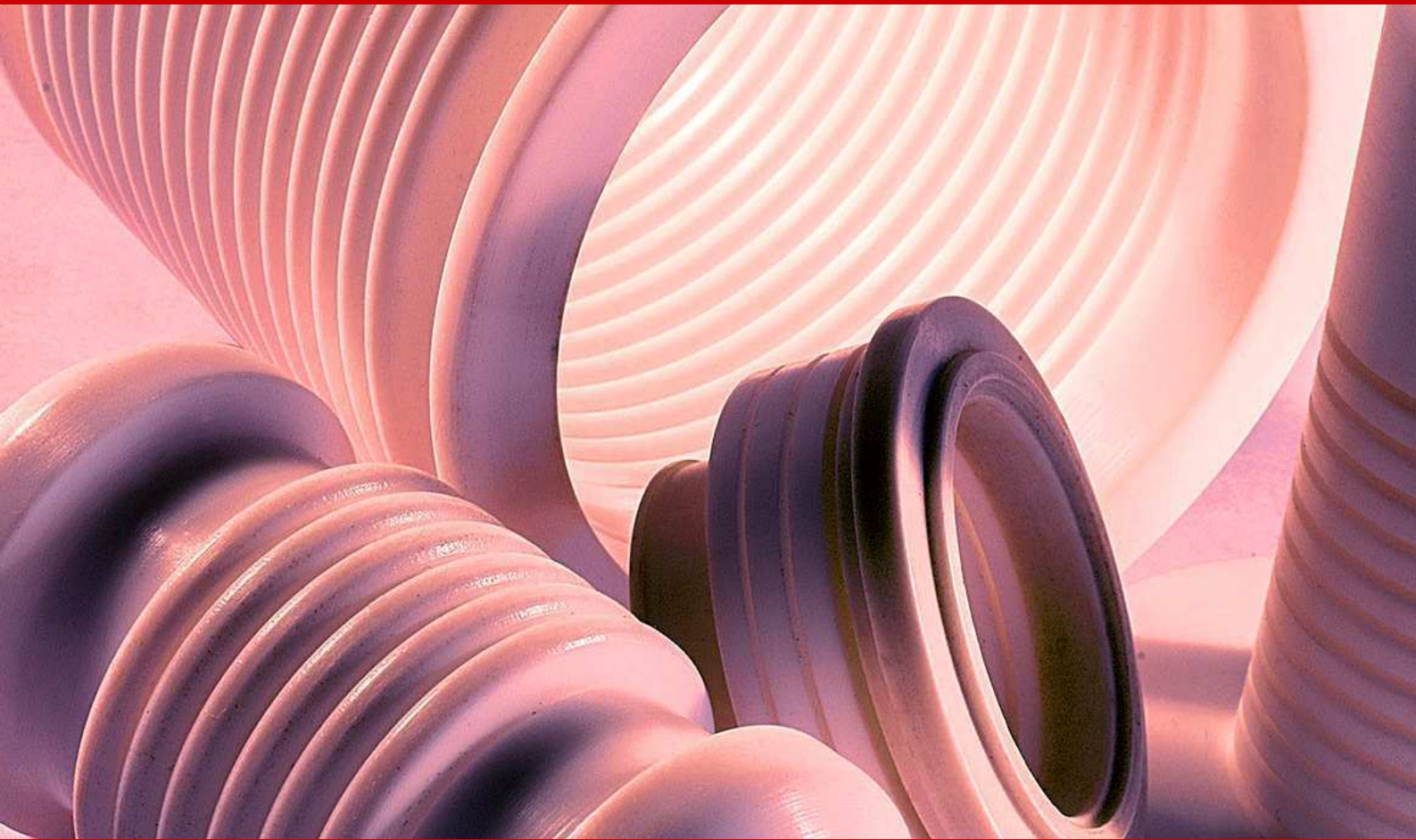


PTFE

Poly Tetra Fluoro Ethylene
Products



Standard Fluoromers Pvt. Ltd.

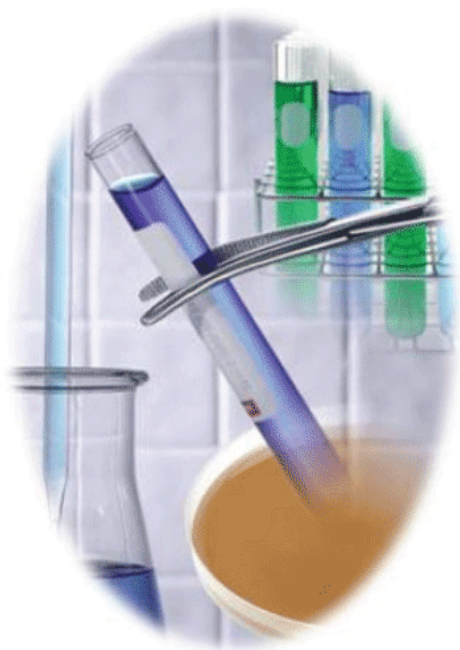


PTFE – Poly Tetra Fluoro Ethylene

PTFE is high performance engineering specially polymer invented by Dr. Roy J. Plunkett at Du Pont[®]'s Jackson Laboratory, New Jersey, US, on 6th April 1938. As the polymer was found to have exceptional properties with regards to chemical inertness, heat resistance & frictional properties; developmental manufacturing began in 1943 with joint efforts of Kinetic Engineering Inc., USA. The commercial production went operational by E. I. Du Pont[®] de Nemours & Co, Inc., USA in 1948. The worldwide consumption of PTFE is around 1,00,000 Tones in 2011 & expected to grow at the rate of 10% per annum.

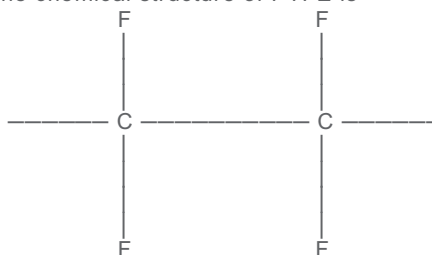


PTFE – Polymer Science



PTFE Monomer is generally manufactured by synthesis of Calcium Fluoride (Fluor spar), Sulphuric Acid & Chloroform. The polymerisation of TFE is carried out in carefully controlled conditions to form PTFE.

The chemical structure of PTFE is



Due to presence of stable & strong C-F bonds, PTFE molecule possesses outstanding chemical inertness, high heat resistance & remarkable electrical insulation characteristics; in addition to excellent frictional properties.

PTFE polymer is produced worldwide on commercial basis by a number of chemical industries under different registered trade-names such as Du Pont[®] (TEFLON[®]), ICI (FLUON), Hoechst (HOSTAFLOX), Mantefluos (ALGOGLON), Daikin (POLYFLON), HFL (HIFLOX), Nitto Chemicals (TETRAFLON), GFL (INOFLON).

PTFE – Basic Properties



PTFE is polymer which is extensively used in chemical, mechanical, electronic & electrical industries due to its unique characteristics.

- Chemical inertness to all known chemicals however attacked by molten alkali metals, chlorine, trifluorides, fluorine & related fluorine complexes at elevated temperature & pressure.
- Resistance to solvents, insoluble in all solvents upto 260°C certain high fluorinated oils swell & dissolve PTFE at temperature close to crystalline melting point.
- Wide operating temperature range -250°C to +260°C, at atmospheric pressure.
- Lowest coefficient of friction among all known metals & nonmetals.
- Nontoxic & anti-stick properties.
- Negligible water absorption.
- Nonflammable.
- Resistance to radiations, electrical properties remain practically unchanged during & after irradiation, both in air & vacuum.
- Excellent weathering resistance.

Chemically Modified PTFE (TFE-M) – Basic Properties

To overcome some of the weaknesses of conventional PTFE, scientists have developed chemically modified PTFE, available as Du Pont®'s Teflon® NXT or Daikin's TFM and have improved some of the properties for the benefit of consumers.

Improved Creep Resistance

As PTFE Gasketing & Sealing materials used in chemical process industries, due to improved creep resistance & increased stiffness even at elevated temperature, the modified PTFE components can be used for higher pressure conditions.

Enhanced Permeation Resistance

The vessel linings, Tubings, Sealing materials, Expansion joints, Made out of modified PTFE have more life & less / near zero leakage due this enhanced permeation resistance.

Superior Surface Finish

The Components, surfaces made out of modified PTFE have superior surface finish with silky / glossy surfaces. The components remain absolutely clean as there is virtually no place for impurities to get a grip.

Reduced Porosity

The parts made out of modified PTFE have low micro void content, thus showing the transmigration of aggressive liquids & gases through.

Better High Voltage Insulation

Modified PTFE allows better high voltage insulation giving new opportunity to improve performance particularly in electrical applications.

Weldability

The threaded joints/snugs fit joints can be avoided by using directly welded part, thus it reduces the risk of Leakage through threaded joints.

PTFE Filled Compositions – Basic Properties

Sr. No.	Grade	Filler Content by Weight %	Properties
1	Virgin PTFE	---	<ul style="list-style-type: none"> • Excellent Chemical Resistance • Outstanding Electrical Properties • Excellent Flexural Properties
2	Chemically Modified PTFE	---	<ul style="list-style-type: none"> • Improved Electrical Properties • Better Frictional Properties • Advanced Permeation Resistance
3	Glass Filled PTFE	15 – 25	<ul style="list-style-type: none"> • High Compressive Strength • Better Wear Resistance • Excellent Chemical Resistance
4	Carbon/ Coke Filled PTFE	25 – 35	<ul style="list-style-type: none"> • High Compressive Strength • Better Wear Resistance • Better Thermal Conductivity
5	Graphite Filled PTFE	15	<ul style="list-style-type: none"> • Excellent Chemical Resistance • Outstanding Electrical Properties • Excellent Flexural Properties
6	Bronze Filled PTFE	40 – 60	<ul style="list-style-type: none"> • High Compressive Strength • Excellent Wear Resistance • Very Low Cold Flow • Good Thermal Conductivity
7	Bronze Plus Molybdenum Disulphide Filled PTFE	55 + 5	<ul style="list-style-type: none"> • Improved Frictional Properties • High Compressive Strength • Excellent Wear Resistance • Very Low Cold Flow • Good Thermal Conductivity
8	Glass Plus Molybdenum Disulphide Filled PTFE	5/15 + 5	<ul style="list-style-type: none"> • High Compressive Strength • Better Wear Resistance • Excellent Chemical Resistance
9	Aluminum Oxide (Ceramic) Filled PTFE	5 – 10	<ul style="list-style-type: none"> • Excellent Electrical Properties • Excellent Compressive Strength
10	Silicon Dioxide (Silica) Filled PTFE	5 – 10	<ul style="list-style-type: none"> • Exemplary Compressive Strength • Excellent Chemical Resistance
11	Calcium Fluoride Filled PTFE	5 – 10	<ul style="list-style-type: none"> • Excellent Chemical Resistance • Excellent Wear Resistance • Excellent Compressive Strength • Good with Chemicals that attack glass
12	Stainless Steel Filled PTFE	5 – 10	<ul style="list-style-type: none"> • Excellent Chemical Resistance • Outstanding Mechanical Properties
13	Mica Filled PTFE	5 – 10	<ul style="list-style-type: none"> • Excellent Compressive Strength • Very Low Coefficient of Thermal Expansion • Poor Tensile Properties
14	Bronze Plus TSQ Filled PTFE	40 + 1	<ul style="list-style-type: none"> • High Compressive Strength • Excellent Wear Resistance • Very Low Cold Flow • Good Thermal Conductivity • Better Frictional Properties
15	Pigmented PTFE		<ul style="list-style-type: none"> • Colour Coding • Inferior Chemical Resistance

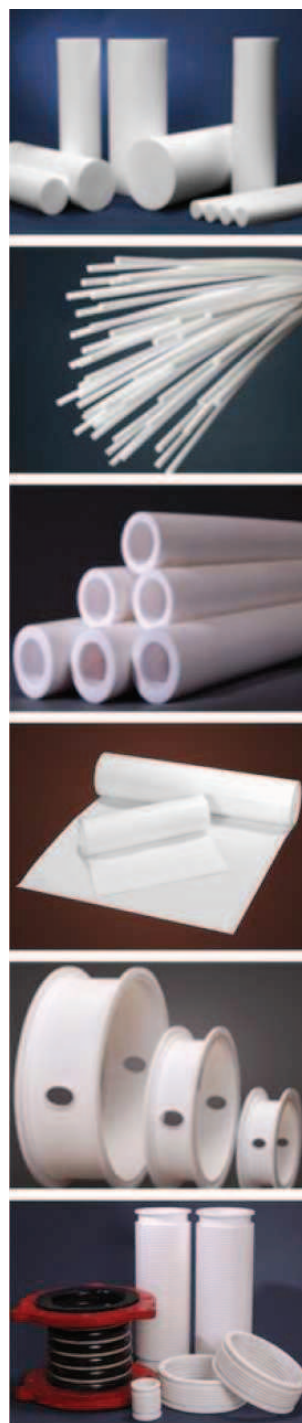


Caution: The presence of filler generally causes following features in compounds:

- Reduction in tensile strength & break elongation
- Reduction in volume & surface resistivity
- Difficulty in processing & fabrication
- Lower chemical resistance depending upon types of filler
- Reduction in coefficient of linear thermal expansions

PTFE – Product Range






Sr. No.	Product	Standard Dimensional Specification	Tolerance
1	PTFE Moulded Rod	<ul style="list-style-type: none"> 25mm upto 500mm Dia 300mm L 	+ 0.2 – 0.00mm D + 1.0 – 0.00mm L
2	PTFE Moulded Bush	<ul style="list-style-type: none"> Upto 500mm / 1000mm OD Upto 100mm / 300mm L 	+ 0.2 – 0.00mm D + 1.0 – 0.00mm L
3	PTFE Moulded Sheet	<ul style="list-style-type: none"> 300mm² upto 1200mm² Area 2.5mm to 100mm Thk 	+ 5.0 – 0.00mm L/W + 2.0 – 0.00mm T
4	PTFE Ramex Rod	<ul style="list-style-type: none"> 5mm Dia upto 100mm Dia 900mm / 1000mm / 2000mm L 	+ 0.2 – 0.00mm D + 5.0 – 0.00mm L
5	PTFE Skived Sheet	<ul style="list-style-type: none"> 300mm Width upto 1200mm Width 0.25mm to 3.00mm Thk 	+ 5.0 – 0.00mm W + 0.1 – 0.00mm T
6	PTFE Ramex Pipe	<ul style="list-style-type: none"> 25mm OD X 12.5mm ID Upto 100mm OD X 75mm ID Upto 3300mm Length 	+ 0.2 – 0.00mm D + 1.0 – 0.00mm L
7-a	PTFE Machined Components (Standard)	<ul style="list-style-type: none"> Ready Cut Gaskets Envelope Gaskets – Sit type/ Milled type Expansion Joints / Bellows – upto 900mm NB 	General Tolerance of ± 0.1 mm
7-b	PTFE Machined Components (Non Standard)	<ul style="list-style-type: none"> Valve components of Ball Valve, Plug Valve, Butterfly Valve O / V / D / U Other custom made components as per Drawing and Specification – Upto 1200mm OD, Upto 300mm L 	General Tolerance of ± 0.1 mm



Standard Grades of Material of Composition:-

- | | |
|---|---|
| 1] Virgin PTFE | 5] 25% - 35% Carbon Filled PTFE |
| 2] Chemically Modified Virgin PTFE | 6] 15% Graphite Filled PTFE |
| 3] 15% - 25% Glass Filled PTFE | 7] 40% - 60% Bronze Filled PTFE |
| 4] 5% / 15% Glass + 5% MoS ₂ Filled PTFE | 8] 55% Bronze + 5% MoS ₂ Filled PTFE |

PTFE – Product Specifications

Sr. No.	Product	Specification	Type	Grade	Class
1	<ul style="list-style-type: none"> PTFE Moulded Rods PTFE Ram Extruded Rods 	ASTM-D-1710	<p>I – Premium having maximum physical & electrical properties to meet rigid requirements.</p> <p>II – General Purpose having properties required of general, electrical, mechanical & chemical Applications.</p> <p>III – Non critical chemical, electrical & Mechanical applications.</p>	1–Virgin 2*–Repro	<p>A – Having normal dimensional stability.</p> <p>B – Meeting specific dimensional stability.</p> <p>C – Having normal dimensional stability & completely examined for internal defects.</p> <p>D – Having specific dimensional stability & completely examined for internal defects.</p>
2	<ul style="list-style-type: none"> PTFE Moulded Bushes PTFE Ram Extruded Pipes 	ASTM-D-1710	<p>I – Premium having maximum physical & electrical properties to meet rigid requirements.</p> <p>II – General Purpose having properties required of general, electrical, mechanical & chemical applications.</p> <p>III – Non critical chemical, electrical & Mechanical applications.</p>	1–Virgin 2*–Repro	<p>A – Having normal dimensional stability.</p> <p>B – Meeting specific dimensional stability.</p> <p>C – Having normal dimensional stability & completely examined for internal defects.</p> <p>D – Having specific dimensional stability & completely examined for internal defects.</p>
3	<ul style="list-style-type: none"> PTFE Moulded Sheets 	ASTM-D-3294	<p>I – Premium Normally used for exacting electrical, mechanical or Chemical applications.</p> <p>II – General Purpose for electrical, mechanical & chemical applications not requiring premium material.</p> <p>III – Mechanical Grade for Non critical chemical, electrical & mechanical applications.</p> <p>IV – Utility having no electrical requirements and with mechanical properties at a lower level.</p>	1–Virgin 2*–Repro	<p>A – Resistance to thermal dimensional change not exceeding 0.5%</p> <p>B – Thermal dimensional change not exceeding 5.0%</p> <p>C – No requirement for thermal dimensional change</p>
4	<ul style="list-style-type: none"> PTFE Skived Sheets 	ASTM-D-3308	<p>I – Premium normally used for exacting electrical, mechanical or chemical applications.</p> <p>II – General purpose for electrical, mechanical & chemical applications not requiring premium material.</p> <p>III – Mechanical grade for non critical chemical, electrical & mechanical applications.</p> <p>IV – Utility having no electrical requirements and with mechanical properties at a lower level.</p>	1–Virgin 2*–Repro	

* Standard Fluoromers Pvt.Ltd. does not produce this product of this Grade as Products have inferior physical properties, may fail premature, accident prone & not fail safe.

PTFE – Applications

A] Chemical Process Industries:

- Rods, Bushes, Tubes, Sheets.
- Expansion Joints, Bellows, Line bellows, Valve bellows, PTFE & GFT Composite bellows, Custom bellows.
- Gaskets, Envelope gaskets, Ready cut gaskets, Universal rope gaskets, Fused joint circular / elliptical equipment envelope gaskets.
- Mechanical Packings, Chevron packings, O / V / D / U Rings, Cup seals.
- Valve Components, Ball seats, Stem seals, Body seals, Plug sleeves, Diaphragms, Butterfly valve seats.
- Pumps Components, Mechanical Seals, Balls, Diaphragms.
- Laboratory ware Beakers, Plug cocks.
- Thread seal tapes.

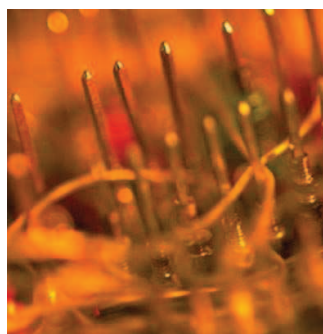
B] Mechanical Industries:

- Liners for machine tools guide ways & slide ways.
- Piston rings for non-lubricated air compressors.
- Chemically treated Sodium itched sheet.
- Low load, high speed bush bearings.
- Guide bands & piston seals for hydraulic & pneumatic actuators.
- Thin walled tubings.
- Hydraulic & pneumatic seals.
- Hysteresis Friction washers for clutches.
- Bridge bearings, Pipe line expansion supports.



C] Electrical & Electronics Industries:

- Nozzles for SF6 circuit breakers.
- Sintered insulation tape for insulation.
- Capacitor film.
- Chemically treated insulator bushes for traction machines.
- Brush holders.
- Thin walled Spaghetti tubings for insulation.



PTFE – End User Industries



- Aeronautical.
- Atomic / Thermal / Hydro Power Plants
- Chemical
- Defense Establishments
- Electrical & Electronics
- Food processing
- High Voltage Switch-Gear Manufacturers
- Machine Tool Manufactures
- Pharmaceuticals
- Petroleum Refineries
- Petrochemical
- Railways
- Space Research Organization
- Valves & Pump Manufacturing Industries

Company Profile –

Total Manufacturing

Standard Fluoromers P.Ltd. is wholly Indian owned, private company, formed in 1992 to manufacture & market PTFE & other fluoroplastics' semi finished stock shapes & machined components. It has been one of the largest processor of PTFE in India & has expanded its range to encompass the full spectrum of PTFE products. The group is comprised of two independently managed manufacturing facilities based in western part of India at MIRAJ, State Maharashtra, employing around 100 people & trading throughout India.



The group is major converter of PTFE resins & manufactures semi finished stock shapes in all forms – Moulded rods upto 500mm diameter, 300mm length & Moulded bushes – rings up to 1000mm diameter, Moulded sheets upto 1200 X 1200mm² & skived sheet tape materials upto 1200 mm width, Ram Extruded Rods upto 1200 mm width, Ram Extruded Rods upto 100mm diameter, 900 / 1000 / 2000mm Length & Ram Extruded Rigid Pipes upto 100mm diameter, 3300mm Length – the widest range of such products in India.

The company has huge wide & state of art manufacturing facilities, comprising Hydraulic Presses, Ovens, Ram Extruders, Lathes, Turrets, Milling Machines, Skiving Machine, Calendaring Machine etc to cover producing most of the products in PTFE serving the customer under one roof. The latest technology in machine tools such as, NC controls, Automatic PID / Profile temperature controlled ovens, Rotary bed sintering, Air conditioned / dust free environment, fully automatic Extrusion – is in use.

The PTFE Machined Components are fabricated in the state of the art workshop comprising lathes, turrets, milling machine and other fabrication machines, running in three shifts. The machining facility upto 1200mm diameter, 1000mm Length is available with precision tolerance within +/- 0.02mm. The company has most advanced chemical etching & application facility along with automatic slitting machines for manufacturing chemically treated insulation tapes.

The present manufacturing capacity (2013) of group is about 20000 kgs per month, utilizing almost 75% & expansion at the rate of 10% per annum is being carried out to cover maximum sizes & range of products, availing complete range of PTFE products under one roof – most conventional for customers.

Company Commitment –

Total Quality

As one of the leading processor of PTFE, Hindustan Nylons hereby commits to produce most quality products & provide the best pre-post sales & technical services. Standard Fluoromers P.Ltd operates on Quality Management System (ISO 9001:2008), right from inspection & testing of raw material upto final/pre-dispatch inspection & testing of end products, through out the manufacturing to ensure Zero Defect Quality.



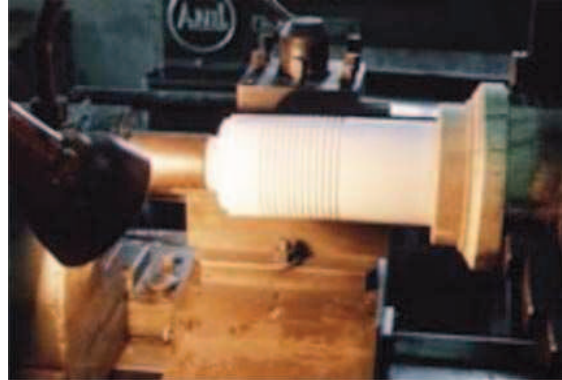
The testing of input Raw Materials & output Finished Goods is carried out at in-house Laboratory. The testing equipments to verify various properties of input Raw Materials consists for colour, Particle Shape, Purity, Flowability, Bulk Density, Compressive Ratio, Filler Content, Water Content, Shrinkage & Pollution index. The output Finished Goods are tested for Density, Tensile Strength, Elongation, Compressive Strength, Deformation Under Load, Hardness, Water Absorption, Heat Resistance, Continuous Service Temperature, Wear Rate, Dielectric Strength, Chemical Resistance permeability, Chemical Resistance Dissolution, Peel off strength / Bond strength for sodium etched parts, spark testing & pneumatic pressure testing. The in-house testing facility offers the unique advantage of assured / tested quality. The products confirm national & international standards such as IS, ASTM, BS, DIN etc.



Company Highlights – Total Engineering

Standard Fluoromers P.Ltd offers design, development & laboratory testing facilities to handle customer projects from concept to full manufacture. It advises on material selection & project design to optimize the unique properties of company's extensive range of materials, with engineers fully supporting the sales field staff.

Through in-house test laboratory, company guides customers to develop the new project from concept / replace existing material of construction to suit specific service condition & particular application.



Company Focus –

Total Customers Satisfaction



Standard Fluoromers P.Ltd. assumes the responsibility of continuous up-gradation of products & services through innovative engineering & newest technology to achieve the TOTAL CUSTOMERS SATISFACTION.

- The company guarantees the endless improvement in qualities, skills & standards of manpower through latest management techniques to provide the best of Company to all the customers.
- With uncompromising, assured quality, maximum product range under one roof, pre-post sales and technical service and CUSTOMER AS MAIN FOCAL POINT, Standard Fluoromers P.Ltd.has reputed & prestigious customers all over India.
- The company exports PTFE Stock shapes & Machined Components – majorly to Middle East Countries, Part of Europe, Part of South Africa & Australia.

Standard Fluoromers Pvt. Ltd.



Plot No. C – 27, M.I.D.C. Industrial Area, Miraj – 416 410. (M.S.) India
Telephone:91-233-2644468, 2644868 Facsimile:91-233-2644772, 2645772
Email: info@standard-ptfe.com Website: www.standard-ptfe.com



Technical Data Sheet – TDS – Physical Properties of PTFE and Filled PTFE Products

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	15% Glass Filled PTFE	25% Glass Filled PTFE	5% Glass +5% MoS2 Filled PTFE	15% Glass +5% MoS2 Filled PTFE	25% Carbon / 23% Carbon + 2% Graphite Filled PTFE	35% Carbon / 33% Carbon + 2% Graphite Filled PTFE	15% Graphite Filled PTFE	40% Bronze/ TSQ Filled PTFE	40% Bronze + 5% MoS2 Filled PTFE	60% Bronze Filled PTFE	55% Bronze + 5% MoS2 Filled PTFE												
				1	2	3	4	5	6	7	8	9	10	11	12	13												
1	Density	gm / cc	ASTM D-792	2.1 – 2.2	2.15 – 2.2	2.15– 2.22	2.22– 2.25	2.20 – 2.24	2.20– 2.24	2.0 – 2.2	2.0 – 2.14	2.10– 2.16	3.0 – 3.2	3 – 3.2	3.8 – 4.0	3.8 – 4												
2	Tensile Strength	kgf/cm ²	ASTM D-638	210 – 375	300 – 325	180– 260	125– 200	175– 250	150– 220	125–200	100– 175	150– 200	125– 225	125-225	100– 200	100-200												
3	Elongation of Break	%	ASTM D-638	250 – 400	400 – 450	225-325	200-300	200-300	220-320	80–150	100-150	150-250	200-350	200-350	150-300	150-300												
4	Compressive Strength	kgf/cm ²	ASTM D-695	40-50	45-55	65-75	75-85	60-70	65-75	75–85	80-90	65-75	85-100	80-95	115-125	115-125												
5	Deformation under load (Max.)																											
a	2 Hrs. 23 ^o C 113 kgf	%	ASTM D-621	12	3.5	10	9	11	10	5	4	6	5	5	4	4												
b	24 Hrs. 23 ^o C 113 kgf			15	5	12	11	13	12	7	6	8	6	6	5	5												
c	Permanent			8	2.5	7.5	7	8.5	7.5	3.5	3	4.5	3	3	2.5	2.5												
d	2 Hrs. 150 ^o C 113 kgf			55	40	52	50	52	50	35	30	43	42	42	40	40												
6	Impact strength	J/cm	ASTM D-256	1.4 – 1.5	1.6 – 1.75	1.2 – 1.3	1.0 – 1.1	1.25 – 1.35	1.2 – 1.3	0.7 – 0.8	0.6 – 0.7	0.8 – 0.9	0.9 – 1.0	0.9 – 1.0	0.8 – 0.9	0.85 – 0.95												
7	Hardness	Shore D	ASTM D-2240	58 – 62	56 – 62	58 – 62	58 – 63	60 – 65	60 – 65	60 – 65	60 – 65	60 – 65	62 – 66	62 – 66	64 – 68	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	0.31-0.37	0.5-0.54	0.15-0.20	0.15-0.20	0.12-0.17	0.13-0.18	0.11-0.16	0.11-0.15	0.1-0.14	0.12-0.16	0.11-0.14												
b	Static P-35 kg/cm ²			0.05-0.08	0.04-0.06	0.01-0.12	0.11-0.13	0.08-0.01	0.08-0.01	0.09-0.11	0.01-0.12	0.08-0.10	0.08-0.10	0.075-0.09	0.08-0.10	0.07-0.09												
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	0.01	0.01	0.01	0.01												
10	Water Absorption (Max.)	%	ASTM D-570	0	0	0.015	0.013	0.015	0.015	0	0	0	0	0	0	0												
11	Continuous Service Temperature	^o C	ASTM-D-648	+260	+260	+260	+260	+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	0.01	0.01	0.01	0.01												
13	Coefficient of Linear Thermal Expansion– 10 ⁻⁶ X	%	ASTM D-696	250 – 275	250 – 275	240 – 265	235 – 255	245 – 270	240 – 265	225 – 250	215 – 240	240 – 265	200 – 225	200 – 225	175 – 200	175 – 200												
14	Linear Thermal Expansion (Max.)			A	R	A	R	A	R	A	R	A	R	A	R	A	R											
a	30 – 150 ^o C	%	ASTM D-696	1.5	1.5	1.5	1	1.5	0.7	1.5	1	1.5	1	1.2	1	1.1	0.9	1.3	1	1.15	0.95	1.15	0.95	1.1	0.9	1.1	0.9	
b	30 – 200 ^o C			2.4	2.3	2.4	2.3	1.8	2.2	1	2.3	1.8	2.3	1.8	1.9	1.5	1.8	1.4	2	1.7	1.85	1.55	1.85	1.55	1.8	1.5	1.8	1.5
c	30 – 250 ^o C			3.4	3.6	3.4	3.6	3.3	2.2	3.2	1.4	3.3	2.2	3.3	2.2	2.7	2.4	2.5	2.3	3	2.5	2.55	2.25	2.55	2.25	2.5	2.2	2.5
15	Dielectric Strength	Kv/mm	ASTM D-149	22 – 24	30 – 35	15 – 16	11 – 12	15 – 16	15 – 16	1 – 2	1 – 2	1 – 2	Conductive	Conductive	Conductive	Conductive												
16	Dimensional stability																											
a	Length	%	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	1.5 – 3	1.5 – 3	1.5 – 3	1.5 – 3												
b	Diameter	%		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	0.5 – 1	0.5 – 1	0.5 – 1	0.5 – 1												
17	Chemical Resistance (Max.)																											
a	Permeability	%	ASTM-D-543	0.01	0.01	0.01	0.01	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	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.																												
Company has in-house test facility / Laboratory to test above properties. The testing equipments are calibrated as per procedures laid down in QMS-ISO-9001:2008, having traceability with NPL. The test procedures are self designed, similar to above referred ASTMs.																												