



**Manufacturer of
PTFE Products...**

THINK BIG.. MOULD BIG..



UNIQUE
POLYMERS
PTFE SHEET DIVISION

ABOUT US

For the most challenging applications your business may encounter, look for “**Unique Polymers**” to provide industry's leading experience, a broad range of PTFE offerings and R&D capabilities. We will deliver the solutions which you need, to be successful. Unique Polymers Is the leading manufacturer of PTFE Products of Vast Range.

We provide these products in India as well as Worldwide, especially to Middle East (through our Dubai office) And East Asian Countries. Unique Polymers Is promoted by team of highly qualified and Experienced Directors And Engineers, having experience of 20+ Years in the field of PTFE.

Unique Polymers dedicated Sales And Business Development Team is well versed with our varied products and all of their Applications. We offer Technical Support to help customers get what they need. We take pride in offering Quality Material, Custom Sizes, and on-time delivery. We Concentrate on result-oriented contribution to our customers through close engagement and forward-looking Solutions.

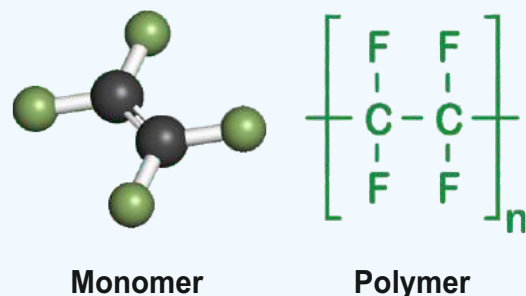
PTFE

PTFE Is High Performance Engineering Polymer invented By Dr. Roy J. Plunkett at Du Pont's Jackson Laboratory, New Jersey, USA, on the 6th April 1938. As the Polymer was found to have exceptional properties with regards to chemical inertness, heat resistance and frictional properties. Developmental Manufacturing begin in 1943 with joint efforts of Kinetic Engineering inc., USA..

PTFE - BASIC PROPERTIES

-  Extreme Chemical Resistance
-  Very Low Coefficient of Friction
-  Wide Temperature Range
-  Excellent Thermal Stability
-  Almost Infinite Shelf Life
-  FDA Approved
-  Non Adhesive Properties

Polytetrafluoroethylene PTFE



PRODUCTS



PTFE MOULDED SHEET

Standard Size : 300 MM² / 400 MM² / 450 MM² / 500 MM² / 600 MM² / 900 MM² / 1000 MM² / 1200 MM²
Special size - 1000 MM X 2000 MM
Thickness : From 1.5 MM to 100 MM
 All Non Standard sizes available as per customer specifications



PTFE BUSHES

Standard Size : OD 12.5 X ID 6 MM to OD 300 X ID 275 MM
Length : 100 MM
 All Non Standard sizes available upto Dia 2000MM & upto 600 MM Length



PTFE GASKETS

Sizes: from OD12.5 MM to OD 2000 MM
 Biggest size Gasket mfg. in INDIA.
Thickness : As per customer specifications
 1. PTFE Envelops Gaskets
 2. PTFE Ready cut Gaskets
 3. PTFE Flange Gaskets



PTFE CIRCLE & DISC

Sizes : Upto Dia 2000 MM & upto Thickness 100MM
 Manufacturing as per customer's Specifications and drawings.
 Also available in all PTFE filled grades.



PTFE SQUARE BLOCK & PAD

Blocks & Pads Manufacturing
 any size upto 2000 MM Length
 & upto 200 MM Thickness



PTFE SHEET (SKIVED)

Standard Size : 300MM W / 450MM W / 600MM W / 1000MM W / 1200MM W / 1500MM W / 2000MM W
Thickness : from 0.1 MM To 6 MM
 All Non Standard sizes available as per customer requirement.



PTFE EXTRUDED ROD

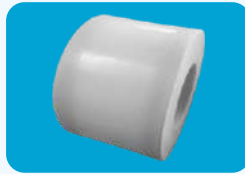
Standard Size : Dia 3 MM To 200 MM
Length : 900 MM To 1000 MM
 Special size available as per customer requirement.



PTFE MACHINE COMPONENTS

Manufacturing machined components
 as per Customer Specifications and as per
 Drawing upto Dia 2000 MM in PTFE & All PTFE Filled Grades.
 This range of machine components
 first time manufacturing in INDIA.

OTHER PTFE PRODUCTS



PHYSICAL PROPERTIES OF PTFE AND FILLED PTFE PRODUCTS

Technical Data Sheet

Physical properties of Virgin PTFE & Filled Grade of PTFE are dependent upon many factors such as Grades of PTFE - Conventional, Modified PTFE or Filled PTFE, Particle size of resin - Fine Cut or Coarse, Particle Shape of Resin - Spherical, Flake, irregular, Type & content of filler, Manufacturing Process - Compression Molding, Ram Extrusion, Isostatic, Paste Extrusion. Due to this - Physical Properties of PTFE & Filled PTFE Products - have the wide range of Values:-

Sr. No.	Property	Unit	Test Method	Virgin PTFE		Chemically Modified PTFE		25% Carbon Filled PTFE		25% Glass Filled PTFE		15% Glass +5% MoS2 Filled PTFE		15% Graphite Filled PTFE		40% Bronze/ TSQ Filled PTFE		40% Bronze + 5% MoS2 Filled PTFE		60% Bronze Filled PTFE	
				1	2	3		4		5		6		7		8		9			
1	Density	gm / cc	ASTM D-792	2.1 – 2.2		2.15 – 2.2		2.0 – 2.2		2.22– 2.25		2.20– 2.24		2.10– 2.16		3.0 – 3.2		3 – 3.2		3.8 – 4.0	
2	Tensile Strength	kgf/cm ²	ASTM D-638	210 – 375		300 – 325		125–200		125– 200		150– 220		150– 200		125– 225		125-225		100– 200	
3	Elongation of Break	%	ASTM D-638	250 – 400		400 – 450		80–150		200-300		220-320		150-250		200-350		200-350		150-300	
4	Compressive Strength	kgf/cm ²	ASTM D-695	40-50		45-55		75–85		75-85		65-75		65-75		85-100		80-95		115-125	
5	Deformation under load (Max.)		ASTM D-621																		
a	2 Hrs. 23 ^o C 113 kgf	%		12		3.5		5		9		10		6		5		5		4	
b	24 Hrs. 23 ^o C 113 kgf			15		5		7		11		12		8		6		6		5	
c	Permanent			8		2.5		3.5		7		7.5		4.5		3		3		2.5	
d	2 Hrs. 150 ^o C 113 kgf			55		40		35		50		50		43		42		42		40	
6	Impact strength	J/cm	ASTM D-256	1.4 – 1.5		1.6 – 1.75		0.7 – 0.8		1.0 – 1.1		1.2 – 1.3		0.8 – 0.9		0.9 – 1.0		0.9 – 1.0		0.8 – 0.9	
7	Hardness	Shore D	ASTM D-2240	58 – 62		56 – 62		60 – 65		58 – 63		60 – 65		60 – 65		62 – 66		62 – 66		64 – 68	
8	Coefficient of Friction		ASTM-D-1894					-													
a	Dynamic P-7 kg/cm ² V-0.5			0.04-0.06		0.02-0.03		0.12-0.17		0.5-0.54		0.15-0.20		0.11-0.16		0.11-0.15		0.1-0.14		0.12-0.16	
b	Static P-35 kg/cm ²			0.05-0.08		0.04-0.06		0.09-0.11		0.11-0.13		0.08-0.01		0.08-0.10		0.08-0.10		0.075-0.09		0.08-0.10	
9	Wear Rate (Max.)	gm/s	ASTM-G-137	0.01		0.01		0.01		0.01		0.01		0.01		0.01		0.01		0.01	
10	Water Absorption (Max.)	%	ASTM D-570	0		0		0		0.013		0.015		0		0		0		0	
11	Continuous Service Temperature	^o C	ASTM-D-648	+260		+260		+260		+260		+260		+260		+260		+260		+260	
12	Heat Resistance (Max.)	%	ASTM-D-648	0.01		0.01		0.01		0.01		0.01		0.01		0.01		0.01		0.01	
13	Linear Thermal Expansion (Max.)	%	ASTM D-696	A	R	A	R	A	R	A	R	A	R	A	R	A	R	A	R	A	R
a	30 – 150 ^o C			1.5	1.5	1.5	1.5	1.2	1	1.5	0.7	1.5	1	1.3	1	1.15	0.95	1.15	0.95	1.1	0.9
b	30 – 200 ^o C			2.4	2.3	2.4	2.3	1.9	1.5	2.2	1	2.3	1.8	2	1.7	1.85	1.55	1.85	1.55	1.8	1.5
c	30 – 250 ^o C			3.4	3.6	3.4	3.6	2.7	2.4	3.2	1.4	3.3	2.2	3	2.5	2.55	2.25	2.55	2.25	2.5	2.2
14	Dielectric Strength	Kv/mm	ASTM D-149	22 – 24		30 – 35		1 – 2		11 – 12		15 – 16		1 – 2		Conductive		Conductive		Conductive	
15	Dimensional stability	%	ASTM-D-1710	1.5 – 3		1.5 – 3		1.5 – 3		1.5 – 3		1.5 – 3		1.5 – 3		1.5 – 3		1.5 – 3		1.5 – 3	
a	Length			0.5 – 1		0.5 – 1		0.5 – 1		0.5 – 1		0.5 – 1		0.5 – 1		0.5 – 1		0.5 – 1		0.5 – 1	
b	Diameter																				
16	Chemical Resistance (Max.)	%	ASTM-D-543	0.01		0.01		0.01		0.01		0.01		0.01		0.01		0.01		0.01	
a	Permeability			0.01		0.01		0.01		0.01		0.01		0.01		0.01		0.01		0.01	
b	Dissolution			0.01		0.01		0.01		0.01		0.01		0.01		0.01		0.01		0.01	
c	PTFE is chemically inert & unaffected by all known chemicals except molten or dissolved alkali metals–Sodium; Potassium; Rubidium; Cesium; Francium & Fluorine gas, certain fluorine compounds & complexes at elevated temperatures. Filled PTFE has inferior chemical resistance depending upon the particular filler.																				
	The physical properties of Standard & Non-standard filled grade composition not mentioned in above table are to be referred on the basis of Material Test Certificate issued by Raw Material Supplier / Manufacturer. Data quoted are average values only & should not be used for designed purpose.																				



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