VIRGIN PTFE (POLYTETRAFLUOROETHYLENE)

COLOR MATERIAL

Virgin PTFE preferred for parts and components requiring very good mechanical properties.

This material offers an excellent combination of properties typical of the fluoropolymer resins:
- Service Temperature: offers excellent resistance to continuous service temperatures – working conditions from -100° C (-148°F) up to 250° C (482°F) and, for limited periods, even to higher temperatures; Product's low temperature resistance allows satisfactory performance down to –200° C (-328°F).
- Chemical resistance: offers high inertness towards nearly all known chemicals. Only attacked elemental alkali metals, chlorine trifluoride and elemental fluorine at high temperature and pressures might affect properties.
- Solvents resistance: offers insoluble properties in all solvents up to temperatures as high as 300° C (572° F). Certain highly fluorinated oils only swell and dissolve PTFE at temperatures close to the crystalline melting point.

Properties
- Good mechanical properties
- Excellent chemical resistance
- Exceptional temperature resistance
- Excellent electrical insulating properties
- High limiting oxygen index
- UV resistance
- Extremely non-adhesive
- Reduced friction & wear; Low friction behaviour
- Suitable for food contact
- High degree of hydrophobicity

Main applications
- Virgin PTFE offers useful properties in various applications such as chemical resistance, thermal stability, cryogenic properties, low coefficient of friction, low surface energy, low dielectric constant, high volume and surface resistivity, and flame resistance.

- These properties allow the application of Virgin PTFE in several fields such as Chemical, Eletrical and Electronic, Petrochemical, Automotive, Mechanical, Medical, Aeronautics, Semiconductor and Food industry.

Statement on suitability for contact with foodstuff
FDA Approved US Regulation
- Code of Federal regulation 21 CFR Ch.1; section 177.1550 Perfluorocarbon Resins of the Food and Drug Administration/US.

EU Regulation
- EU 1935/2004 - 10/2011 on plastic materials and articles to come in contact with food.

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Property		Method	Units	Specification
Physical	Color	-	-	White
	Specific gravity	ASTM D792	g/cm ^{3}	2,130 – 2,190
	Water absorption	ASTM D570	%	0,01
	Flamability	UL 94		V-0
Mechanical	Tensile strength	ASTM D4745	MPa	≥ 20
	Elongation	ASTM D4745	%	≥ 200
	Hardness	ASTM D2240	Shore D	≥ 54
	Ball Hardness	ASTM D785	MPa	≥ 23
	Compression strength at 1% deformation	ASTM D695	MPa	≥ 4
	Deformation under load (140 Kg/cm2 for 24 hrs. At 23° C)	ASTM D621	%	10 – 13
	Permanent deformation (after 24 hrs. Relaxation at 23° C)	ASTM D621	%	6 – 7,5
	Coefficient of static friction	ASTM D1894		0,08 – 0,10
	Coefficient of dynamic friction	ASTM D1894		0,06 – 0,08
	Wear factor K	ASTM D3702		2.900
	Wear coefficient	-	$\frac{cm^3 \text{ min } 10^{-8}}{Kg \text{ m h}}$	20000 - 25000
Thermal	Thermal conductivity	ASTM C177	W/ m*K	0,34
	Coefficient of linear thermal expansion From 25 to 100 °C	ASTM D696	10^{-5}/ °C	12 - 15
Electrical	Dielectric strength	ASTM D149	kV/mm	≥ 30
	Volume resistivity	ASTM D257	Ohm*cm	10 ^{18}
	Surface resistivity	ASTM D257	Ohm	10 ^{17}