

# ***PTFE***

## ***PolyTetraFluoroEthylene Products***



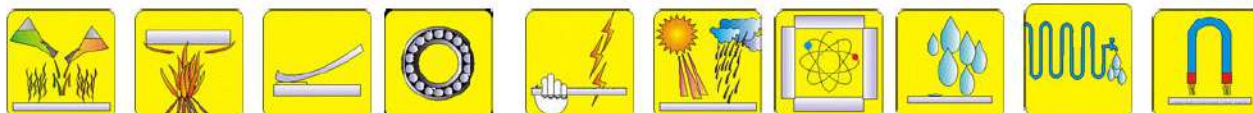
**HINDUSTAN NYLONS**

## About PTFE Polytetrafluoroethylene –

Polytetrafluoroethylene PTFE is high performance Engineering Plastics having unique properties:-



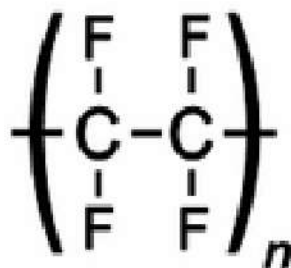
- PTFE is chemically Inert & nonreactive to almost all known chemicals.
- PTFE has Excellent Thermal Resistance upto 260°C
- PTFE is Non-adhesive, not bondable & has Anti Stick Properties
- PTFE is material with Exceptionally low coefficient of friction
- PTFE has Outstanding Electrical Insulation properties
- PTFE has Excellent weathering resistance.
- PTFE has high resistance to Radiation.
- PTFE is non-absorbent of water.
- PTFE is non-toxic material.
- PTFE is resistant to magnetic field.



Due to unique properties, PTFE Products are used in Chemical Process, Pharmaceutical, Electrical & Electronic Industries, Thermal & Automatic Power Plants, Railways & Defense Sectors, practically in all kind of industries

### Chemical Structure of PTFE Polytetrafluoroethylene-

Poly Tetra Fluoro Ethylene is a linear polymer free from any significant branching have chemical structure as:-



In PTFE, due to large fluorine Atom, PTFE Molecule takes up a twisted zigzag, with the fluorine atoms packing tightly in a spiral around the Carbon-carbon skeleton. This compact interlocking of fluorine atoms lead to a PTFE molecule of great stiffness leading ultimately high crystalline melting point @ 327°C, thermal stability & electrical insulation properties. Due to strong & stable bond between carbon & fluorine atom, PTFE molecule processes outstanding chemical inertness

PTFE polymer is being produced worldwide on commercial Basis by many Chemical industries under different registered trade names such as Chemours - Teflon, Asahi – Fluon, Hoechst – Hostafion, Daikin – Polyflon, HFL – Hiflon, GFL – Inoflon , Halogen – F4, Shandong – DF, Shanghai – 3F etc

PTFE PolyTetraFluoroEthylene & Filled PTFE Resin is processed to manufacture Products such as Rods. Bushes, sheets, Pipes, Tubing etc by various processes. The primary processes are such as cold compression moulding / sintering, Ram Extrusion, Isostatic moulding/ sintering, Paste Extrusion & secondary processes such as Hot coining, Skiving / Peeling, Calendaring / Slitting / Braiding, Machining – Turning, Milling, Grinding etc.



## About Hindustan Nylons -

**Hindustan Nylons** is leading manufacturer, supplier & exporter of PTFE Products from Miraj, Sangli District, Maharashtra State, in India.

### Manufacturing facility of PTFE Products: Hindustan Nylons-

**Hindustan Nylons** has modern, manufacturing facilities of Standard & Machined PTFE Products, comprising Hydraulic Presses, Electric Ovens, Ram Extrusion Machines, CNC Lathes, Milling Machines, Skiving Machines to cover entire range of the products under one roof.

The present manufacturing capacity (2016) of group is about 20000 Kgs per month, utilizing almost 75%, & expansion at the rate of 10% per annum is being carried out.



### Engineering Profile of PTFE Products Manufacturing Company: Hindustan Nylons-

**Hindustan Nylons** offers engineering assistance & technical services to design & develop PTFE products from concept to full manufacture after detailed study of service conditions & applications. It guides on material selection & product design to optimize the unique properties of various grades of PTFE through reverse engineering & testing in in-house test laboratory.

### Quality Assurance system of PTFE Products – Hindustan Nylons-

**Hindustan Nylons** work on Quality Management System from input of PTFE Resin up to output PTFE Products & Certified ISO 9001-2008 company.

The company work of unique, self designed quality management system for manufacturing PTFE Products, controlling & assuring the quality at every stage of manufacturing. The other engineering concepts such as 5S, TQM are being implemented for continual improvement.

**Hindustan Nylons** assumes the responsibility of continuous improvements of products & services through innovative engineering & newest technology to achieve the TOTAL CUSTOMERS SATISFACTION.



## Why PTFE Products from Hindustan Nylons?

- Established in 1987.
- Quality Management System - ISO 9001:2008 Certified Organization.
- Stable, Reliable & Standard quality Virgin & Filled PTFE Products (Company does not process Reprocessed / Recycled PTFE.)
- Complete Range of PTFE Products available under one Roof.
- On-time delivery managed by Daily, Weekly & Monthly Progress Chart
- Standard PTFE Products available Ex. Stock.
- Most cost-effective solutions to meet clients' budget.
- In-house laboratory for testing input Raw Material & Output Products.
- Complete Engineering & Technical Service from Pre-sale & Post-sales.
- Manufacturing exactly as per Standard Technical Procedures with complete batch traceability from input to output.
- Continual Improvement in Products & Processes
- Continuous addition & up-gradation of Resources such as Moulds, Machines & Metrology.
- Large varieties of Moulds & Dies (For Molding & Ram Extrusion) - available to produce big size / Long Length – (practically any size) – Molded & Extruded PTFE Products.
- Super Performance Exotic – PTFE Grades' products, substitute to Turcite, Rulon, TFM, NxT etc - available.
- Facility of Reverse Engineering from Samples/Specimen of PTFE product to find out – MoC, fillers, percentage composition & basic properties such as Density, Tensile strength, Elongation, Hardness available - in-house.
- Assured standard Response Time within 24 Hours from receipt of complete commercial & Technical info from client
- Member of Council for Fair Business Practices (CFBP) Mumbai, India.

## Chemical Resistance Guide of Virgin PTFE & Filled PTFE -

### Chemical Resistance of Virgin PTFE:

The chemical resistance of Virgin PTFE is excellent. It is stable in most aggressive and corrosive media, exceptions being liquid or dissolved alkali metals, fluorine and other extremely potent oxidizers.

PTFE is not chemically resistive to -

- Molten or dissolved Alkali metals – Sodium, Potassium, Rubidium, Cesium, Francium.
- Fluorine Gas, Fluorine compounds & complexes at elevated temperature.

### Chemical Resistance of Filled PTFE:

The chemical resistance of Filled PTFE compositions to number of Chemicals is given below. In general carbon and glass filled compositions give better performance in chemical service.



Chemical	Filler		
	Carbon/Graphite	Glass	Bronze
Acetaldehyde	A	A	A
Acetone	A	A	A
Aluminum Sulphate	A	A	B
Ammonium chloride	A	A	C
Ammonium hydroxide	A	B	C
Aniline	A	A	C
Benzene	A	A	A
Brine	A	A	A
Bromine (anhydrous)	C	B	C
Carbon Disulphide	A	A	A
Chloroacetic acid	A	A	B
Chlorobenzene	A	A	A
Chloroform	A	A	A
Chromic acid	B	B	C
Citric acid	A	A	A
Diethyl ether	A	A	A
Ethylene glycol	A	A	A
Fatty acids	A	A	A
Ferric Chloride	A	A	C
Ferric sulphate	A	A	C
Fluorosilicic acid	B	C	C
Formic acid	A	A	A
Freon (liquid)	A	A	A
Hydro boric acid	A	B	C
Hydrochloric acid	A	B	C
Hydrocyanic acid	A	B	C
Hydrogen sulphide (solution)	A	C	C
Lead acetate	A	A	C
Maleic acid	A	A	B
Mercury salts	A	A	C
Molasses	A	A	B
Naphtha	A	A	B
Naphthalene	A	A	B
Nickel salts	A	A	A
Nitric acid	C	B	C
Nitro benzene	A	A	A
Phenol	A	B	A
Phosphoric acid	A	A	C
Picric acid	A	A	A
Pyridine	A	A	C
Salicylic acid	A	A	B
Silver nitrate	A	A	C
Sodium carbonate	A	A	A
Sodium hydroxide	A	B	A
Sodium nitrite	A	A	A
Sodium peroxide	B	A	C
Sodium silicate	A	C	A
Sodium sulphide	A	A	C
Starch	A	A	A
Sulphuric acid	B	A	C
Tallow	A	A	A
Tannic acid	A	A	A
Tartaric acid	A	A	A
Trichloroethylene	A	A	B
Zinc chloride	A	A	C

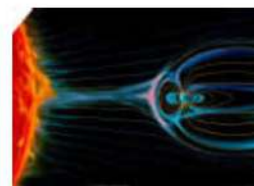
A= Excellent, B = Fair, C = Unsatisfactory.



## Properties, Selection Guide & Applications of PTFE and Filled PTFE Products -

PTFE is available in virgin & filled compounds to improve the basic characteristics to match very diverse applications & optimization for specific end uses.

The grade of PTFE is selected from Virgin & Filled grades of PTFE, based on required property for required service conditions / applications. The selection guide elaborates various grades of PTFE & Filled PTFE, filler content in PTFE, basic properties & relevant service conditions / End applications.



Sr. No.	Grade	Filler Content by Weight %	Standard Series	Properties	Applications
1	Virgin PTFE	-	Yes	<ul style="list-style-type: none"> <li>Hygienic</li> <li>Excellent chemical resistance</li> <li>Outstanding electrical properties</li> <li>Excellent flexural properties</li> </ul>	Gaskets, Bellows, food / contact & medicine / human consumption applications.
2	Chemically Modified PTFE	-	Yes	<ul style="list-style-type: none"> <li>Less Creep.</li> <li>Improved Permeation Resistance</li> <li>Smoother Surfaces</li> <li>Less Porous</li> <li>Better High Voltage Insulation</li> <li>New Fabricating Versatility with welding</li> </ul>	Pumps, Diaphragms, Ball Valve Seats, Components of Mechanical Seals, Dipped Pipes for reaction vessels, Vessel Lining
3	Glass Filled PTFE	15 - 25	Yes	<ul style="list-style-type: none"> <li>High compressive strength</li> <li>Excellent chemical resistance</li> <li>Improved wear resistance under load &amp; permanent deformation</li> </ul>	Ball valve component, bridge bearing pads, ship launching pads, pipe supporting pads.
4	Glass + MoS <sub>2</sub> Filled PTFE	5/15 + 5	Yes	<ul style="list-style-type: none"> <li>High compressive strength</li> <li>Excellent chemical resistance</li> <li>Improved wear resistance under load &amp; permanent deformation</li> <li>Improved frictional properties</li> </ul>	Low torque valve components
5	Carbon/coke Filled PTFE	25 - 35	Yes	<ul style="list-style-type: none"> <li>High compressive strength</li> <li>Improved wear resistance under load &amp; permanent deformation</li> <li>Better thermal / electrical conductivity</li> </ul>	Rider and piston rings of air compressor
6	Graphite Filled PTFE	15	Yes	<ul style="list-style-type: none"> <li>High compressive strength</li> <li>Improved wear resistance under load &amp; permanent deformation</li> <li>Better thermal / electrical conductivity.</li> <li>Good chemical resistance</li> <li>Improved frictional properties.</li> </ul>	Shaft bearings in chemical high speed Chemical pumps.
7	Bronze Filled PTFE (oxidized / Non-oxidized)	40 - 60	Yes	<ul style="list-style-type: none"> <li>High compressive strength</li> <li>Excellent wear resistance improved under load &amp; permanent deformation</li> <li>Better thermal / electrical conductivity.</li> <li>Good chemical resistance</li> <li>Very low cold flow.</li> </ul>	Wear Strips Machine tool liners, hydraulic seals.
8	Bronze plus, Molybdenum Disulphide Filled PTFE	40/55+ 5	Yes	<ul style="list-style-type: none"> <li>Improved frictional properties</li> <li>High compressive strength</li> <li>Excellent wear resistance improved under load &amp; permanent deformation</li> <li>Good thermal / electrical conductivity.</li> <li>Very low cold flow.</li> </ul>	Hydraulic seals.

There are many Non-standard Filled Grades of PTFE such as:-

- 1] 7 - 14 % Aluminum Oxide (Alumina) Filled PTFE
- 2] 5 - 15 % Mineral / Wollastonite / Calcium Silicate filled PTFE
- 3] 5 - 10 % Calcium Fluoride Filled PTFE
- 4] 50 % Stainless Steel Filled PTFE
- 5] 5 - 10 % Mica Filled PTFE
- 6] 10 - 20 % Peek Filled PTFE
- 7] 0.1 - 0.2 % MoS<sub>2</sub> Filled PTFE
- 8] Pigmented PTFE
- 9] Anti Static PTFE
- 10] Conductive PTFE

There are many popular filled grades PTFE Products brand-named as Trexonn, Turcite B, Rulon AR, Rulon AJ Gold having specific properties, designed for specific service and applications.

Hindustan Nylons manufactures all these grades of PTFE Products with specific filler contents against specific order on request subject to Minimum Order Quantity.



## PTFE Products Range


### PTFE Products Range from PTFE Products Manufacturer in India:-

**Hindustan Nylons** – leading PTFE Products Manufacturer in India, manufactures widest Range of PTFE & Filled Grade PTFE Products covering Standard PTFE Products & PTFE Machined Components in variety of Virgin & filled grades of PTFE.


The standard PTFE products include PTFE Rods / Bars, PTFE Bushes / Hollow Bars, PTFE Moulded Sheets / Plates, PTFE Skived Sheets / Films, PTFE Pipes & PTFE Tubings. PTFE Gaskets, PTFE Valve Components, PTFE Bellows/ Expansion Joints, PTFE Bridge Bearing Pads PTFE Wear Strips / Bands, PTFE Diaphragms, PTFE Thread Seal Tape & PTFE Machined Components & Parts as per customers' drawings & specification.

PTFE products are manufactured in variety of grades such Virgin Conventional PTFE, Virgin Modified PTFE, Carbon Filled PTFE, Graphite Filled PTFE, Glass Filled PTFE, Bronze Filled PTFE, Glass plus  $\text{MoS}_2$  Filled PTFE, Peek Filled PTFE, Mineral Filled PTFE, Calcium Silicate Filled PTFE, Wollastonite Filled PTFE, Calcium Fluoride ( $\text{CaF}_2$ ) Filled PTFE, Mica Filled PTFE etc.

Hindustan Nylons manufacturers widest Range of PTFE & Filled PTFE Products under one roof for Customers convenience as SINGLE SOURCE of PTFE Products at one call:-

PTFE Molded Rods -	
<p>Hindustan Nylons manufactures Molded PTFE Rods in variety of standard sizes.  <b>Diameter:</b> 25mm - 500mm, <b>Length:</b> 300mm.  <b>PTFE Rods</b> – Molded are manufactured in Virgin &amp; Filled Grades of PTFE  <b>Filled Grades:- Standard Filled Compositions:-</b></p> <ul style="list-style-type: none"> <li>• 15/25% Glass Filled TFE-M.</li> <li>• 25/35% Carbon Filled TFE-M.</li> <li>• 15% Graphite Filled TFE-M.</li> <li>• 40 / 60% Bronze Filled TFE-M.</li> <li>• 55% Bronze + 5% <math>\text{MoS}_2</math> Filled TFE-M.</li> <li>• 15% Glass + 5% <math>\text{MoS}_2</math> Filled TFE-M.</li> <li>• TFE-M Components can be available in Non standard – customer specific composition, subject to minimum order quantity</li> <li>• TFE-M Component can be available with Sodium Itching / Chemical Treatment, subject to minimum order quantity.</li> </ul>	

PTFE Ram Extruded Rods -	
<p>Hindustan Nylons manufactures Ram Extruded PTFE Rods in variety of standard sizes.  <b>Diameter:</b> 5mm - 100mm, <b>Length:</b> 900mm / 1000mm / 2000mm  <b>PTFE Rods</b> – Ram Extruded - are available in Standard grades in Virgin Conventional PTFE &amp; Virgin Chemically Modified PTFE  <b>End Use</b> – As insulation parts in Electrical &amp; Electronic applications.</p>	

PTFE Molded Bush -	
<p>Hindustan Nylons manufactures Molded PTFE Bush in variety of standard sizes.  <b>Outer Diameter:</b> Up to 500mm, <b>Length:</b> Up to 1000mm  <b>PTFE Bush</b> – Molded are manufactured in Virgin &amp; Filled Grades of PTFE  <b>End Use</b> – For making BV, BFV, PGV components for chemical &amp; pharmaceutical applications  <b>Filled Grades:- Standard Filled Compositions:-</b></p> <ul style="list-style-type: none"> <li>• 15/25% Glass Filled TFE-M.</li> <li>• 25/35% Carbon Filled TFE-M.</li> <li>• 15% Graphite Filled TFE-M.</li> <li>• 40 / 60% Bronze Filled TFE-M.</li> <li>• 55% Bronze + 5% <math>\text{MoS}_2</math> Filled TFE-M.</li> <li>• 15% Glass + 5% <math>\text{MoS}_2</math> Filled TFE-M.</li> <li>• TFE-M Components can be available in Non standard – customer specific composition, subject to minimum order quantity</li> <li>• TFE-M Component can be available with Sodium Itching / Chemical Treatment, subject to minimum order quantity.</li> </ul>	



## PTFE Molded Sheets -

Hindustan Nylons manufactures Molded PTFE Sheet in variety of standard sizes.

**Dimension:** Up to 1200mm X 1200mm, **Thickness:** Up to 100mm

**PTFE Sheet** – Molded – are manufactured in Virgin & Filled Grades of PTFE

**End Use** – Gasketing, Sealing & support Pads in Chemical, Pharmaceutical plants

**Filled Grades:- Standard Filled Compositions:-**

- 15/25% Glass Filled TFE-M.
  - 25/35% Carbon Filled TFE-M.
  - 15% Graphite Filled TFE-M.
  - 40 / 60% Bronze Filled TFE-M.
  - 55% Bronze + 5% MOS2 Filled TFE-M.
  - 15% Glass + 5% MOS2 Filled TFE-M.
  - TFE-M Components can be available in Non standard – customer specific composition, subject to minimum order quantity
- TFE-M Component can be available with Sodium Itching / Chemical Treatment, subject to minimum order quantity.



## PTFE Skived Sheets

Hindustan Nylons manufactures PTFE Skived Sheet in variety of standard sizes.

**Thickness:** Up to 3mm, **Width:** Up to 1200mm

**PTFE Skived Sheets** are available in Standard grades such as Virgin Conventional PTFE & Virgin Chemically Modified PTFE

**End Use** – Gasketing, Sealing & support Pads in Chemical, Pharmaceutical plants



## PTFE Ram Extruded Pipe -

Hindustan Nylons manufactures Ram Extruded PTFE Pipes in variety of standard sizes.

**Diameter:** Up to 100mm, **Length:** Up to 3300mm

**PTFE Pipe** – Ram Extruded - are available in Standard grades such as Virgin Conventional PTFE & Virgin Chemically Modified PTFE

**End Use** – For transporting aggressive chemicals, Petroleum products, Adhesives, Pharmaceuticals, Medicines



## PTFE Paste Extruded Tubing -

Hindustan Nylons manufactures Paste Extruded PTFE Tubings –in variety of standard sizes.

**Wall Thickness:** 0.8, 1, 1.5, **From** 1.6 mm ID, up to 25 mm ID

**End Use** – For transporting aggressive chemicals, Petroleum products, Adhesives, Pharmaceuticals, Medical Instruments.



## PTFE Gaskets

Hindustan Nylons manufactures PTFE Gaskets as per variety of standards such as ASA, DIN, BS etc for raised face & full face flanged joints.

PTFE Gaskets are produced in various types such as Slit type Envelop Gaskets, Milled type Envelop Gaskets & Ready Cut / Solid Gaskets.

**Diameter:-** Upto 1000 NB

**Thickness:-** 0.5+0.5, 0.5+Gap+0.5, 1.5, 2, 3mm

PTFE Gaskets can be manufactured as per Customer specific sizes subject to minimum order quantity



## PTFE Bellows / Expansion Joints

Hindustan Nylons manufactures PTFE Bellows / Expansion Joints from full vacuum up to high pressure (10 kg/cm<sup>2</sup>) application with accessories such as internal sleeve, external ring, connection Rods, Connection Flanges etc.


**Diameter:-** 25mm ID ~ 600mm ID


**Length:-** upto 300mm

PTFE Bellows / Expansion Joints can be manufactured as per Customer specific sizes subject to minimum order quantity







<b>PTFE Valve Component</b>	
Hindustan Nylons manufactures PTFE Valve Components such as:- Ball Valve Seals & Seats, Butterfly Valve Seats & Liners, Plug Valve Sleeves in variety of Grades such as:- Virgin PTFE, Modified PTFE, Filled Grades of PTFE.	
<b>Diameter:-</b> upto 1000mm <b>Length:-</b> upto 1000mm	
PTFE Valve Components can be manufactured as per Customer specific sizes subject to minimum order quantity	


<b>PTFE Bridge Bearing Pads</b>	
Hindustan Nylons manufactures PTFE Bridge Bearing Pads as per Indian Standard: Code IRC-83 with one side dimpled for lubricant holding & other side – Sodium Itched – for Gluing.	
<b>Size:-</b> upto 1000mm Square or Circular <b>Thickness:-</b> 3mm ~ 6mm	
PTFE Bridge Bearing Pads can be manufactured as per Customer specific sizes subject to minimum order quantity.	


<b>PTFE Wear Strips / Bands</b>	
Hindustan Nylons manufactures PTFE Wear Strips / Bands. PTFE Wear Strips / Bands are manufactured in Virgin PTFE, Chemically Modified PTFE, Carbon Filled PTFE, Bronze Filled PTFE & other filled grades of PTFE.	
<b>Standard Sizes:-</b> 5.8, 9.5, 14.8, 19.8 & 24.8 mm Widths, 2.5 mm Thk in 25 Metres Length	
PTFE Wear Strips / Bands can be manufactured as per Customer specific sizes subject to minimum order quantity <b>Non-standard Sizes:-</b> upto 50 mm Width, upto 5 mm Thk & 25 Metres Length	


<b>PTFE Machined Components</b>	
Hindustan Nylons manufactures PTFE & Filled PTFE Machined Components such as PTFE Balls, PTFE 'O' Rings, PTFE Chevron Packings, PTFE D-Rings etc as per Customers specification & Drawings.	
<b>Size:-</b> upto 1000mm Diameter & 1000mm L	
PTFE Machined Components can be manufactured as per Customer specific sizes subject to minimum order quantity	



<b>PTFE Diaphragms</b>	
Hindustan Nylons manufactures PTFE Diaphragms – plain, bonded to Rubber / Cushioned by Rubber for Diaphragm Valves, Diaphragm Pumps.	
<b>Size:-</b> upto 1000mm Dia	
<b>Thickness:-</b> Upto 3~5mm	
PTFE Diaphragm are manufactured in Virgin PTFE, Chemically Modified PTFE Antistatic PTFE & conductive PTFE depending upon service conditions & application.	

<b>PTFE Balls</b>	
Hindustan Nylons manufactures PTFE Balls / PTFE Spheres in variety of Grades such as Virgin PTFE, Chemically Modified PTFE, Carbon Filled PTFE, Glass Filled PTFE, Bronze Filled PTFE & other filled grades of PTFE.	
<b>Standard Sizes:-</b> 6, 8, 10, 12, 16, 19, 20, 22 & 25 mm Diameter	
Non-standard Sizes:- PTFE Balls more than 25 mm Diameter can be manufactured upto 150 mm Diameter, on request, subject to minimum order quantity.	

<b>Trexonn Machine Tool Slideway Liners</b>	
Hindustan Nylons manufactures Trexonn Brand Machine Tool Slide-way Liners. Trexonn Slide-way Liner basically consists of Liner fixed on sliding part of machine Slide-way for antifriction, vibration dampening purpose.	
<b>Standard Sizes:-</b> 1, 1.5, 2, 2.5 & 3 mm Thickness, 305 mm Width in Roll form.	
<b>Non-standard Sizes:-</b> Trexonn Machine Tool Slide-way Liners can be manufactured in Non-standard sizes on request, subject to minimum order quantity.	

Sterling Brand Un-sintered PTFE Thread Seal Tape:-					
Hindustan Nylons manufactures sterling brand un-sintered PTFE Thread Seal Tape in variety of Models & sizes:-					
Sr. No.	Model	Size:	Density (gm/cc)	Service Conditions	Applications
1	I – Premium	12/19/25mm W X 0.075mm Thk X 12 Mtr L	1.00	High Pressure → 250 kg/cm <sup>2</sup> – 250°C	Hydraulic, Petroleum, Petrochemicals, Gaseous, Space, Nuclear
2	II – Standard	12/19/25mm W X 0.075mm Thk X 10 Mtr L	0.75	Medium Pressure → 100 kg/cm <sup>2</sup> – 200°C	Pharma, Pneumatic, Food & Beverages
3	III – General	12/19/25mm W X 0.075mm Thk X 10 Mtr L	0.25	Low Pressure → 1 kg/cm <sup>2</sup> – 50°C	Domestic Water
Sterling PTFE Thread Seal Tape can be manufactured in non-standard sizes / quality as per customers' specification. Sterling Un-sintered PTFE Thread Seal Tape are manufactured & available as per variety of grades in specifications within BS-4375 replaced by BS-7786, ASTM-D-6585, MIL-T-27730 replaced by MIL-A-A58092, AS-1272 & IS-14635 based on customers' instructions					



## PTFE Non-Asbestos Packing

### PTFE Non-Asbestos Packing from PTFE Products Manufacturer in India:-


**Hindustan Nylons** – leading PTFE Non-Asbestos Packing Manufacturer in India, manufactures widest Range of PTFE Non-Asbestos Packing in variety of grades & styles.

The standard PTFE products include PTFE Universal Rope, PTFE Braided Packing, Graphite Blended PTFE Braided Packing, PTFE & Graphite PTFE Combination Braided Packing, Pure Expanded Graphite Packing, Aramid Packing Impregnated with PTFE, Aramid cornered PTFE Braided Packing, Aramid cornered Graphite Blended PTFE Packing.

### Sterling Brand Non-Asbestos Packing / Mergollar:-


Hindustan Nylons manufactures Sterling Brand Non Asbestos packing in variety of styles & sizes for Sealing & Gasketing of static, Rotary & Reciprocating Joints:-

<b>Style No:-</b> HN-111		<b>Title:-</b> PTFE Universal Rope	
<b>Ideal For:-</b> Static Seal for Valves & Gasketing			
<b>Properties</b>		<b>Service Conditions</b>	
1] Good chemical resistance, inert to most media, 2] Soft & Resilient 3] Self Lubrication/ Low coefficient of friction 4] High Temperature Resistance		Temp ( <sup>o</sup> C) -100~260	Pressure (kg/cm <sup>2</sup> ) 20P, 50R, 100V
		PH Range 0-14	Speed (m/s) 4P, 1R
<b>Service Medium</b>		<b>Not Recommended For:-</b> Fluorine, Fluorine complexes & Alkali Metals	
1] Non Drinking Water 2] Chilled Water 3] Warm Water 4] Hot Water 5]Mild Acids & Alkalies 6] Paints & Dyes	7] Adhesives 8] Petroleum 9] Paper Pulp 10] Oils & Greases 11] Mineral Oil	<b>Forms:-</b> Round / Square Section, Rope form	
		<b>Sizes Available:-</b> 3mm ~ 25mm	
		<b>Packing Size:-</b> 5m ~ 30m	



P= Pump, R= Reciprocating, V= Valves


<b>Style No:-</b> HN-222		<b>Title:-</b> PTFE Braided Packing–(Dry) with/ without silicon core	
<b>Ideal For:-</b> Low cost, Universal packing for Water, Gas, Mild Chemicals			
<b>Properties</b>		<b>Service Conditions</b>	
1] Good chemical resistance, inert to most media, 2] Good Dimensional Stability 3] Soft & Resilient 4] Self Lubrication/ Low coefficient of friction 5] High Temperature Resistance		Temp (°C) -200~260	Pressure (kg/cm <sup>2</sup> ) 20P, 100R, 250V
		PH Range 0-14	Speed (M/s) 10P, 1R
<b>Service Medium</b>		<b>Not Recommended For:-</b> Fluorine, Fluorine complexes & Alkali Metals	
1] Drinking Water 2] Non Drinking Water 3] Chilled Water 4] Warm Water 5] Hot Water 6] Steam Water, Steam & Vapours 7] Mild Chemicals 8] Gaseous Environment	9] Paints & Dyes 10] Adhesives 11] Petroleum 12] Liquor & Alcohol 13] Paper Pulp 14] Oils & Greases 15] Mineral Oil	<b>Forms:-</b> Square Section, Ring & Rope form	
		<b>Sizes Available:-</b> 3mm ~ 25mm	
		<b>Packing Size:-</b> 1kg ~ 10kg depending upon size	



P= Pump, R= Reciprocating, V= Valves




<b>Style No:-</b> HN-333		<b>Title:-</b> PTFE Braided Packing Impregnated with PTFE Dispersion – with / without silicon core	
<b>Ideal For:-</b> Universal packing for Medical, Juices, Pharmaceutical, Liquor & Alcohol, Food Stuff Application (FDA component)			
<b>Properties</b>		<b>Service Conditions</b>	
1] Good chemical resistance, inert to most media, 2] Good Dimensional Stability 3] Soft & Resilient 4] High Density 5] Self Lubrication/ Low coefficient of friction 6] Suitable to food contact application 7] High Temperature Resistance 8] Excellent volume stability 9] Suitable to Medical/ Pharmaceutical Applications 10] Low Permeability		Temp (°C) -200~260	Pressure (kg/cm <sup>2</sup> ) 50P, 150R, 250V
		PH Range 0-14	Speed (M/s) 5P, 1R
<b>Service Medium</b>		<b>Not Recommended For:-</b> Fluorine, Fluorine complexes & Alkali Metals	
1] Drinking Water 2] Liquor & Alcohol 3] Juice  4] Pharmaceuticals 5] Food Stuff 6] Medical		<b>Forms:-</b> Square section, Ring & Rope form	
		<b>Sizes Available:-</b> 3~25mm	
		<b>Packing Size:-</b> 1~10 kg depending upon size	





P=Pump, R=Reciprocating, V=Valves

<b>Style No:-</b> HN-444		<b>Title:-</b> PTFE Braided Packing Impregnated with PTFE Dispersion & Lubricated with inert High temperature Lubricant with / without silicon core	
<b>Ideal For:-</b> Universal packing for Low friction, Aggressive (Non-abrasive) Chemical, & Corrosive Gases			
<b>Properties</b>		<b>Service Conditions</b>	
1] Good chemical resistance, inert to most media, 2] Low startup friction, 3] Good Dimensional Stability 4] Soft & Resilient 5] Self Lubrication/ Low coefficient of friction 6] High Temperature Resistance 7] Excellent volume stability 8] Low Permeability		Temp ( <sup>o</sup> C) -200~260	Pressure (kg/cm <sup>2</sup> ) 20P, 100R, 200V
		PH Range 0-14	Speed (m/s) 15P, 2R
<b>Service Medium</b>		<b>Not Recommended For:-</b> Fluorine, Fluorine complexes & Alkali Metals	
1] Gaseous Environment 2] Petrochemicals	3]Aggressive Chemicals	<b>Forms:-</b> Square section, Ring & Rope form	
		<b>Sizes Available:-</b> 3~25mm	
		<b>Packing Size:-</b> 1~10 kg depending upon size	






P=Pump, R=Reciprocating, V=Valves



<b>Style No:-</b> HN-555		<b>Title:-</b> Graphite Blended PTFE Braided Packing, Lubricated with / without inert high temperature lubricant	
<b>Ideal For:-</b> Low friction for Universal packing for Aggressive & Viscous chemicals.			
<b>Properties</b>		<b>Service Conditions</b>	
1] Good chemical resistance, inert to most media, 2] Low startup friction, 3] Good Dimensional Stability 4] Good Heat dissipation properties 5] Soft & Resilient 6] Self Lubrication/ Low coefficient of friction 7] Low Shaft wear 8] No Jamming on shaft, lower shaft erosion 9] High Temperature Resistance 10] Excellent volume stability		Temp (°C) -240~300	Pressure (kg/cm <sup>2</sup> ) 25P, 250R, 250V
		pH Range 0-14	Speed (m/s) 20P, 3R
<b>Service Medium</b>		<b>Not Recommended For:-</b> Fluorine, Fluorine complexes, Alkali Metals, Nitric Acid, Oxygen & Oxidizing Agents	
1] Paints & Dyes 2] Paper Pulp 3] Oils & Greases	4] Mineral Oil 5] Adhesives	<b>Forms:-</b> Square section, Ring & Rope form	
		<b>Sizes Available:-</b> 3~25mm	
		<b>Packing Size:-</b> 1~10 kg depending upon size	





P=Pump, R=Reciprocating, V=Valves


<b>Style No:-</b> HN-666		<b>Title:-</b> PTFE & Graphited PTFE combination Braided Packing	
<b>Ideal For:-</b> Universal packing for Low friction applications for Aggressive Chemicals & Corrosive Gases			
<b>Properties</b>		<b>Service Conditions</b>	
1] Good chemical resistance, inert to most media, 2] Low startup friction, 3] Good Dimensional Stability 4] Good Heat dissipation properties 5] Soft & Resilient 6] Self Lubrication/ Low coefficient of friction 7] Low Shaft wear 8] No Jamming on shaft, lower shaft erosion 9] High Temperature Resistance 10] Excellent volume stability		Temp ( <sup>o</sup> C) -200~260	Pressure (kg/cm <sup>2</sup> ) 20P, 100R, 250V
		pH Range 0-14	Speed (m/s) 25P, 3R
<b>Service Medium</b>		<b>Not Recommended For:-</b> Fluorine, Fluorine complexes, Alkali Metals, Nitric Acid, Oxygen & Oxidizing Agents	
1] Non Drinking Water 2] Chilled Water 3] Warm Water 4] Hot Water 5] Steam Water 6] Mild Acids & Alkalies	7] Petroleum 8] Liquor & Alcohol 9] Paper Pulp 10] Oils & Greases 11] Mineral Oil 12] Aggressive Chemicals	<b>Forms:-</b> Square section, Ring & Rope form	
		<b>Sizes Available:-</b> 3~25mm	
		<b>Packing Size:-</b> 1~10 kg depending upon size	



P=Pump, R=Reciprocating, V=Valves



<b>Style No:</b> HN-777		<b>Title:-</b> Pure Expanded Graphite Packing – with / without Reinforcement Metallic wire	
<b>Ideal For:-</b> Universal packing for High Temperature - Aggressive or Abrasive or Viscous chemicals			
<b>Properties</b>		<b>Service Conditions</b>	
1] Good chemical resistance, inert to most media, 2] Low startup friction, 3] High Density 4] Good Dimensional Stability 5] Good Heat dissipation properties 6] Self Lubrication/ Low coefficient of friction 7] Suitable to food contact application 8] Low Shaft wear 9] No Jamming on shaft, lower shaft erosion 10] Very High Temperature Resistance 11] No Heat Buildup, last Resistance to Abrasive/ Erosion media 12] Excellent volume stability		Temp (°C) -100~650	Pressure (kg/cm <sup>2</sup> ) 35P, 150R, 350V
		pH Range 0-14	Speed (m/s) 25P, 2R
<b>Service Medium</b>		<b>Not Recommended For:-</b> Fluorine, Fluorine complexes, Alkali Metals, Nitric Acid, Oxygen & Oxidizing Agents	
1] Non Drinking Water 2] Sea Water 3] Ash Water 4] Soiled Water / Mud 5] Paints & Dyes 6] Adhesives 7]Petroleum Tar/Bitumen	8] Sewage 9] Abhrasive Slurry 10] Paper Pulp 11] Oils & Greases 12] Mineral Oil 13]Agreesive Chemicals	<b>Forms:-</b> Square section, Ring & Rope form	
		<b>Sizes Available:-</b> 3~25mm	
		<b>Packing Size:-</b> 1~10 kg depending upon size	




P=Pump, R=Reciprocating, V=Valves



P= Pump, R=Reciprocating, V=Valves

<b>Style No:-</b> HN-888		<b>Title:-</b> Aramid Packing Impregnated with PTFE & lubricated with inert high temperature lubricant	
<b>Ideal For:-</b> Universal packing for Abrasive & Viscous Liquids			
<b>Properties</b>		<b>Service Conditions</b>	
1] Good chemical resistance, inert to most media, 2] high Mechanical strength, 3] High Density 4] Good Dimensional Stability 5] Self Lubrication/ Low coefficient of friction 6] Low Shaft wear 7] No Jamming on shaft, lower shaft erosion 8] High Temperature Resistance 9] No Heat Buildup, last Resistance to Abrasive/ Erosion media 10] Excellent volume stability		Temp (°C) -240~300	Pressure (kg/cm <sup>2</sup> ) 25P, 200R, 275V
		pH Range 0-14	Speed (m/s) 25P, 2R
<b>Service Medium (Highly suitable for)</b>			
1] Sea Water 2] Ash Water 3] Soiled Water / Mud 4] Paints & Dyes 5] Adhesives  6] Petroleum / Tar / Bitumen 7] Sewage 8] Abhrasive Slurry 9]Aggressive Chemicals 10] Abrasive & Viscous Slurry		<b>Not Recommended For:-</b> Fluorine, Fluorine complexes, Alkali Metals, Nitric Acid, Oxygen & Oxidizing Agents	
		<b>Forms:-</b> Square section, Ring & Rope form	
		<b>Sizes Available:-</b> 3~25mm	
		<b>Packing Size:-</b> 1~10 kg depending upon size	






P= Pump, R=Reciprocating, V=Valves




<b>Style No:-</b> HN-999		<b>Title:-</b> Aramid cornered PTFE braided packing	
<b>Ideal For:-</b> Universal packing for High Pressure Application for Viscous Liquids			
<b>Properties</b>		<b>Service Conditions</b>	
1] Good chemical resistance, inert to most media, 2] high Mechanical strength, 3] High Density 4] Good Dimensional Stability 5] Self Lubrication/ Low coefficient of friction 6] Low Shaft wear 7] No Jamming on shaft, lower shaft erosion 8] High Temperature Resistance 9] No Heat Buildup, last Resistance to Abrasive/ Erosion media 10] Excellent volume stability		Temp ( <sup>o</sup> C) -200~260	Pressure (kg/cm <sup>2</sup> ) 150P, 250R, 250V
		PH Range 2-12	Speed (m/s) 10P, 2R
<b>Service Medium (Highly suitable for)</b>		<b>Not Recommended For:-</b> Fluorine, Fluorine complexes, Alkali Metals, Nitric Acid, Oxygen & Oxidizing Agents	
1] Hot Water 2] Steam Water 3] Mild Acids & Alkalies 4]Gaseons Environment	5] Paints & Dyes 6] Adhesives 7] Paper Pulp	<b>Forms:-</b> Square section, Ring & Rope form	
		<b>Sizes Available:-</b> 3~25mm	
		<b>Packing Size:-</b> 1~10 kg depending upon size	





P=Pump, R=Reciprocating, V=Valves

<b>Style No:</b> HN-1010		<b>Title:-</b> Aramid cornered Graphite blended PTFE packing	
<b>Ideal For:-</b> Universal packing for Aggressive, Viscous & Abrasive Liquids			
<b>Properties</b>		<b>Service Conditions</b>	
1] Good chemical resistance, inert to most media, 2] high Mechanical strength, 3] Low startup friction, 4] High Density 5] Good Dimensional Stability 6] Good Heat dissipation properties 7] Soft & Resilient 8] Self Lubrication/ Low coefficient of friction 9] Suitable to food contact application 10] Low Shaft wear 11] No Jamming on shaft, lower shaft erosion 12] High Temperature Resistance 13] No Heat Buildup, last Resistance to Abrasive / Erosion media 14] Excellent volume stability		Temp ( <sup>o</sup> C) -240~300	Pressure (kg/cm <sup>2</sup> ) 25P, 250R, 250V
		PH Range 0-12	Speed (m/s) 20P , 5R
<b>Service Medium (Highly suitable for)</b>		<b>Not Recommended For:-</b> Fluorine, Fluorine complexes, Alkali Metals, Nitric Acid, Oxygen & Oxidizing Agents	
1] Sea Water 2] Ash Water 3] Solied Water / Mind 4]Petroluum Tar/Bitumen	5] Sewage 6] Abhrasive Slurry 7] Aggressive Chemical 8]Abrasive & Viscous Slurry	<b>Forms:-</b> Square section, Ring & Rope form	
		<b>Sizes Available:-</b> 3~25mm	
		<b>Packing Size:-</b> 1~10 kg depending upon size	






P=Pump, R=Reciprocating, V=Valves



<b>Style No:</b> HN-1011		<b>Title:-</b> Expanded PTFE Joint Sealant Tape with/without Adhesive Backing	
<b>Ideal For:-</b> Static Seal as Gasket			
<b>Properties</b>		<b>Service Conditions</b>	
1] Good chemical resistance, inert to most media 2] Soft & Resilient 3] Self Lubrication/Low coefficient of friction 4] High Temperature Resistance		Temp ( <sup>o</sup> C) -240 to +260	Pressure (kg/cm <sup>2</sup> ) -200
		PH Range 0~14	
<b>Service Medium</b>			
1] Non Drinking Water 2] Chilled Water 3] Warm Water 4] Hot Water 5] Mild Acids & Alkalies 6] Paints & Dyes		7] Adhesives 8] Petroleum 9] Paper Pulp 10] Oils & Greases 11] Mineral Oil	
		<b>Not Recommended For:-</b> Fluorine, Fluorine complexes & Alkali Metals  <b>Forms:-</b> Rectangular Rope	





## Sizes Available / Standard Size:-

Width (mm)	5	5	7	10	12	14	14	17	19	20	20	20
Thickness (mm)	2	3	2.5	3	4	3	5	6	5	3	5	7
Length (mtrs)	30	30	30	20	10	10	10	10	5	5	5	5
Width (mm)	25	25	25	25	30	30	40	40	45	50	55	70
Thickness (mm)	1	5	7	10	3	5	3	5	3	3	3	3
Length (mtrs)	10	5	5	5	5	5	5	5	5	5	5	5



## Standard Specifications for PTFE and Filled PTFE

PolyTetraFluoroEthylene-PTFE forms are standardized worldwide by many countries as ASTM (USA) ISO (Europe), JIS (Japan), Indian Standard (IS), & British Standard (BS). The research Institutes & Industries mostly follows ASTM & ISO standards for standardizing & defining PTFE Resin / Primary Forms, Test Procedure of PTFE Resin / Primary Forms & PTFE Products / Secondary Forms.

## Code, Standard & Specification

ASTM Standards		
A. Specifications PTFE Resin Filled PTFE Compound- Primary Forms		
Sr. No.	Title	No.
1	PTFE Resin	D - 1457 D - 4894
2	Filled PTFE Compounds	D - 4745
B. Test Procedure PTFE Resin - Primary Forms		
1	Apparent Density	D - 1895
2	Bulk Factor	D - 1895
3	Pourability	D - 1895
4	Filler Content	E - 1131
5	Particle Size	D - 4894
6	Shrinkage	D - 4894
7	Flow Index (Powder Flow)	D - 1855
8	Colour / Appearance	D - 6290
9	Water Content	D - 6980
C. Specifications PTFE Products Secondary Forms		
1	PTFE Molded Basic Shapes	D - 3294
2	PTFE Rod - Molded	D - 1710
3	PTFE Bush - Molded	D - 1710
4	PTFE Rod - Ram Extruded	D - 3295
5	PTFE Tube - Ram Extruded	D - 3295
6	PTFE Molded Sheet	D - 3294
7	PTFE Skived Sheet	D - 3308
8	PTFE Tube - Paste Extruded	D - 1710
9	PTFE Thread Seal Tape	D - 6585
D. Test Procedure PTFE Products - Secondary Forms		
1	Density	D - 792
2	Tensile Strength	D - 638
3	Elongation	D - 638
4	Compressive strength	D - 695
5	Deformation Under Load	D - 621
6	Flexural Strength	D - 790
7	Impact Strength	D - 236
8	Hardness Shore D	D - 2240
9	Coefficient of Friction	D - 1894
10	Water Absorption	D - 570
11	Heat Deflection Temperature	D - 648
12	Continuous Service Temperature	D - 648
13	Thermal Conductivity	D - 2214
14	Melting / Softening Temperature	D - 1525
15	Linear Thermal Expansion	D - 696
16	Dielectric Strength	D - 149
17	Volume Resistivity	D - 257
18	Surface Resistivity	D - 258
19	Dimensional Stability	D-1710
20	Chemical Resistance	D - 543
21	Wear Rate	D - 137
British Standards PTFE Resin (Primary Form) Products(Secondary Form)		
1	Specification of PTFE Materials (Primary Forms)	BS ISO 12086
2	Test Procedures of PTFE Resin (Primary Forms)	BS ISO 12086
3	Specification of PTFE Parts (Secondary Forms)	BS EN ISO 13000-I
4	Test Procedures of PTFE Parts (Secondary Forms)	BS EN ISO 13000-II
Indian Standards - PTFE Resin (Primary Form)		
1	Polytetrafluoroethylene (PTFE) Materials for Moulding Extrusion	IS-14635



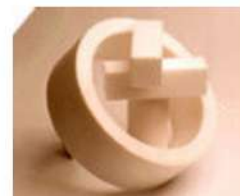
## Applications of PTFE and Filled PTFE -

### Applications of PTFE & Filled PTFE in Fluid Handling:-

PTFE & Filled PTFE Products are used in Fluid Handling applications in Chemical, Pharmaceuticals, Petrochemical, and Petroleum Industries mainly due to extraordinary chemical resistance to almost any service condition along with high thermal resistance. The major application include:

- PTFE Gasketing material: Gaskets, O/D/V/U Rings, Universal Rope, Crescent Rings for Glass Pipelines.
- PTFE Expansion Joints : Bellows
- PTFE Ball Valves Seats - Seals
- PTFE Diaphragms of Diaphragms Valves and Pumps.
- PTFE Laboratory Ware: Beakers, Plug Cock.
- PTFE Sleeves of Plug Valves.
- PTFE Mechanical Seals of Pumps
- PTFE Impellers / Body of Pumps.
- PTFE Tubing and Hoses.
- PTFE Liners of Reactors, Storage Vessels / Pipes and Flanges.
- PTFE Thread Seal Tapes.
- PTFE Liners / Disc of Butterfly Valves.

Hindustan Nylons manufactures most of these products in PTFE & filled PTFE compositions/ grades.



### Application of PTFE & Filled PTFE in Mechanical Engineering:-

PTFE & Filled PTFE Products find many applications in mechanical & civil engineering industries such as Machine Tools, Air Compressor, Bridge Bearing, and Hydraulic & Pneumatic Seals due to its unique surface – friction/wear properties.

The major application include:-

- PTFE Low Friction Liners for machine tools guide ways and slide ways.
- PTFE Piston Rings for dry running air compressor.
- PTFE Low load high speed bush bearings.
- PTFE Guide bands & Piston Seals for hydraulic and pneumatic actuators.
- PTFE Hysteresis- Friction Washers for automobile clutches.
- PTFE Bridge Support bearing pads.
- PTFE Bearing / pads for sprinklers.
- PTFE Pipeline Support Bearing Pads.
- PTFE Railway bogie bearings.
- PTFE Bearings for Conveyor belts
- PTFE Gear Case wiper Rings.
- PTFE Bearings / Pads for Actuators.
- PTFE Support pads/ Wear strips / bearing pads in Railway bogies.
- PTFE Support pads/ Wear strips / bearing pads in machine tools & equipments

Hindustan Nylons manufactures most of these products in PTFE & filled PTFE compositions.



### Applications of PTFE & Filled PTFE in Electrical & Electronics Engineering:-

PTFE & Filled PTFE Products are mainly used in Electrical & Electronics Engineering Industries such as Electric Switch Gears, Capacitor, Traction Motors, and Traction Generators mainly due to its outstanding Electrical Insulation characteristics.

The major application include:-

- PTFE Nozzles for SF6 circuit breakers.
- PTFE Ultra thin sintered insulation tapes for traction machine.
- PTFE Capacitors film.
- PTFE Brush Holders.
- PTFE Thin walled spaghetti tubing for insulation in aircraft and space vehicles
- PTFE Ultra thin tape for failsafe applications.
- PTFE Barb Insulators.
- PTFE Heat Shrinkable sleeving for insulation.
- PTFE Connectors.

Hindustan Nylons manufactures most of these products in PTFE & filled PTFE compositions.





## 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:-

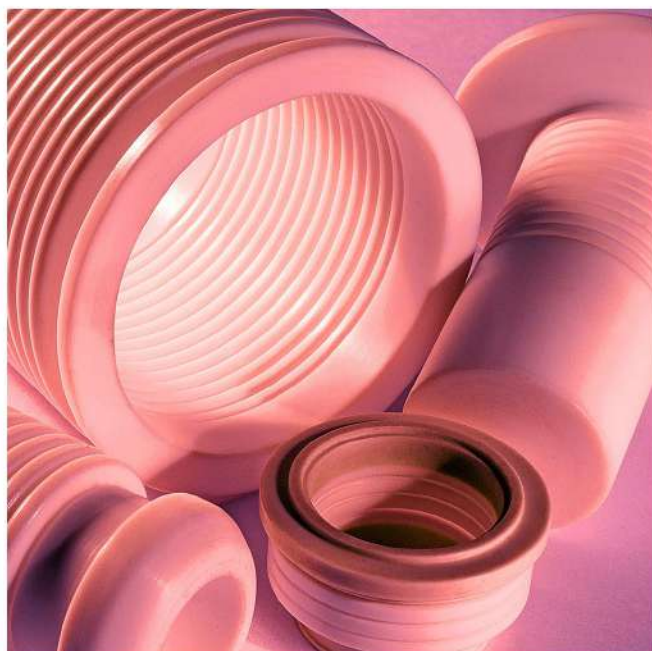
Sr. No.	Property	Unit	Test Method	Virgin PTFE	Chemically Modified PTFE	15% Glass Filled PTFE	25% Glass Filled PTFE	5% Glass +5% MoS <sub>2</sub> Filled PTFE	15% Glass +5% MoS <sub>2</sub> Filled PTFE	25% Carbon / 25% Carbon + 2% Graphite Filled PTFE	35% Carbon / 33% Carbon + 2% Graphite Filled PTFE	15% Graphite Filled PTFE	40% Bronze Filled PTFE	40% Bronze + 5% MoS <sub>2</sub> Filled PTFE	60% Bronze Filled PTFE	55% Bronze + 5% MoS <sub>2</sub> Filled PTFE
				1	2	3	4	5	6	7	8	9	10	11	12	13
1	Colour	-	Visual	Milky White	Translucent White	Light Crème	Crème	Light Grey	Grey	Black	Jet Black	Dark Grey	Brown	Brownish Black	Dark Brown	Dark Brownish Black
2	Density	gm / cc.	ASTM D-792	2.1 – 2.2	2.1 – 2.15	2.15 – 2.22	2.22 – 2.25	2.2 – 2.24	2.2 – 2.24	2 – 2.15	2 – 2.1	2.1 – 2.15	2.9 – 3.1	2.9 – 3.1	3.8 – 4	3.8 – 4
3	Tensile Strength	kg/cm <sup>2</sup>	ASTM D-638	200 – 300	300 – 400	175 – 250	125 – 200	175 – 250	150 – 200	125 – 175	100 – 150	125 – 175	150 – 200	125 – 175	150 – 200	125 – 175
4	Elongation of Break	%	ASTM D-638	250 – 350	350 – 450	200 – 250	150 – 200	175 – 225	150 – 200	100 – 150	75 – 125	200 – 250	250 – 300	200 – 250	200 – 250	150 – 200
5	Compressive Strength (1% Deformation)	kg/cm <sup>2</sup>	ASTM D-695	35 – 45	45 – 60	55 – 65	60 – 70	50 – 60	55 – 65	50 – 60	55 – 65	40 – 50	70 – 80	75 – 85	100 – 110	100 – 110
-	Compressive Strength (10% Deformation)			140 – 160	170 – 200	180 – 200	190 – 210	160 – 180	180 – 200	160 – 180	180 – 200	150 – 170	200 – 220	210 – 230	250 – 300	250 – 300
6	Deformation under load (Maximum)		ASTM D-621													
a	2 Hrs., 23°C, 113 kgf	%		7	4	6	5	7	6	5	4	6	3	3	2	2
b	24 Hrs., 23°C, 113 kgf	%		10	6	8	7	9	8	7	6	8	5	5	4	4
c	Permanent	%		8	5	7	6	8	7	6	5	7	4	4	3	3
7	Impact strength	J/cm	ASTM D-256	0.5 – 1	2 – 3	1 – 1.5	1 – 1.5	1.5 – 2	1 – 1.5	1.5 – 2	1 – 1.5	1.75 – 2.25	1.5 – 1.75	1.75 – 2.25	1.5 – 1.75	1.75 – 2.25
8	Hardness	Shore D	ASTM D-2240	50 – 55	55 – 60	55 – 60	56 – 62	55 – 60	56 – 62	60 – 65	62 – 68	58 – 62	60 – 65	60 – 65	62 – 68	62 – 68
9	Dimensional stability		ASTM-D-1710													
a	Length	%		0.5 – 1	0.5 – 1	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5
b	Diameter	%		0.5 – 1	0.5 – 1	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5	0.1 – 0.5
10	Coefficient of Friction (Maximum)		ASTM-D-1894													
a	Static			0.050	0.045	0.065	0.07	0.055	0.060	0.060	0.065	0.055	0.065	0.060	0.070	0.065
b	Dynamic			0.040	0.040	0.060	0.065	0.050	0.055	0.050	0.055	0.050	0.060	0.055	0.065	0.060
11	Wear Rate (Maximum) X 10 <sup>-4</sup>	$\frac{\text{mm}^3}{\text{N-m}}$	ASTM-G-137	3	2	2.5	2	2.5	2	2.5	2	2.5	1.5	1.5	1	1
12	Water Absorption (Maximum)	%	ASTM D-570	0	0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
13	Service Temperature (Maximum)	°C	ASTM-D-648	260	260	260	260	260	260	260	260	260	260	260	260	260
14	Heat Deflection Temperature	°C	ASTM-D-648	55	60	65	65	65	65	65	65	65	65	65	65	65
15	Melting / Softening Temperature	°C	ASTM-D-1525	335	335	335	335	335	335	335	335	335	335	335	335	335
16	Dielectric Strength (Short Time)	Kv/mm	ASTM D-149	22 – 24	24 – 28	10 – 12	5 – 6	12 – 14	8 – 10	2 – 3	2 – 3	2 – 3	Conductive	Conductive	Conductive	Conductive
A	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.															
B	Data quoted are average values only & should not be used for designed purpose.															
C	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, based on & similar to above referred ASTM's.															



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◀ **PTFE : TOUGH** Polymer for Environment ▶



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Council for Fair Business Practices, India



# HINDUSTAN NYLONS



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PTFE (PolyTetraFluoroEthylene) Products