Hyflon® PFA F1520
perfluoropolymer

Hyflon® F is a unique new family of PFA polymers which combine excellent mechanical characteristics to unique properties such as chemical inertness, high flexural endurance, inherent flame resistance, low surface energy and exceptional dielectric properties.

Hyflon® PFA F1520 is a low melt flow rate multi purpose resin with an exceptional stress crack resistance, continuous service temperature up to 225°C and a 100-150x10³ cycles flex-life (on a 0.3mm flim, ASTM D2176).

Hyflon® PFA F 1520 is an ASTM D3307-16 Type X resin.

General		
Material Status	• Commercial: Active	
Availability	• Africa & Middle East • Asia Pacific • Europe	• Latin America • North America
Features	• Flame Retardant • Good Flexibility	• High ESCR (Stress Crack Resist.) • Low Flow
Uses	• General Purpose	• Wire & Cable Applications
RoHS Compliance	• RoHS Compliant	
Forms	• Pellets	
Processing Method	• Extrusion Coating	

Physical	Typical Value	Unit	Test method
Density / Specific Gravity	2.11 to 2.16		ASTM D792
Melt Mass-Flow Rate (MFR) (372°C/5.0 kg)	1.0 to 4.0	g/10 min	ASTM D1238

Mechanical	Typical Value	Unit	Test method
Tensile Modulus [1] (23°C)	400 to 500	MPa	ASTM D3307
Tensile Strength [2] (Break, 23°C)	> 30.0	MPa	ASTM D3307
Tensile Elongation [2] (Break, 23°C)	> 300	%	ASTM D3307
Flex Life [3]	1.0E+5 to 1.5E+5	Cycles	ASTM D2176

Impact	Typical Value	Unit
Charpy Notched Impact Strength	No Break	

Hardness	Typical Value	Unit	Test method
Durometer Hardness (Shore D)	55 to 60		ASTM D2240

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Thermal	Typical Value	Unit	Test method
Melting Temperature	265 to 275	°C	ASTM D3307
Peak Crystallization Temperature (DSC)	255 to 265	°C	DSC
CLTE - Flow	1.2E-4 to 2.0E-4	cm/cm/°C	ASTM D696
Specific Heat (23°C)	900 to 1100	J/kg/°C	DSC
Thermal Conductivity (40°C)	0.20	W/m/K	ASTM C177
Crystallization Heat	16.0 to 24.0	J/g	DSC
Heat of Fusion	16.0 to 24.0	J/g	DSC

Electrical	Typical Value	Unit	Test method
Surface Resistivity	> 1.0E+17	ohms	ASTM D257
Volume Resistivity	> 1.0E+17	ohms·cm	ASTM D257
Dielectric Strength [4] (1.00 mm)	35 to 40	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
23°C, 50 Hz	2.00		
23°C, 100 kHz	2.00		
Dissipation Factor			ASTM D150
23°C, 50 Hz	< 5.0E-4		
23°C, 100 kHz	< 5.0E-4		

Flammability	Typical Value	Unit	Test method
Flame Rating	V-0		UL 94
Oxygen Index	95	%	ASTM D2863

Additional Information

COLOR MASTER BATCHES

- We recommend that only Color Master Batches based in Hyflon PFA be used. Master Batches based on other fluoropolymers can negatively influence the superior processing and electrical performance of the resin. A list of suppliers can be obtained from your Syensqo sales representative.

HEALTH SAFETY AND ENVIRONMENT

- Hyflon PFA F1520 is a very inert polymer and it is not harmful if used and handled according to standard processing procedures. If handled inappropriately, it may release harmful toxic chemicals.
- Hyflon PFA F1520 does not contain any RoHS or WEEE substances. Hyflon MFA F1520 is not produced using APFO and contains no APFO. Please refer to the Material Safety Data Sheets for more information on handling and safety.

PACKAGING AND STORAGE

- Hyflon PFA F1520 resin is available in 25 kg (55 lbs) and 500 kg (1102 lbs) packaging. Though it has an indefinite shelf life, it is recommended to store it in a clean area, protected by direct sun light and possible contamination.

Extrusion	Typical Value	Unit
Cylinder Zone 1 Temp.	240 to 290	°C
Cylinder Zone 2 Temp.	270 to 320	°C
Cylinder Zone 3 Temp.	300 to 360	°C
Cylinder Zone 4 Temp.	320 to 380	°C
Cylinder Zone 5 Temp.	340 to 390	°C

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Extrusion	Typical Value	Unit
Flange Temperature	370 to 400	°C
Adapter Temperature	370 to 400	°C
Melt Temperature	400	°C
Die Temperature	390 to 420	°C

Extrusion Notes

EXTRUSION PROCESSING GUIDELINES

- As with other fluoropolymers, Hyflon MFA is corrosive in the melt. Therefore all parts coming into prolonged contact with the melt should be made with corrosion resistant materials such as Hastelloy®, Inconel®, Monel® or Xaloy®. Chrome or nickel plating is not recommended since they are typically only sufficient for brief processing tests.

- F1520 is suitable for extrusion using techniques normally applied for other thermo-processable plastics, provided that the extruder is equipped with corrosion resistant alloys. Extruders with L/D ratio of 20:1 to 30:1 are recommended. Extruders should be equipped with independently controlled heaters capable of accurate temperature control up to 450°C (840°F). An overview of the temperature, tooling and equipment requirements are in the following tables.

- Many different screw designs can be used. Single-flight screws are recommended while barrier-flights should be avoided. A typical screw design consist of a long feed section (at least 12 flights), followed by a 2 to 6 flight transition and a 5 to 7 flight metering section.

Notes

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

[1] 1.0 mm/min

[2] 50 mm/min

[3] 0.3 mm film

[4] 50 Hz

www.syensqo.com

Safety Data Sheets (SDS) are available by emailing us or contacting your sales representative. Always consult the appropriate SDS before using any of our products.