3M™ Dyneon™ Fluoroplastic PVDF 11010/0000

Features and Benefits

- Good flexibility and mechanical strength in extruded tubing
- Flareability of extruded tubing
- Good chemical resistance to acids, bases, alcohols
- Meets requirements of Factory Mutual Standard FM 4910
- NSF 61 Certification

Note: Data in this document are not for specification purposes.

Typical Properties

Property	Test Conditions	Test Method	
Density		ISO 1183	1.78 g/cm^3
H_2O absorption	24 hr @ 23°C	ISO 62 (Method 1)	<0.04%
Melt Flow Index	230°C, 10 kg	ASTM D1238	
	230°C, 5 kg	ASTM D1238	6 g/10 min
	230°C, 2.16 kg	ASTM D1238	2 g/10 min
Tensile Stress at Yield	23°C, 50 mm/min	ASTM D638	27 MPa (3,990 psi)
Tensile Stress at Break	23°C, 50 mm/min	ASTM D638	30 MPa (4,350 psi)
Elongation at Break	23°C, 50 mm/min	ASTM D638	400%
Flexural Strength	23°C, 50 mm/min	ASTM D790	37 MPa (5,365 psi)
Flexural Modulus	23°C, 2 mm/min	ASTM D790	900 MPa (130,500 psi)
Melting Point [1]		ASTM D3418	160°C (320°F)
VICAT Point [2]	1 kg load	ISO 306	150°C (302°F)
Deflection Temperature [3]	Load 0.46 MPa	ASTM D648	100°C (212°F)
	Load 1.82 MPa	ASTM D648	52°C (126°F)
UL - 94 Flammability Test		UL - 94	V-0 Class
Limiting Oxygen Index (LOI) (Sheet 3 mm Thick)		ASTM D2863	44%

[1] Melting point crystallinity by DSC
[2] VICAT point with 1 kg load at 4 mm thick
[3] Deflection temperature at 4 mm thick with a load of 0.46 MPa, after annealing

Chemical Resistance of 11010/0000 Chemical Reagents*

Chemical	Percentage	23°C	80°C
HF	43%	+	+
HCl	37%	+	+
H_2SO_4	96%	+	o
H_2O_2	30%	o	-
H_3PO_4	60%	+	+
IPA(1)	100%	+	N/A

(1) iso-propyl alcohol
* Additional chemical resistance information can be found in the PVDF Comparison Guide.

Key to chart
+ = Product is resistant, weight increase <2%, tensile yield strength change <15%, and weight reduction <0.3%
o = Product has limited use because it may not fully meet the requirements of the chemical resistance noted above. For example, weight changes may be 2-5%, tensile yield strength change may be >15%, and weight reduction may not meet the 0.3% limit.
- = Product is not resistant to the chemical at the indicated temperature

Product Description

3M™ Dyneon™ PVDF 11010/0000 is a copolymer of VF_2 and HFP (hexafluoropropylene). Recommended for flared tubing, it combines excellent chemical resistance, and dimensional stability with a moderate degree of flexibility. PVDF is ideal for multiple applications across a wide array of industries. Widely used in the chemical process industry, wire and cable industry, semiconductor industry, and oil and gas industry, PVDF is also gaining recognition in automotive, building, electronics, food processing, and pharmaceutical equipment and battery applications.

Product Features

PVDF 11010/0000 has excellent chemical resistance to most aggressive substances and solvents. As with all PVDF products, 11010/0000 has outstanding mechanical strength and toughness, high abrasion resistance, exceptional aging resistance, resistance to UV and nuclear radiation, and low permeability to most gases and liquids. Additionally, PVDF 11010/0000 can be processed via most standard melt extrusion techniques and produces smooth, anti-fouling surfaces. PVDF 11010/0000 possesses excellent low flame and low smoke properties and is capable of operating in temperatures up to 150°C.

Storage and Material Handling

PVDF 11010/0000 has an unlimited shelf life provided it is stored in a clean, dry place. PVDF 11010/0000 is hydrophobic, and generally does not require drying before processing unless high humidity conditions create surface moisture adsorption.

Safety/Toxicology

This is a fluoroplastic material so normal precautions observed with fluoroplastics should be followed. Before processing this product, read the Material Safety Data Sheet and label. Follow all directions and handling precautions. General handling/processing precautions include: (1) Process only in well ventilated areas, (2) do not smoke in areas contaminated with powder/residue from these products; (3) avoid eye contact; (4) after handling these products wash any contacted skin with soap and water.

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