



RAMPS INDIA

PTFE



**PolyTetraFluoroEthylene
Products**

ABOUT US

We are providing integrated service in top quality PTFE / Teflon Products for more than 30 Years. We have a long and distinguished record of supplying conventional and unconventional shapes and sizes of PTFE/Teflon in a wide variety of configuration. Selection of material, design and tolerances are vital factors in achieving the optimum combination of performance in service & economies in production.

PTFE / TEFLON PRODUCTS RANGE

We are specialized in various PTFE Molded Sheets, Skived Sheets, Expanded Sheet & Gasket, Molded/Extruded Rod, Bushes, Lined Pipes & Tubes, Thread Seal Tape, Machined Components & Parts as per customer's drawings & specification in pure, Carbon, Glass, Bronze, Graphite filled Teflon such as Envelop Gaskets, Ready Cut Solid Gaskets, 'O-ring's, and crescent Rings, Bellows/ Expansion Joints, Valve Components (Valve Seat, Gland Packing, Butterfly Valve Sleeves, Stem Seal) & Pump Components, Lined equipment's, Universal ropes, Joint Sealant Tape etc.

Why parts Made of PTFE?

Durability:

- ❖ Wear characteristics
- ❖ Frictional concerns, Stress

Regulatory Requirements:

- ❖ FDA / USDA/ ASTM

Usage conditions :

- ❖ Chemical environment
- ❖ UV requirements
- ❖ Temperatures

Polytetrafluorethylenes (PTFE)

PTFE has excellent resistance to the majority of chemicals and solvents and is capable of operating at high and low temperatures. It also has a very low coefficient of friction and is commonly used in food contact applications. PTFE provides good thermal stability and has good electrical properties.



PTFE Properties can be improved with the addition/Filling of a glass; graphite; Carbon; Bronze. This filler improves dimensional stability, raises the heat deflection temperature and improves creep resistance.

PTFE Characteristics

- ❖ Extremely good chemical resistance against all media
- ❖ Hot water resistant
- ❖ Very good sliding properties
- ❖ Anti-adhesive
- ❖ Very good UV resistance
- ❖ Very good electrical insulation
- ❖ Soft
- ❖ Difficult to bond
- ❖ Gamma radiation sensitive
- ❖ Non-melting

Applicable Industry

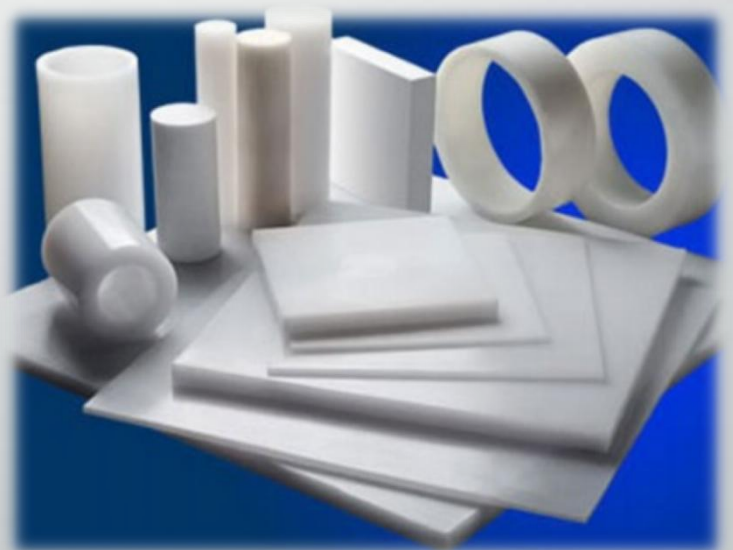
- ❖ Chemical Industry
- ❖ Mechanical Industry
- ❖ Electrical and Electronics Industry
- ❖ Glass Lined Reactors Spares
- ❖ Food Industry
- ❖ Pharmaceutical
- ❖ Power generation & Marine

Applications

Pump housings, valve seats, gaskets, roller coverings, slide bearings, filter housings, etching plates, high frequency insulation, shaft Seals, slide runners, chemical, machine parts, transport and conveyor technology, pump parts and instrument, electrical industry, electronics, laser technology, pure water production, cryogenics, filter technology, food and medical technology.

PTFE SHEET

All type of PTFE Sheets in Standard and Non Standard sizes available as per customer requirement.



Expanded PTFE Sheets are made of 100% PTFE by using special process that produces a uniform and highly fibrillated micro structure with a lot of fibers running in multi directions. These create a soft and pliable, yet very tough gasket that has excellent resistance of pressing, creep relaxation and cold flow. It can seal the uneven and damaged flanges , Possesses universal resistance against common chemicals.

PTFE ROD

PTFE Rod is available in virgin grades. Specific Length and Diameter available as per customer's requirement. PTFE rods also can be made with filled (reinforced) PTFE to enhance the performance parameters of PTFE. Materials available for reinforcement are Glass Fiber, Graphite, Carbon fiber, Bronze.



PTFE TUBE



Extruded/Molded PTFE Pipe has wide range of practicable temperature from -250°C to $+260^{\circ}\text{C}$ and a wax-like surface to which anything hardly sticks. Filled PTFE tube is made with filled (reinforced) to enhance the performance parameters of PTFE. Specific Length and Diameter available as per customer's requirement.





PTFE GASKETS / ENVELOPES

Envelops Gaskets, Ready cut Gaskets, Flange Gaskets available as per customer specifications & as per ASA # 150 / ASA # 300



PTFE PARTS / MACHINED PRODUCTS

Available as per Customer Specifications and as per Drawing in PTFE & All PTFE Filled Grades.



GLAND PACKING:

PTFE ;Graphite; Aramid; Carbon fiber Synthetic fiber packing, widely used for dynamically sealing shafts, valve spinel, plungers, agitators, fans etc.



PTFE Lined Pipe

PTFE lined pipe is made with a thermally locked is statically molded PTFE liner fitted into a seamless ASTM A-106 Gr. B schedule 40 pipe. Isostatic ally molded PTFE liner provides full vacuum rating throughout the entire temperature range.

Pipe: ASTM A 106 Grade B, In compliance with ANSI B 36.10

Steel Pipe: According to schedule 40 from 25NB to 150NB, schedule 30 from 200NB to 250 NB and schedule 20 for 300 NB

Flange: IS 2062 Grade B, ANSI B16.5 ASA150 # for drilled holes

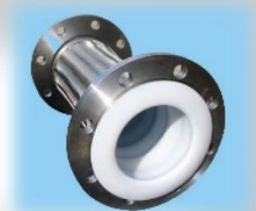
Standard lengths: 100/150/200/300/400/500/000/1500/2000/3000mm

Lining: Pure PTFE in compliance with ASTM D 1457, white in color

Lining thickness: 3 to 8 mm exceeds the relevant ASTM F-1545 standard specs.

Operating temperate : -29°C to 260°C

Operating pressure : up to 6 kg / cm²



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PHYSICAL PROPERTIES OF PTFE & FILLED PTFE PRODUCTS

| Property | Unit | Test Method | Virgin PTFE | 15% Glass Filled PTFE | 25% Glass Filled PTFE | 15% Glass +5% MoS2 Filled PTFE | 25% Carbon / 23% Carbon + 2% Graphite Filled PTFE | 15% Graphite Filled PTFE | 40% Bronze/ TSQ Filled PTFE | 40% Bronze + 5% MoS2 Filled PTFE | 60% Bronze Filled PTFE | | | | | | | | | |
|---|---------------------|--------------|-------------|-----------------------|-----------------------|--------------------------------|---|--------------------------|-----------------------------|----------------------------------|------------------------|-----|-----|-----|------|------|------|------|-----|-----|
| Density | gm / cc | ASTM D-792 | 2.1 – 2.2 | 2.15–2.22 | 2.22– 2.25 | 2.20–2.24 | 2.0 – 2.2 | 2.10–2.16 | 3.0 – 3.2 | 3 – 3.2 | 3.8 – 4.0 | | | | | | | | | |
| Tensile Strength | kgf/cm ² | ASTM D-638 | 210 –375 | 180–260 | 125–200 | 150–220 | 125–200 | 150–200 | 125– 225 | 125-225 | 100– 200 | | | | | | | | | |
| Elongation of Break | % | ASTM D-638 | 250 –400 | 225-325 | 200-300 | 220-320 | 80–150 | 150-250 | 200-350 | 200-350 | 150-300 | | | | | | | | | |
| Compressive Strength | kgf/cm ² | ASTM D-695 | 40-50 | 65-75 | 75-85 | 65-75 | 75–85 | 65-75 | 85-100 | 80-95 | 115-125 | | | | | | | | | |
| Deformation under load (Max.) | | | | | | | | | | | | | | | | | | | | |
| 2 Hrs. 23°C113 kgf | % | ASTM D-621 | 12 | 10 | 9 | 10 | 5 | 6 | 5 | 5 | 4 | | | | | | | | | |
| 24 Hrs. 23°C113 kgf | | | 15 | 12 | 11 | 12 | 7 | 8 | 6 | 6 | 5 | | | | | | | | | |
| Permanent | | | 8 | 7.5 | 7 | 7.5 | 3.5 | 4.5 | 3 | 3 | 2.5 | | | | | | | | | |
| Impact strength | J/cm | ASTM D-256 | 1.4 – 1.5 | 1.2 – 1.3 | 1.0 – 1.1 | 1.2 – 1.3 | 0.7 – 0.8 | 0.8 – 0.9 | 0.9 – 1.0 | 0.9 – 1.0 | 0.8 – 0.9 | | | | | | | | | |
| Hardness | Shore D | ASTM D-2240 | 58 – 62 | 58 – 62 | 58 – 63 | 60 – 65 | 60 – 65 | 60 – 65 | 62 – 66 | 62 – 66 | 64 – 68 | | | | | | | | | |
| Coefficient of Friction | | ASTM- D-1894 | | | | | - | | | | | | | | | | | | | |
| Dynamic P-7 kg/cm ² V-0.5 | | | 0.04- 0.06 | 0.31- 0.37 | 0.5-0.54 | 0.15- 0.20 | 0.12- 0.17 | 0.11-0.16 | 0.11-0.15 | 0.1-0.14 | 0.12-0.16 | | | | | | | | | |
| Static P-35 kg/cm ² | | | 0.05- 0.08 | 0.01- 0.12 | 0.11- 0.13 | 0.08- 0.01 | 0.09-0.11 | 0.08- 0.10 | 0.08-0.10 | 0.075-0.09 | 0.08-0.10 | | | | | | | | | |
| 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 | | | | | | | | | |
| Water Absorption (Max.) | % | ASTM D-570 | 0 | 0.015 | 0.013 | 0.015 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | |
| Continuous Service Temperature | °C | ASTM- D-648 | +260 | +260 | +260 | +260 | +260 | +260 | +260 | +260 | +260 | | | | | | | | | |
| Heat Resistance (Max.) | % | ASTM- D-648 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | | | | | | | | | |
| Coefficient of Linear Thermal Expansion– 10 ⁻⁶ X | % | ASTM D-696 | 250 - 275 | 240 –265 | 235 –255 | 240 –265 | 225 –250 | 240 –265 | 200 – 225 | 200 – 225 | 175 – 200 | | | | | | | | | |
| Linear Thermal Expansion (Max.) | | | A | R | A | R | A | R | A | R | A | R | A | R | A | R | A | R | | |
| 30 – 150°C | % | ASTM D-696 | 1.5 | 1.5 | 1.5 | 1 | 1.5 | 0.7 | 1.5 | 1 | 1.2 | 1 | 1.3 | 1 | 1.15 | 0.95 | 1.15 | 0.95 | 1.1 | 0.9 |
| 30 – 200°C | | | 2.4 | 2.3 | 2.3 | 1.8 | 2.2 | 1 | 2.3 | 1.8 | 1.9 | 1.5 | 2 | 1.7 | 1.85 | 1.55 | 1.85 | 1.55 | 1.8 | 1.5 |
| 30 – 250°C | | | 3.4 | 3.6 | 3.3 | 2.2 | 3.2 | 1.4 | 3.3 | 2.2 | 2.7 | 2.4 | 3 | 2.5 | 2.55 | 2.25 | 2.55 | 2.25 | 2.5 | 2.2 |
| Dielectric Strength | Kv/mm | ASTM D-149 | 22 – 24 | 15 – 16 | 11 – 12 | 15 – 16 | 1 – 2 | 1 – 2 | Conductive | Conductive | Conductive | | | | | | | | | |
| Dimensional stability | | | | | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | |
| 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 | | | | | | | | | |
| Chemical Resistance (Max.) | % | ASTM- D-543 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | | | | | | | | | |
| Permeability | | | | | | | | | | | | | | | | | | | | |
| Dissolution | | | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | | | | | | | | | |

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.

Note: above data quoted are average values only and one should not use it for design purpose.

RAMPS INDIA



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