Hyflon® MFA® 1041

Perfluoropolymer

Solvay Specialty Polymers

Message:

Hyflon® MFA 1041 is a high extrusion speed resin specifically designed for insulation for plenum-rated LAN cables. MFA 1041 delivers superior electrical performance in addition to its excellent fire characteristics, physical properties, and processing. The unique chemical structure of MFA provides the superior properties necessary for the increasingly demanding telecommunications industry.
Cables manufactured with MFA 1041 have met the Telecommunications Industry Association (TIA) Category 6 standard. The extremely low attenuation of MFA 1041 makes it a logical choice for the developing Augmented Category 6 standard. Cables made from MFA 1041 have met the fire performance requirements called out in NFPA 90a ("Standard for Air- Conditioning and Ventilating Systems").
Hyflon® MFA 1041 is not recommended for heavy wall applications where significant thermal stress crack resistance is required.

General Information			
Features	Good electrical performance Flame retardancy		
Uses	Wire and cable applications Pipe fittings Communication Equipment		
Agency Ratings	NFPA Code 90a		
RoHS Compliance	RoHS compliance		
Forms	Particle		
Processing Method	Extrusion coating		
Physical	**Nominal Value**	**Unit**	**Test Method**
Specific Gravity	2.12 - 2.17	g/cm³	ASTM D792
Melt Mass-Flow Rate (MFR) (372°C/5.0 kg)	22 - 28	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)	500 - 600	MPa	ASTM D1708
Tensile Strength (Break, 23°C)	> 20.0	MPa	ASTM D1708
Tensile Elongation (Break, 23°C)	> 280	%	ASTM D1708
Bending life [2]	6.0E+2 - 1.0E+3	Cycles	ASTM D2176
Heat of Fusion	18.0 - 26.0	J/g	DSC
Latent heat	970	J/g	NFPA 259
Flange temperature	390 - 400	°C	
Cross nose temperature	390 - 410	°C	
Steel wire preheating	100 - 130	°C	
Impact	**Nominal Value**	**Unit**	**Test Method**
Charpy Notched Impact Strength	No Break		
Thermal	**Nominal Value**	**Unit**	**Test Method**

Melting Temperature	280 - 290	°C	ASTM D3307
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 [3]	35 - 40	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
23°C, 1 MHz	2.00		ASTM D150
23°C, 850 MHz	2.00		ASTM D150
23°C, 2.10 GHz	2.00		ASTM D150
Dissipation Factor			ASTM D150
23°C, 1 MHz	2.0E-4		ASTM D150
23°C, 850 MHz	2.0E-4		ASTM D150
23°C, 2.10 GHz	9.0E-4		ASTM D150
Flammability	**Nominal Value**	**Unit**	**Test Method**
Flame Rating	V-0		UL 94
Oxygen Index	95	%	ASTM D2863
Additional Information	**Nominal Value**	**Unit**	**Test Method**

COLOR MASTER BATCHES

We recommend that only Color Master Batches based in MFA 1041 be used. Master Batches based on other fluoropolymers can negatively influence the superior processing and electrical performance of MFA 1041. A list of suppliers can be obtained from your Solvay sales representative.

HEALTH SAFETY AND ENVIRONMENT

Hyflon MFA 1041 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. MFA 1041 is not produced using APFO and contains no APFO. MFA also complies with Directive 2002/95/EC ("Restrictions of hazardous substances in waste from electrical and electronic equipment" - RoHS), Directive 2000/53/EC ("End of life of vehicles" - ELV) and Directive 76/769/EEC ("Restrictions on the marketing and use of certain dangerous substances and preparations"), as subsequently amended.

PACKAGING AND STORAGE

Hyflon MFA 1041 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.	250 - 290	°C
Cylinder Zone 2 Temp.	290 - 330	°C
Cylinder Zone 3 Temp.	340 - 360	°C
Cylinder Zone 4 Temp.	360 - 390	°C
Cylinder Zone 5 Temp.	375 - 395	°C
Adapter Temperature	390 - 400	°C
Melt Temperature	400	°C
Die Temperature	400 - 420	°C
Extrusion instructions		

WIRE AND CABLE 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.

MFA 1041 is applied onto wire using tubing extrusion techniques similar to other thermoplastic materials. An overview of the temperature, tooling and equipment requirements are in the following tables.

MFA can be processed with many different screw designs. Single-flight screws are recommended while barrierflights should be avoided. A typical screw design consist of a long feed section, followed by a 2 to 6 flight transition and a 5 to 7 flight metering section. The addition of a Saxton mixing or other block mixing sections can improve the processing performance.

EQUIPMENT/TOOLING REQUIREMENTS

Line Speed: 1,500-2,500 ft/min (450-750 m/min)

Draw Down Ratio: 80-120

Draw balance: 0.98-1.05

Extruder: L/D 24/1-30/1

Screen pack: Breaker plate only is required

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

Recommended distributors for this material

Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China

WECHAT