

## Polytetrafluoro Ethylene (PTFE) Coatings



**PTFE** (Polytetrafluoro Ethylene) **coatings** are two-coat (primer/topcoat) systems that has a successful application as non-stick coatings. PTFE non-stick coated products has highest operating temperature among any fluoropolymer, very low coefficient of friction, excellent abrasion resistance, and great chemical resistance. PTFE coatings can withstand a maximum of 600°F. The surface has a high lubricity property. PTFE coating is typically applied to a thickness of 1-2 mils.

### Benefits of PTFE Coating:

1. **PTFE coating** is an ideal non-stick surface that makes your product a more convenient choice. PTFE coating is very effective and prevents frustrating sticking which is common in cooking products. Some consumers looks specifically for a non-stick **PTFE coating**, which makes your product even more appealing.
2. PTFE coating is **heat** and **water resistant**. The surface is easy to clean and water does not cause the industrial coating to become saturated. In most cases, the surface can be quickly wiped clean or even rinsed to remove any remaining debris in seconds. **PTFE coating** can also withstand temperatures of up to 600 °F (or 260 °C). This makes **PTFE Coating** great choice for a number of heat intensive applications.
3. Chemical resistance is a concern for some products. **PTFE coatings** are not affected by most chemicals found in its environment. If you are concerned about chemical contact, **PTFE is an excellent choice**.
4. The right coating can help your product exceed customer expectations, whether you sell directly to consumers or create parts and equipment for businesses and organizations. The most important step is choosing a product that will enhance your parts at an economical price. You can enhance the properties and capabilities of your parts and products with the help of a quality **PTFE coating**.

**PTFE coating** is available in aqueous based forms. PTFE coatings can provide the solution to many engineering questions particularly those relating to **non-stick** (release), low friction, chemical resistance and wear resistance, there are many other solutions that can be resolved by the application of **PTFE coatings**.

| PHYSICAL                             |                    |
|--------------------------------------|--------------------|
| Density (g/cm <sup>3</sup> )         | 2.16               |
| Water Absorption, 24 hrs (%)         | < 0.01             |
| MECHANICAL                           |                    |
| Tensile Strength (psi)               | 3,900              |
| Tensile Elongation at Break (%)      | 300                |
| Flexural Strength (psi)              | No break           |
| Folding Endurance (cycles)           | > 10 <sup>6</sup>  |
| Flexural Modulus (psi)               | 72,000             |
| Hardness, Shore D                    | D50                |
| IZOD Notched Impact (ft-lb/in)       | 3.5                |
| THERMAL                              |                    |
| Melting Temp (°F / °C)               | 635 / 335          |
| Max Operating Temp (°F / °C)         | 500 / 260          |
| Flammability Rating                  | V-0                |
| ELECTRICAL                           |                    |
| Dielectric Constant at 1 MHz         | 2.1                |
| Dissipation Factor at 1 MHz          | < 0.0002           |
| Arc Resistance (sec)                 | < 300              |
| Volume Resistivity (ohm-cm)at 50% RH | > 10 <sup>18</sup> |

## PTFE COATED STUDS, BOLTS AND NUTS

PTFE coated fastener's provides great corrosion resistance, very low coefficient of friction, consistent tensioning and ease of installation and removal. Extensive testing and field use have proven that the future of coated fastener's lies with Fluoropolymer coatings. Previously hot dip, galvanized, cadmium or zinc plated fastener's were considered the standard. But these coatings could not stand up to the corrosive atmospheres prevalent in many industries. The most widely used application is on B7 studs with 2H nuts.

Dramatic improvements in efficiency, life expectancy and corrosion resistance are claimed to be imparted to Nut and Bolt connectors by the application of a low friction PTFE coating. PTFE coated connectors have out-performed all others in aggressive any noticeable effect.

### Technical Specifications

|                                     |  |
|-------------------------------------|--|
| <b>Use Temperatures</b>             | Working temp. range up to + 260°C                        |
| <b>Corrosioin Resistance</b>        | Salt Spray (ASTM B117) up to 3,000 hrs (Nuts not frozen) |
| <b>Pencil Hardness</b>              | 5H – 6H (ASTM D3363-92A)                                 |
| <b>Kinetic Friction Coefficient</b> | 0.06 – 0.08  |
| <b>Thickness</b>                    | Nominal 0.001" (1 mil)                                   |
| <b>Impact</b>                       | 160 in lb (ASTM D2794-93)                                |
| <b>Adhesion</b>                     | 5B (ASTM D3359-95)                                       |
| <b>Elongation</b>                   | 35%-50%  |
| <b>Tensile Strength</b>             | 4,000 psi  |
| <b>Operating Pressure</b>           | Up to 100,000 psi  |

PTFE coating on fastener's will have a uniform thickness of  $20 \pm 5$  microns to  $45 \pm 5$  microns thick.

### Why to Coat Bolts with PTFE Coatings?

1. Cleaning and painting of bare steel bolts in the field is likely to be difficult, expensive, and in some cases, not feasible.
2. The plain bolts, after stuffing in the holes, are expected to sit out in the weather for an extended period of time and get dried out and rusty, making correct tightening difficult or impossible.
3. Release or retightening of the bolt within the foreseeable future is necessary.
4. Due to its unique benefits, Fluoropolymer Coating has been applied to various types and grades of fasteners. The water works industry takes advantage of the superior corrosion resistance properties by coating Hex-head bolts for underground service. Stainless steel fasteners, used in many different industries, are coated for lubricity and anti-galling.
5. Fluoropolymer coatings are extremely durable and not easily removed. However, during assembly of fasteners in the field, the coating can sometimes be damaged. With most other fluoropolymer coatings, this results in exposed bare metal that quickly begins to show corrosion and causes the coating to fail. Our metallic base coat ensures superior corrosion resistance and continues to provide protection even under the harshest conditions.





**IMPACT IMPEX**

R:31, STANDARD BUILDING NO. 2,  
120/122 V. V. CHANDAN STREET,  
MUMBAI - 400 003, INDIA.  
Tel: +91-22-23401191  
Mob: +91-9967676717 / +91-9920300607  
Email: [impactimpex@gmail.com](mailto:impactimpex@gmail.com), [sales@impactimpex.com](mailto:sales@impactimpex.com)  
Website: [www.impactimpex.com](http://www.impactimpex.com)

### FOOD GRADE COATING'S

Food grade coatings is of great advantage for industries where non-stick property if of main criteria. Because of Non-stick properties, chemical powders do not stick to the tray. It is widely used in chemical and pharmaceutical industries.

**Thickness** : 25 to 100 Microns

**Working Temp.** : upto +250 °C



### ROLLER COATING'S



This industrial grade of coatings are widely used in plastic industries, Textile Drying Rollers, and has excellent non-stick properties.

**Thickness** : 25 to 100 Microns

**Working Temp.** : from -50 C to +250 C

### PTFE BONDED METALS PARTS

We can bond **PTFE** on any vessel or any plain plate of various sizes, with the thickness range of 0.2 mm to 6 mm. We do **PTFE** bonding also as per the customer's specifications.

Our **PTFE** bonding is backed by our **Test Certificate** for our customers satisfaction.





R:31, STANDARD BUILDING NO. 2,  
120/122 V. V. CHANDAN STREET,  
MUMBAI - 400 003, INDIA.  
Tel: +91-22-23401191  
Mob: +91-9967676717 / +91-9920300607  
Email: [impactimpex@gmail.com](mailto:impactimpex@gmail.com), [sales@impactimpex.com](mailto:sales@impactimpex.com)  
Website: [www.impactimpex.com](http://www.impactimpex.com)

## Typical Application for Fluoropolymer Coatings

1. Agitators
2. Baffles
3. Coating Pans
4. Centrifuges
5. Coat Tanks
6. Column Sections
7. Conical Blenders
8. Conveyers
9. Cookers
10. Covers
11. Dip Tanks
12. Dip Pipes
13. Distillation Columns
14. Dryers
15. Dryer Trays
16. Drum Filters
17. Electrolytic Cells
18. Extension Pieces
19. Fans
20. Filter Housings
21. Fittings
22. Feeders
23. Flush Outlet Valves
24. Vessels
25. Heat Exchanger Coils
26. Hoppers
27. Bellows
28. Dip Tubes
29. Ducts
30. Fume Hoods
31. Gas Cylinders
32. Piping Systems
33. Plating Equipments
34. Probes
35. Impellers
36. ISO Containers
37. Kettles
38. Knockout Pots
39. Man way Covers
40. Mist Eliminators
41. Mixers
42. Mixing Equipment
43. Molds
44. Pipe Works
45. Pressure Filters
46. Protector Rings
47. Pumps
48. Reactor Vessels
49. Rollers
50. Rounders
51. Reducing Flanges
52. Scrubber Sections
53. Storage Tanks
54. Thermo Wells
55. Trays
56. Vaccum Filters
57. Valves
58. Venturis
59. Spargers
60. Storage Vessels
61. Tanks
62. Blenders