



Common Fluoropolymer Comparison Chart

	PTFE	PTFE/PPVE (modified PTFE)	PFA	PVDF
Chemical Name	poly(tetrafluoroethylene)	poly(tetrafluoroethylene–CO–perpropylvinylether)	perfluoroalkoxy	poly(vinylidene fluoride)
Trade Names	<ul style="list-style-type: none"> • Teflon® • Hostaflon® 	<ul style="list-style-type: none"> • Teflon NXT • Hostaflon TFM 	<ul style="list-style-type: none"> • Teflon PFA • Hostaflon TF • Neoflon® PFA 	<ul style="list-style-type: none"> • Kynar® • Solef®
Advantages	<ul style="list-style-type: none"> • Wide range of operating temperatures • Extremely chemical resistant 	<ul style="list-style-type: none"> • Wide range of operating temperatures • Extremely chemical resistant • Resistant to creep • Increased permeation resistance • Weldable 	<ul style="list-style-type: none"> • Wide range of operating temperatures • Very chemical resistant • Melt processable • Better creep resistance than PTFE • Weldable 	<ul style="list-style-type: none"> • Good chemical resistance • High mechanical strength, stiffness and toughness
Limitations	<ul style="list-style-type: none"> • Deformation under load (creep) • Not melt-processable • Not weldable 	<ul style="list-style-type: none"> • Deformation under load (creep) • Not melt-processable 	<ul style="list-style-type: none"> • Not as chemical and temperature resistant as PTFE 	<ul style="list-style-type: none"> • Not as chemical and temperature resistant as PTFE and PFA • Not suitable for applications with heated deionized (DI) water or acids
Typical Operating Ranges	–270 to 260°C –454 to 500°F	–270 to 260°C –454 to 500°F	–200 to 260°C –328 to 500°F	–60 to 150°C –76 to 302°F
Typical Uses	<ul style="list-style-type: none"> • Gaskets • Fittings • Valve bodies • Diaphragms 	<ul style="list-style-type: none"> • Gaskets • Fittings • Valve bodies • Diaphragms 	<ul style="list-style-type: none"> • Gaskets • Fittings • Valve bodies • Tubing 	<ul style="list-style-type: none"> • Fittings • Valve bodies • Tubing
Processing Method	Compression molding and machining to final dimensions	Compression molding and machining to final dimensions	Injection molding	Injection molding



What are the differences among PTFE, Modified PTFE, and PFA?

PTFE is a homopolymer made by polymerizing TFE. Modified PTFE and PFA are both copolymers made by polymerizing TFE and PPVE. Modified PTFE contains less than 1 % PPVE. PFA contains approximately 6 % PPVE.

Why Aren't There Distinctive Names for Each of the Materials?

ASTM D4894-97, Standard Specification for Polytetrafluoroethylene (PTFE) Granular and Ram Extrusions Materials set the precedent by defining PTFE granular molding and ram extrusion resins as homopolymers of TFE or modified homopolymers containing not more than one percent by weight of other fluoropolymers. Therefore, resins such as DuPont's NXT and Dyneon's TFM can be classified as PTFE, a widely recognized and accepted material.

Comparison Chart for Other Fluoropolymers

	PCTFE	FEP	ETFE
Chemical Name	Poly(chlorotrifluoroethylene)	Poly(tetrafluoro-ethylene-CO-hexafluoropropylene)	Poly(ethylene-CO-tetrafluoroethylene)
Trade Name	<ul style="list-style-type: none"> • Neoflon 	<ul style="list-style-type: none"> • Teflon FEP • Hostaflon FEP 	<ul style="list-style-type: none"> • Tefzel® • Hostaflon ET
Advantages	<ul style="list-style-type: none"> • Very stiff • High permeation resistance 	<ul style="list-style-type: none"> • High impact strength • Can be melt processed 	<ul style="list-style-type: none"> • Excellent impact strength
Limitations	<ul style="list-style-type: none"> • Not melt-processable • Low service temperature 	<ul style="list-style-type: none"> • Lower service temperature than PTFE 	<ul style="list-style-type: none"> • Limited resistance to oils, grease, and oxidizing agents
Typical Operating Ranges	-200 to 65°C -328 to 150°F	-250 to 206°C -418 to 402°F	-190 to 150°C -310 to 302°F
Typical Uses	<ul style="list-style-type: none"> • Fittings • Tubing • Films • Packaging 	<ul style="list-style-type: none"> • Cable insulation • Coatings • Packaging film 	<ul style="list-style-type: none"> • Cable insulation • Coatings • Packaging film

Reference Source: *Plastics for Engineers* by Hans Domininghaus; Hanser Publishers, 1988

Swagelok—TM Swagelok Company
 Teflon and Tefzel— TM DuPont
 Hostaflon—TM Dyneon
 Neoflon—TM Daikin
 Kynar—TM Elf Atochem
 Solef— TM Solvay
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 SCS—Catalogs, Product and Technical