

Fluoropolymer-Lined Tanks and Vessels

Sermatech combines state-of-the-art fluoropolymer lining techniques with expertise in rotational molding, injection molding and custom engineered polymeric materials to deliver high quality, cost effective fluoropolymer-lined tanks and vessels in the broadest range of shapes and sizes available on the market today.

Fluoropolymer-lined vessels offer the most economical solution to those applications where resistance to corrosion over a broad temperature range is essential. Additionally, these vessels are ideally suited for high purity applications where it is necessary to keep the process chemicals totally free of contaminants.

Sermatech offers a variety of high performance fluoropolymers — including PTFE, PFA, PVDF and PE — to ensure the most suitable liner material for a range of applications. We offer these lining materials for use in processing equipment manufactured from carbon and low alloy steels, stainless and high alloy steels, and dual laminate constructions.

Typical applications include:

High performance fluoropolymers offer excellent chemical resistance over a wide range of operating temperatures (cryogenic to 500°F (200°C)). When compared to metals, fluoropolymers offer significant performance improvements with

- Columns
- Condensers
- Day Tanks
- Heat Exchangers
- ISO Containers
- Mixers
- Plating
- Tanks
- Railroad Tanks
- Reactors
- Scrubbers
- Separators
- Storage Tanks
- Tank Trailers

respect to abrasion resistance, coefficient of friction, wettability and anti-stick properties. What's more, their moldability and weldability make fluoropolymers ideal for use in the lining of tanks and vessels, providing long service life and low maintenance.

Fluoropolymers also are less expensive than exotic alloy metals and can handle higher temperatures and pressures when compared to fiberglass alternatives. Fluoropolymer linings are impervious to most chemicals and are much less susceptible to cracking due to temper-



All fluoropolymer-lined tanks and vessels are spark tested to detect any cracks or pinholes. Additional testing includes a temperature cycle test, hydrostatic pressure test and visual inspection. Our installation specialists ensure that all finished lined tanks and vessels are totally free of manufacturing defects.

ature cycles or damage caused by physical impact during shipping and installation.

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For more information or to place an order, call Sermatech Texas 713-849-9474.

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Fluoropolymer-Lined Tanks and Vessels

Sermatech uses the following fluoropolymers in tank and vessel lining:

• **PTFE (Polytetrafluoroethylene)**

PTFE is one of the most widely used fluoropolymers in industrial applications. It is chemically inert, resistant to nearly all chemicals and has an exceptionally low coefficient of friction, making it ideal for applications where anti-stick properties are desired.

• **PFA (Perfluoroalkoxy)**

PFA — unlike PTFE — is a thermoplastic but with similar properties to PTFE that provide processing advantages in certain applications. It has a higher maximum service temperature when compared to PTFE, is considered to be less permeable than PTFE, and is excellent for use in high purity (non-contaminating) services.

• **PVDF (Polyvinylidene Fluoride)**

PVDF — a thermoplastic with a maximum service temperature of 212°F (100°C) — has a high tensile strength and heat deflection temperature. Easily welded, it offers high purity (non-contaminating) qualities and is very resistant to permeation. Although PVDF is unsuitable for use in strong alkalies, fuming acids, polar solvents, amines, ketones and esters, it is an excellent lower cost alternative to PTFE or PFA in certain applications.

Liner Materials And Service Temperatures

Liner Material	Thickness		Backing Material	Installation Method	Operating Temp. Range	
	inch	mm			°F	°C
PTFE	0.080	2	Fiberglass	Bonded	-20 to 248	-29 to 120
PTFE	0.120	3	Fiberglass	Bonded	-20 to 248	-29 to 120
PFA	0.080	2	Fiberglass	Bonded	-20 to 302	-29 to 150
PFA	0.120	3	Fiberglass	Bonded	-20 to 302	-29 to 150
PFA	0.080	2	None	Loose	-20 to 302	-29 to 150
PFA	0.120	3	None	Loose	-20 to 302	-29 to 150
PFA	0.080	2	Carbon Fiber	Bonded	-20 to 302	-29 to 150
PFA	0.120	3	Carbon Fiber	Bonded	-20 to 302	-29 to 150
PVDF	0.090	2.3	Polyester	Bonded	-0 to 212	-18 to 100
PVDF	0.120	3	Polyester	Bonded	-0 to 212	-18 to 100

Vacuum Conditions

Note: Fluoropolymer linings are not recommended in vessels where a full or partial vacuum is present unless special precautions are taken. Consult the nearest **Sermatech** application engineer for more information.

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