability	• Africa & Middle East • Asia Pacific • Europe	• Latin America • North America
Additive	• Carbon Fiber + Graphite Lubricant	
Features	• Chemical Resistant • Flame Retardant • Good Dimensional Stability	• High Heat Resistance • Wear Resistant
Uses	• Automotive Applications • Bearings • Bushings • Rollers	• Seals • Thrust Washer • Wear Strip
RoHS Compliance	• RoHS Compliant	
Appearance	• Black	
Forms	• Pellets	
Processing Method	• Injection Molding • Machining	• Profile Extrusion

Physical	Typical Value	Unit	Test method
Density / Specific Gravity	1.53		ASTM D792
Melt Mass-Flow Rate (MFR) (400°C/2.16 kg)	1.0	g/10 min	ASTM D1238
Molding Shrinkage[1]			ASTM D955
Flow : 3.18 mm	0.0 to 0.20	%	
Across Flow : 3.18 mm	1.2 to 1.4	%	
Water Absorption (24 hr)	0.010	%	ASTM D570

Mechanical	Typical Value	Unit	Test method
Tensile Modulus			
-- [2]	33600	MPa	ASTM D638
--	30400	MPa	ISO 527-1/1A/1
Tensile Stress			
Yield	173	MPa	ISO 527-2/1A/5
-- [2]	169	MPa	ASTM D638
Tensile Elongation			
Break [2]	0.90	%	ASTM D638
Break	0.90	%	ISO 527-2/1A/5
Flexural Modulus			
--	25900	MPa	ASTM D790
--	30200	MPa	ISO 178
Flexural Strength			
--	250	MPa	ASTM D790
--	266	MPa	ISO 178
Compressive Strength	120	MPa	ASTM D695
Shear Strength	70.0	MPa	ASTM D732
Coefficient of Friction			ASTM D3702
-- [3]	0.34		
-- [4]	0.12		
-- [5]	0.050		

Impact	Typical Value	Unit	Test method
Notched Izod Impact			
--	53	J/m	ASTM D256
--	6.8	kJ/m²	ISO 180
Unnotched Izod Impact			
--	320	J/m	ASTM D4812
--	25	kJ/m²	ISO 180

Hardness	Typical Value	Unit	Test method
Rockwell Hardness (M-Scale)	88		ASTM D785

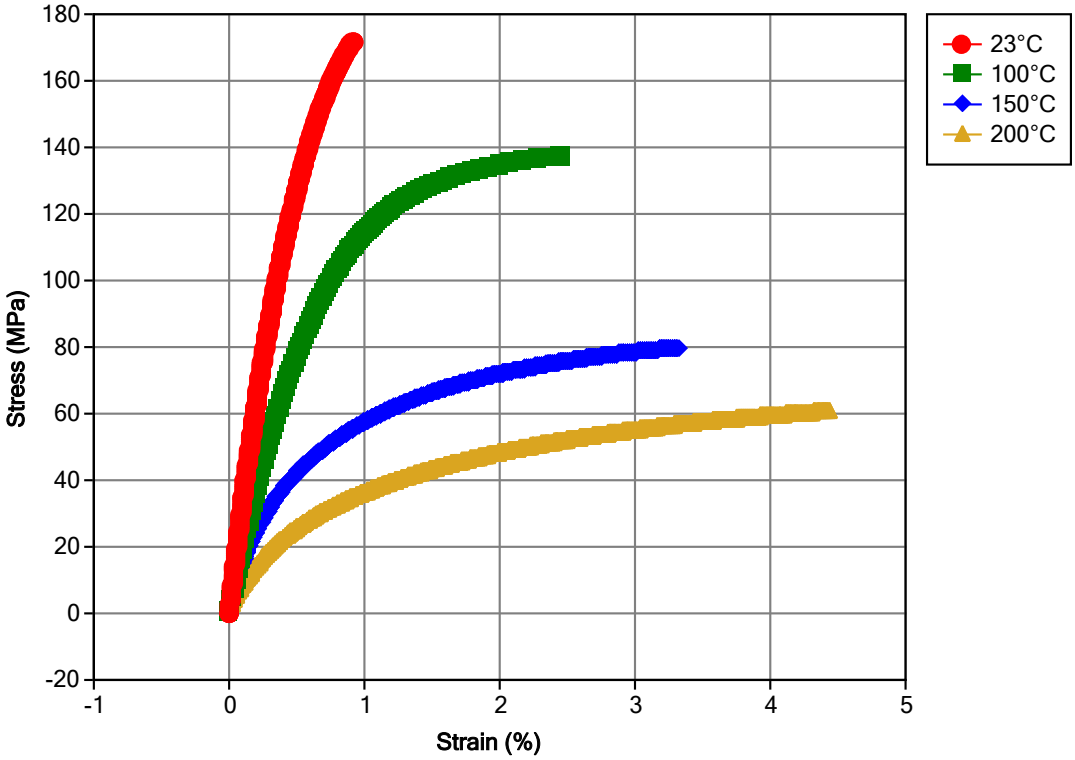
Thermal	Typical Value	Unit	Test method
Deflection Temperature Under Load [6]			ASTM D648
1.8 MPa, Annealed, 3.20 mm	278	°C	
Glass Transition Temperature	152	°C	ASTM D3418
Peak Melting Temperature	343	°C	ASTM D3418
CLTE - Flow (-50 to 50°C)	7.0E-6	cm/cm/°C	ASTM E831
Specific Heat			DSC
50°C	1170	J/kg/°C	
200°C	1610	J/kg/°C	
Thermal Conductivity	0.70	W/m/K	ASTM E1530

Fill Analysis	Typical Value	Unit	Test method
Melt Viscosity (400°C, 1000 sec^-1)	600	Pa·s	ASTM D3835

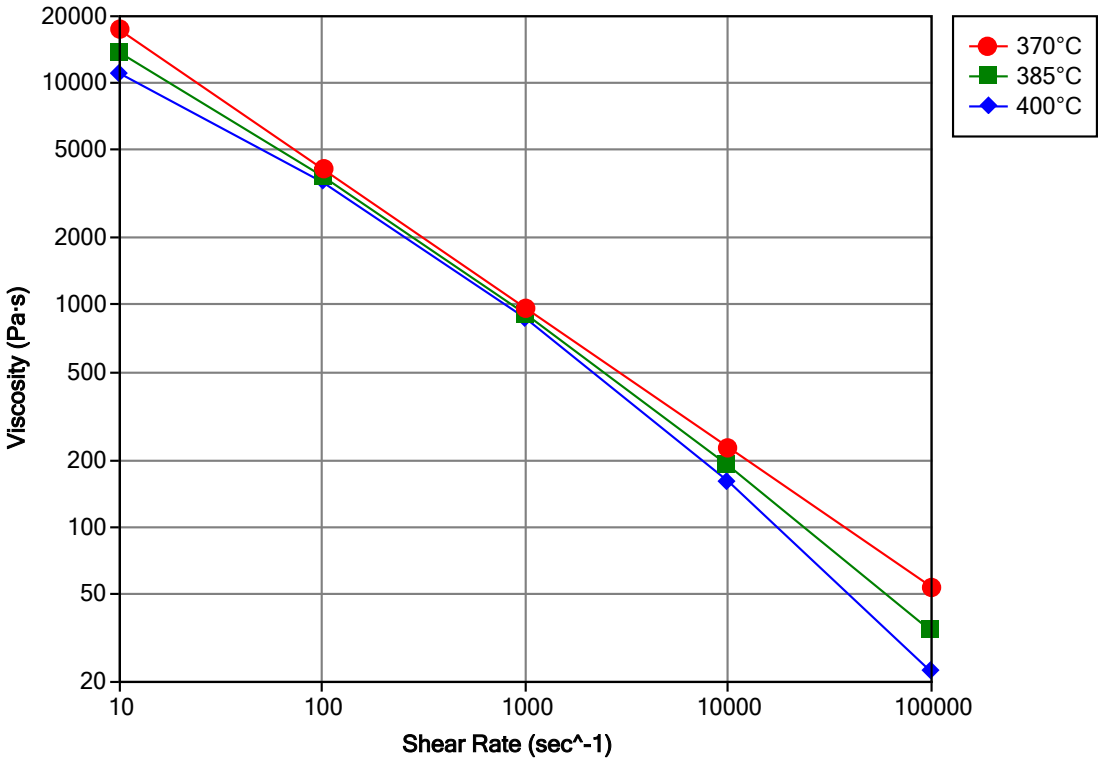
Injection	Typical Value	Unit
Drying Temperature	149	°C
Drying Time	4.0	hr
Rear Temperature	354	°C
Middle Temperature	366	°C
Front Temperature	371	°C
Nozzle Temperature	374	°C
Processing (Melt) Temp	366 to 388	°C
Mold Temperature	149 to 177	°C
Injection Rate	Fast	
Screw Compression Ratio	2.0:1.0 to 3.0:1.0	

Injection Notes
Back Pressure: Minimum

Isothermal Stress vs. Strain (ISO 11403)



Viscosity vs. Shear Rate (ISO 11403)



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Notes

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

[1] 5" x 0.5" x 0.125" bars

[2] 5.0 mm/min

[3] Dry conditions: 800 fpm and 31.25 psi (4.06 m/s and 215 kPa). Not recommended at 50 fpm and 500 psi (0.25 m/s and 3447 kPa).

[4] Lubricated conditions: 75 fpm and 1000 psi (0.38 m/s and 6895 kPa)

[5] Lubricated conditions: 800 fpm and 750 psi (6.06 m/s and 5171 kPa)

[6] 2 hours at 200°C

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