TECHNICAL DATA SHEET

PTFE

HIGH PERFORMANCE PTFE PLASTIC

PTFE is a plastic produced by suspension or emulsion polymerisation of TFE. In this process, a dispersion or powder is obtained, which can be processed into profiles, fibres, films or surface coating agents. PTFE may also be used as an impregnant or as an improving additive in the manufacture of other materials. PTFE synthesis was patented in 1956 by DuPont under the name Teflon, but this patent has long since expired. Today, PTFE plastic is commonly produced by many global manufacturers, who sell it under their own proprietary brand names, such as Tarflen, Fluon, Tecaflon, Halon, etc.

PTFE FEATURES

PTFE is an easy and safe to use polymeric material. PTFE parts can be easily machined using typical metal or woodworking machines and tools. The most important properties of PTFE products are:

- Wide operating temperature range from -200 to +260°C, high thermal stability, decomposes only above 340°C.
- PTFE is non-flammable, self-extinguishing and non-flammable according to UL 94 class V-0.
- High impact strength and no stick-slip effect.
- Resistant to ageing processes, atmospheric effects and UV and IR radiation.
- Superior insulating properties, specific resistance approx. 10-17 Ω/cm.
- High resistance to electrical breakdown and electric arc, low electrical loss.
- Resistant to almost all solvents and chemical agents in the full range 0-14pH.
- Minimal friction, coefficient of friction 0.06 excellent sliding and anti-stick properties, separates and does not stick.
- Can be sterilised and used in contact with foodstuffs, no water absorption

FEATURES OF THE TWO BASIC TYPES OF PTAFE:

Parameter	Method	Unit	100% PTFE	PTFE 20GR
Density	ASTM D792	g/cm3	2,15 - 2,30	2,20 - 2,35
Mechanical resistance	ASTM D4894	Mpa	22	16
Elongation after fracture	ASTM D4894	%	250	200
Shore D hardness	ASTM D2240	ShD	56	58
Coefficient of friction	ASTM D1894		0,06	0,06
Breakdown voltage	ASTM D149	kV/mm	12	anti-static

FITTINGS ASSORTMENT

The available stock includes the entire range of PTFE applications in industry and equipment service. The sizes range from normative series to specific customer needs.

- Sheets and plates in formats up to 1.8x1.8m, 0.1-100mm thick.
- Bars and cylinders with diameters from 6mm to 800mm.
- Bushings with diameters in the range 20-800mm and heights up to 300mm.
- Tubing and hoses with diameters from 0.5-25mm and wall thicknesses of 0.2-2mm.
- Pure PTFE films in thicknesses from 0,02- 1,5mm and widths up to 1,2m.
- Non-standard elements of any shape, textured surface, specially dyed or modified.

MODIFIED PTFE MATERIAL

PTFE products can be manufactured with the addition of pigments in any colour, with a textured surface or with a special adhesive. The most important, however, are the additives that modify the properties of PTFE.

- Graphite or MoS2, carbon, glass or carbon fibre, bronze additives can extend the service life of PTFE components several times over in certain applications.
- The addition of 10-25% glass fibre increases the strength and hardness of PTFE and reduces its susceptibility to creep and wear at higher temperatures. It is used in machine components.
- The addition of graphite or carbon material in the amount of 5-20% gives antistatic properties and radically increases thermal and electrical conductivity and resistance to frictional wear. Applications: guides, bushings, slides, seals.
- The addition of bronze in the amount of 30-60% increases hardness and mechanical resistance to compression and susceptibility to abrasion. It is used for bushings and slide bearings.

Modified PTFE acquires a characteristic colour: white, brown, grey, black or similar.

USER SAFETY

Fittings made of pure PTFE are physiologically inert and harmless to human health and have health quality certificates. Since many years, these materials have been approved for direct contact with foodstuffs, they comply with Regulation (EC) No. 10/2011 and FDA guidelines and are commonly used in the food industry, packaging, and household appliances. In the case of waste or used parts, it should be considered that PTFE is completely resistant to biodegradation and can remain in the environment for a long time and, if burned, can emit harmful fluorine compounds. PTFE waste should therefore be handled with care and recycled or disposed of in specialised facilities.

AVAILABLE DIMENSIONS OF PTFE RODS AND CYLINDERS

Sheet dimensions	Thickness [mm]	Tolerance
1.2m foil	0,1; 0,2; 0,3; 0,5; 0,7; 1,0	+/- 5%
1,5 x 1,5m	1, 2, 3	+/- 5%
1,2 x 1,2m	0,7; 1; 1,5; 2; 2.5; 3; 4; 5; 6; 8, 10, 12, 15	+/- 5%
1,0 x 1,0m	20, 25, 30, 35, 40, 45	+/- 5%
0,6 x 0,6m	50, 60, 80, 100	+/- 5%
Rods and cylinders	Diameter [mm]	Tolerance
1mb	6, 7, 8, 10, 12, 15, 18, 20, 22, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 80, 90, 100	+/- 8%
1,0 0,5mb	110, 120, 130, 140, 150	+/- 4%
0,3mb	200, 220, 250, 300, 350	+/- 3%