

# Hyflon® PFA M640

Perfluoroalkoxy

Solvay Specialty Polymers

## Message:

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 low 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 Information			
UL YellowCard	E109081-218802		
Features	Semicrystallization		
	Low liquidity		
	Heat resistance, high		
	Flame retardancy		
Uses	Semiconductor molding compound		
	Lining		
	Cable sheath		
	Piping system		
	Aerospace applications		
Agency Ratings	ASTM D 3307, Class VII		
	UL 758		
Forms	Particle		
Processing Method	Extrusion		
	Resin transfer molding		
	Compression molding		
	Injection molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	2.12 - 2.17	g/cm <sup>3</sup>	ASTM D792
Melt Mass-Flow Rate (MFR) (372°C/5.0 kg)	10 - 17	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 <sup>1</sup> (23°C)	500 - 600	MPa	ASTM D1708
Tensile Strength (Break, 23°C)	> 21.0	MPa	ASTM D1708

Tensile Elongation (Break, 23°C)	> 280	%	ASTM D1708
Bending life (300.0 μm)	4.0E+3 - 6.0E+3	Cycles	ASTM D2176
Heat of crystallization	18.0 - 26.0	J/g	DSC
Heat of Fusion	18.0 - 26.0	J/g	DSC
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength	No Break		ASTM D256
Thermal	Nominal Value	Unit	Test Method
Continuous Use Temperature	250	°C	
Melting Temperature	280 - 290	°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	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			
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.			
NOTE			
1.	1.0 mm/min		

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