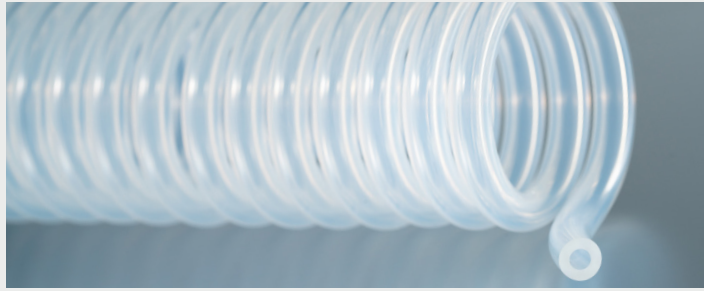


# FEP

## FEP – Fluorinated Ethylene Propylene



FEP tubing also can be formed post-extrusion for a variety of industry applications and customized solutions.

## Overview

The development of PTFE (polytetrafluoroethylene) was a significant breakthrough in polymer science. The special processing requirements of PTFE led researchers to develop a melt-processable version of PTFE resulting in FEP. This new resin was compatible with existing processing methods and equipment. Melt processability also allowed for long continuous extrusions of FEP in applications such as wire and cable.

While similar to PTFE in many of its properties, FEP has its own preferred attributes. It has a slightly higher coefficient of friction, lower continuous service temperature, and is more transparent than PTFE. FEP also offers lower gas and vapor permeability properties and excellent UV resistance.

FEP's excellent attributes make it ideal for a diverse range of applications from environmental monitoring equipment to medical devices.

### FILLERS AVAILABLE WITH FEP EXTRUSIONS:

- Radio-opaque (bismuth & barium)
- Carbon
- UV inhibitors
- Pigments
- More available upon request



CHEMICAL RESISTANCE



DIELECTRIC STRENGTH



GAS PERMEABILITY

## Applications

- Catheter componentry
- Wire and cable insulation
- Analytical and fluid management tubing
- Protection for fiber optics

## Products

- Tubing
- Sub-Lite-Wall™ tubing and heat shrink
- Custom profiles
- Heat shrink AMS-DTL-23053/11
- Monofilament
- Drawn fiber
- Multi-Lumens
- Co-extrusions
- Convoluted tubing (AS 81914)
- Coated optical fiber




## Key Properties

- Excellent coefficient of friction
- Chemically resistant
- Gamma, ETO, e-beam and autoclave sterilizable
- Maximum working temperature  
392 °F / 200 °C
- Lower gas/vapor permeability than PTFE
- More translucent as compared to PTFE
- Biocompatible: USP Class VI Certified












# FEP






## FEP – Fluorinated Ethylene Propylene

| PHYSICAL   |                      | ASTM  | FEP         |
|--|----------------------|-------|-------------|
|  | Density (g/cc)       | D792  | 2.12 - 2.17 |
|  | Water Absorption (%) | D570  | ≤ 0.01      |
|  | Oxygen Index (%)     | D2863 | ≥ 95        |

The information presented in this publication is believed to be accurate and is not intended to constitute a specification. Property characteristics are dramatically impacted by geometry and processing method, thus properties of extruded parts may vary. In some instances, data may not be available for publication and will be notated as “na” where applicable. These tables are meant to serve as a general guideline only. Users should evaluate the material to determine suitability for their own particular application.

| MECHANICAL   |                                 | ASTM  | FEP          |
|--|---------------------------------|-------|--------------|
|    | Hardness, Shore D               | D2240 | 55 - 56      |
|    | Ultimate Tensile Strength (MPa) | D638  | 19.6 - 34.32 |
|    | Elongation at Break (%)         | D638  | 300 - 400    |
|    | Modulus of Elasticity (MPa)     | D638  | 343          |
|   | Flexural Modulus (MPa)          | D790  | 539 - 637    |
|  | Coefficient of Friction         | D1894 | 0.04 - 0.06  |

| ELECTRICAL   |                             | ASTM | FEP                      |
|--|-----------------------------|------|--------------------------|
|  | Volume Resistivity (Ω - cm) | D257 | < 1.0 × 10 <sup>18</sup> |
|  | Dielectric Constant 1 MHz   | D150 | 2.03 - 2.10              |
|  | Dielectric Strength (V/mil) | D149 | 500 - 2023               |

| THERMAL  |  | ASTM  | FEP       |
|--|--|-------|-----------|
|  | Thermal Conductivity (W/m - K)                         | C177  | 0.250     |
|  | Maximum Service Temp, Air (°C)                         | na    | 200       |
|  | Melt Temp (°C)   | D4591 | 260 - 275 |
|  | Decomposition Temp (°C)                                | AIR   | 450       |
|  | Coefficient of Thermal Expansion, linear 20° (μm/m-°C) | D696  | 83 - 105  |