Hyflon® MFA® F1520

Perfluoropolymer

Solvay Specialty Polymers

Message:

Hyflon® F is a unique new family of MFA 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® MFA 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 100-150x10^3 cycles flex-life (on a 0.3mm flim, ASTM D2176).

General Information			
UL YellowCard	E109081-100037830		
Features	High ESCR (Stress Cracking Resistance) Good flexibility Low liquidity Flame retardancy		
Uses	Wire and cable applications General		
RoHS Compliance	RoHS compliance		
Forms	Particle		
Processing Method	Extrusion coating		
Physical	**Nominal Value**	**Unit**	**Test Method**
Specific Gravity	2.10 - 2.15	g/cm^3	ASTM D792
Melt Mass-Flow Rate (MFR) (372°C/5.0 kg)	1.0 - 4.0	g/10 min	ASTM D1238
Hardness	**Nominal Value**	**Unit**	**Test Method**
Durometer Hardness (Shore D)	55 - 60		ASTM D2240
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus [1] (23°C)	400 - 500	MPa	ASTM D3307
Tensile Strength [2] (Break, 23°C)	> 30.0	MPa	ASTM D3307
Tensile Elongation [3] (Break, 23°C)	> 300	%	ASTM D3307
Bending life [4]	1.0E+5 - 1.5E+5	Cycles	ASTM D2176
Heat of crystallization	16.0 - 24.0	J/g	DSC
Heat of Fusion	16.0 - 24.0	J/g	DSC
Flange temperature	370 - 400	°C	
Impact	**Nominal Value**	**Unit**	**Test Method**
Charpy Notched Impact Strength	No Break		
Thermal	**Nominal Value**	**Unit**	**Test Method**
Melting Temperature	265 - 275	°C	ASTM D3307
Peak Crystallization Temperature (DSC)	255 - 265	°C	DSC
CLTE - Flow	1.2E-4 - 2.0E-4	cm/cm/°C	ASTM D696

Specific Heat (23°C)	900 - 1100	J/kg/°C	DSC
Thermal Conductivity (40°C)	0.20	W/m/K	ASTM C177

Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+17	ohms	ASTM D257
Volume Resistivity	> 1.0E+17	ohms·cm	ASTM D257
Dielectric Strength [5] (1.00 mm)	35 - 40	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
23°C, 50 Hz	2.00		ASTM D150
23°C, 100 kHz	2.00		ASTM D150
Dissipation Factor			ASTM D150
23°C, 50 Hz	< 5.0E-4		ASTM D150
23°C, 100 kHz	< 5.0E-4		ASTM D150

Flammability	Nominal 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 MFA 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 Solvay sales representative.
HEALTH SAFETY AND ENVIRONMENT
Hyflon MFA 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 MFA 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 MFA 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	Nominal Value	Unit
Cylinder Zone 1 Temp.	240 - 290	°C
Cylinder Zone 2 Temp.	270 - 320	°C
Cylinder Zone 3 Temp.	300 - 360	°C
Cylinder Zone 4 Temp.	320 - 380	°C
Cylinder Zone 5 Temp.	340 - 390	°C
Adapter Temperature	370 - 400	°C
Melt Temperature	400	°C
Die Temperature	390 - 420	°C

Extrusion instructions

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.

NOTE

1.	1.0 mm/min
2.	50 mm/min
3.	50 mm/min
4.	0.3mm film
5.	50Hz

Recommended distributors for this material

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