Hyflon® PFA M640
perfluoroalkoxy

Hyflon® PFA is a unique family of semi-crystalline, melt processable perfluoropolymers which combine excellent mechanical characteristics to unique properties such as chemical inertness, heat resistance, inherent flame resistance, low surface energy, and exceptional dielectric properties. Hyflon® PFA resins have been designed to retain their properties over a wide range of temperatures from cryogenic to 250-260°C (482-500°F) and are the material of choice in applications such as linings in the Chemical Process Industry, specialty cables, semiconductor industry, aerospace, and other challenging industries.

Hyflon® PFA M640 is a high melt flow rate multi-purpose resin designed for pipe, cable, and stock shapes extrusion, injection, compression, and transfer molding. Hyflon® PFA M640 has obtained UL758 recognition for continuous use at 250°C (482°F) and is an ASTM D3307 - Type VII resin.

General		
Material Status	• Commercial: Active	
Availability	• Africa & Middle East • Asia Pacific • Europe	• Latin America • North America
Features	• Flame Retardant • High Heat Resistance	• Low Flow • Semi Crystalline
Uses	• Aerospace Applications • Cable Jacketing • Liners	• Piping • Semiconductor Applications
Agency Ratings	• ASTM D3307, Type VII	• UL 758
Forms	• Pellets	
Processing Method	• Compression Molding • Extrusion	• Injection Molding • Resin Transfer Molding

Physical	Typical Value	Unit	Test method
Density / Specific Gravity	2.13 to 2.18		ASTM D792
Melt Mass-Flow Rate (MFR) (372°C/5.0 kg)	10 to 17	g/10 min	ASTM D1238

Mechanical	Typical Value	Unit	Test method
Tensile Modulus[1] (23°C)	500 to 600	MPa	ASTM D1708
Tensile Strength (Break, 23°C)	> 21.0	MPa	ASTM D1708
Tensile Elongation (Break, 23°C)	> 280	%	ASTM D1708
Flex Life (300.0 µm)	4.0E+3 to 6.0E+3	Cycles	ASTM D2176

Impact	Typical Value	Unit	Test method
Charpy Notched Impact Strength	No Break		ASTM D256

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
Continuous Use Temperature	250	°C	
Melting Temperature	280 to 290	°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	18.0 to 26.0	J/g	DSC
Heat of Fusion	18.0 to 26.0	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	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

PROCESSING

- Because PFA is corrosive in the melt, machinery used to process Hyflon® should be lined with corrosion resistant alloys. Clean, reworked material can be used up to 25% in weight.

HEALTH SAFETY AND ENVIRONMENT

- Hyflon® PFA M640 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. Please refer to the Material Safety Data Sheets for more information on handling and safety.

PACKAGING AND STORAGE

- Hyflon® PFA M640 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 from direct sunlight and possible contamination.

Notes

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

[1] 1.0 mm/min

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