D.V. POLYMERS INDIA (P) LIMITED

D.V. Polymers is one of the fastest growing firms offering complete range of corrosion resistant products under one roof. The firm has emerged as one of the most preferred vendor in the area of manufacturing and supplying of Fluoropolymer Lined Pipes, Fittings, and Valves Industrial Vessels by leading industries in the domain of Chemical, Pharmaceutical, agrochemical, petroleum and General Engineering.

Certified by International Standard Organization (ISO 9001:2008) & other leading quality assessment organization D.V. Polymers team of engineers provides complete line of services from manufacturing to after sales support to customers based in India, Middle East & European Countries.

Our Coated Products

- Reactors
- Receivers
- Tanks
- Collems
- Pressure Nutche Filters
- Nutche Filters
- Lined Elbows
- Lined Tees
- Lined Reducers
- Lined Reducing Flanges
- Lined Mani Folds (Header)
- Lined Strainers
- Lined Man Hole Covers
- Lined Blind Flange
- Lined Dip Pipe
- Lined Sparser
- Lined Sampler
- Lined Sight Glass
- Leaf Filters
- On Line Filters
- Candy Filters
- Mobile Vessels
- Centrifuse
- VTD’s
- Impellers
- Vapour Separators
- Cyclone Separators
- Rollers
- Textile Rollers
- Agitators & etc.

Our Other Products

- Lined Pipes
  - PTFE, PFA, PVDF, FEP, PP, HDPE
- Fittings
  - PTFE, PFA, PVDF, FEP, PP, HDPE
- Valves
  - PFA, FEP

<table>
<thead>
<tr>
<th>Lined Pipes</th>
<th>Fittings</th>
<th>Valves</th>
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<tbody>
<tr>
<td>Lined Pipe</td>
<td>Lined Elbows</td>
<td>Ball Valves</td>
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<tr>
<td>Lined Jacketed Pipe</td>
<td>Lined Tees</td>
<td>Butterfly Butterfly Valves</td>
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<tr>
<td>Lined Anti Static Pipe</td>
<td>Lined Reducers</td>
<td>Non Return Valve</td>
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<td></td>
<td>Lined Reducing Flanges</td>
<td>Plug Valve</td>
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<td></td>
<td>Lined Man Folds (Header)</td>
<td>Flush Bottom Valve</td>
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<td>Lined Strainers</td>
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<td>Lined Blind Flange</td>
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<td>Lined Sampler</td>
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<td></td>
<td>Lined Sight Glass</td>
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</tr>
</tbody>
</table>

Coating for Chemical Vessels Range from 20 Litres to 30000 Litres Capacity Vessels.


dvpolymers@rediffmail.com
www.dvpolymers.com

Manufacturers of:
ETFE (Tefzel®) | PFA | ECTFE (Halar®) | PVDF

"The Teflon® & Tefzel® are registered trademarks of E. I. du Pont de Nemours and Company or its affiliates."
About Us

D.V. Polymers India (P) Ltd., in Patancheru, sets new standards in innovative Industrial Coating Technology. The Company is leading in India as a Processor of Fluorinated Polymers Coatings like ETFE (Tefzel®), ECTFE (Halar®), PVDF, PFA. The enterprise is a pioneer in India in Surface Coating Technology with Fluoro Polymers, as far as functional coatings with non-stick effect, low friction; chemical protection and corrosion protection are concerned. State-of-the-art technology is ensured through continuous development work. We have been associated as DuPont India Preferred Processors network Member (DIPPN Member) and other leading quality assessment organizations.

D.V. Polymers have facility of Fabrication and Fluoro Polymer Electro Static Spray coating with ETFE (Tefzel®) ECTFE (Halar®), PVDF, PFA for all Chemical Vessels like MS/CS/SS-Reactors, Receivers, Centrifuge, Vapor Separator, PNF, ANFDs, Leaf Filters, Nauta Dryers, Filters, Air Ducts, Columns Fasteners etc., and also provide Fluoro Polymer Coating Services to all Equipments of Pharmaceutical, API Intermediaries, Petrochemical, oil & Gas and Pulp and Paper Industries etc... We have Facility and coating Equipment to coat up to 30 kilo liters capacity vessels. The Thickness of the Coating 800 Microns to 1000 Microns will be maintained uniformly.

We are proud to offer a wide variety of proven Quality Assurance products at aggressive direct sale prices. DVPL can get the job done quickly and economically. Our years of experience will give you confidence that the job will be done correctly the first time. We are also capable of providing prototypes of different Teflon® coatings to help you choose the optimum coating system for your application as follows.

Properties of Coatings

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Method</th>
<th>ETFE</th>
<th>ECTFE</th>
<th>PVDF</th>
<th>PFA</th>
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<tr>
<td><strong>Mechanical Properties</strong></td>
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<td>Specific Gravity</td>
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<td>ASTM D495</td>
<td>120</td>
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<td>60</td>
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</tbody>
</table>

High Build ETFE/ECTFE/PVDF/PFA Coatings

Using appropriate product combinations, coating systems are now available for use in a wide variety of applications ranging from thin-film systems for service in abrasion resistance or mild chemical resistance to thick-film systems for linings where excellent chemical protection is required. Thick-film coatings have been improved for application in thicker films per coat. The application technique involves a spray-and-bake procedure whereby multiple coats, sprayed and baked individually, are used to achieve the desired final film thickness. The resulting finish is tough, seamless, and without pin holes - perfect for applications in harsh chemical environments and also where maintaining product purity is critical. D.V. Polymers offers High Build coatings where customer is required.

Quality System

DV Polymers is an ISO 9001:2008 Certified and DuPont India Preferred Processor Network Member, it is one of the few companies in India which adheres to all International standards set by leading International bodies for manufacturing plants.

We have Fully Equipped Lab facility for internal Testing of Plastics; we will provide the following Test certificates along with our materials.

- Hydro Test: As per ASTM F 1545
- Spark Test: As Per ASTM F 1545
- 3rd Party inspection Certificate up on the Request by Customer
- Raw Material Test Certificates
- Steel Test Certificates
- Coating Thickness test Certificates
- Guarantee Certificate, etc...

External Finish for Added Perfection

- Surface preparation: Wire Brushing/Sand Blasting
- Paint: Epoxy Primer/Chlorinated Rubber Paint/ Enamel
- Packing: Nozzles will be covered with end packing made out of dummy flanges.
PFA Coating

Teflon® PFA (Perfluoroalkoxy) non-stick coating is a Electrostatic powder coating liquid spray coating. The finish has excellent non-stick properties, low coefficient of friction, very good abrasion resistance and excellent chemical/corrosion resistance. These properties are retained at use temperature up to 260°C (500°F). Coating thickness will be 600 to 800 microns. A primer is usually required. PFA is manufactured by DuPont. Our PFA coating color is Ruby Red.

PFA offers the high temp properties and performance of PTFE (Teflon®) in a thermoplastic. This unique balance of properties combined with the capability of uniformly coating complex shapes with thin or thick films offers the ultimate in fluorocarbon coatings. PFA comes in industrial and food compatible grades. PFA offers the same excellent combination of physical properties unique to PTFE.

PFA coating is not degraded by systems that are commonly encountered in chemical processes. It is inert to strong mineral acids, inorganic bases, inorganic oxidizing agents, salty solutions including some organic compounds as organic acids, anhydrides, aromatics, aliphatic hydrocarbons, alcohols, aldehydes, esters, ethers, chloro carbons, fluorocarbons and some combinations of the above.

PFA coatings that are applied on carbon steel or stainless steel have a continuous service temperature ranging between -20°C to 240°C. A primer is compulsory before applying the PFA coating. There is a little bit of drawback for PFA coatings, if once damaged, they cannot be repaired. Heat is required to cure the coating. We use FDA approved PFA grades for our Coatings.

ECTFE (HALAR®)

ECTFE is a melt process able fluoropolymers, also known by the trade name Halar®. The material’s chemical structure (a 1:1 alternating copolymer of ethylene and chloro Tri Fluoro Ethylene) makes it useful in a wide variety of applications, especially as a coating or lining.

ECTFE coatings offer excellent chemical and corrosion resistance over a wide temperature range of -76°C to 150°C. Good electrical properties. A tough material with excellent impact strength, ECTFE coatings maintains useful properties on exposure to cobalt 60 radiation at dosages of 200 megabroads. It is one of the best fluoropolymers for abrasion resistance. Coatings will withstand full vacuum and high speed agitation. Our coatings are successful in many different chemical services, including caustics, acids, and organic solvents. The Thickness of the Coating 800 Microns to 1000 Microns will be maintained uniformly.

Some luminous characteristics of HALAR which meets the industrial demanding applications

* Excellent release properties
* Extremely smooth surface
* Dimensionally stable
* Low cold flow
* Ideal to operate at the temperatures (up to 300°F)
* Mechanically tough with excellent abrasion & impact resistance

Typical Applications

Halar powder coatings are employed as corrosion protection coatings in the chemical process, pulp and paper, pharmaceutical, food processing, and semiconductor industries. Halar is recommended when the part being coated will be used for handling of strong acids and strong bases at temperatures at which other plastics cannot be used, and where corrosion resistant metals would be attacked or become too expensive.

Halar is particularly used in the Chemical Process Industry (CPI) as a powder coating material for universal corrosion protection. Typical applications include coating of vessels, reactors, piping systems, pumps, valves, centrifuges, agitators, impellers, hoods, filters, sieve plates, caustic collectors,

Electroplating equipments, storage tanks and ductworks. Halar powder coated process components have been successfully put into operation, in some cases, for many years.

Since 1990 Halar coating is used on exhaust ducts in semiconductor fabs thanks to excellent combination of chemical and fire resistance. Today Halar ECTFE is part of hundreds of duct system installations in tens of plants all over the world.

Halar is also recommended for high purity fluid systems in semiconductor, pharmaceutical and biotech industries, particularly where the process surface must be smooth, chemically inert & resistant to bio fouling.

Source: Solvay
**Kynar PVDF Coating (KYNAR FLEX® 2850 PC)**

**PVDF Coating** (polyvinylidene fluoride) is a chemical resistant thick film barrier coating primarily used on chemical processing equipment. This coating is unaffected by most chemicals and solvents and has excellent wear & abrasion resistance. PVDF coatings also have a high dielectric strength, excellent resistance to weathering & the ability to self extinguish. PVDF, Polyvinylidene Fluoride is a highly non-reactive & pure thermoplastic fluoropolymer.

PVDF is a special plastic material from the fluoropolymer family. PVDF coating is a special purpose coating that can be used in various applications that require highest purity, strength, resistance to solvents, acids, and bases and for low smoke generation during a fire event.

PVDF coatings are easy to melt when compared with other fluoropolymers because of its low melting point of around 177°C. Also it has a relatively low density and involves low cost when compared with other fluoropolymers. PVDF can be injected, molded or welded & most commonly used in chemical, medical & defense industries as well as in lithium ion batteries.

**KYNAR FLEX® 2850 PC Powder Coating Offers**

- Pigment able
- Excellent thermal stability
- Excellent abrasion resistance
- Impervious to UV degradation
- Self extinguishing material
- Excellent purity and chemical resistance
- Extremely low smoke emission characteristics

**Typical Applications**

Chemical Process Equipments, the pulp and paper industry, (chemically resistant to halogens and acids), Semi conductor industries, Ion Batteries, Nuclear waste processing.

**Kynar Typical Applications/Chemicals**

- Chlorine, Bromine (Gaseous), Methyl Chloroform, Bromine Water, Hydrochloric Acid, Hydrobromic Acid, Salt Water, Bromobenzene, Chlorobenzene, Brominated Salts, Sodium Hypochlorite, Iodine, Hot Sugars, Salicylic Acid, Sulfuric Acid
- <98%, <50% Acetic Acid, Chlorinated Salts, Methyl Alcohol, Phosphoric Acid, Chromic Acid, Hydrofluoric Acid, Nitric Acid

**Mixtures of chemicals can create aggressive by-products.**

- Nuclear waste processing, (radiation and hot-acid resistant), the general chemical processing industry, extreme chemical and temperature applications, water treatment membranes, (industrial and potable water uses)

PVDF fluoropolymer coatings also meet specifications for food and pharmaceutical Processing industries.

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**ETFE (Tefzel®)**

ETFE is a thermoplastic copolymer that is derived from the polymerization of Ethylene and Tetra Fluoro Ethylene monomers; it is a fluorocarbon based polymer. ETFE is manufactured by DuPont under the trade name Tefzel®.

ETFE resin is extremely tough and abrasion resistance. It was designed to have high corrosion resistance, low coefficient of friction and strength over a wide temperature range. In addition to this it has a high melting temperature and does not emit toxic fumes when ignited.

ETFE has electrical and Mechanical Properties and chemical resistance used widely in chemical industries and petrochemical industries. ETFE has excellent chemical resistance and can operate continuously at 150°C/302°F. This resin is the toughest of the fluoropolymers. ETFE is inert to strong mineral acids, inorganic bases, halogens and metal salt solutions.

**It will be an ideal in such applications where abrasive slurries accelerate wear and degradation of alternative materials. ETFE coating can replace glass lining for chemical processing vessel. ETFE (Tefzel®) comes in industrial and food compatible grades. ETFE is more thermally stable, Chemically resistant than Halar (ECTFE)… in Virtually all classes of compounds at Higher Temperatures.**

The thickness of the Coating 800 Microns to 1000 Microns will be maintained uniformly and also having high build grades up to 2 mm. We use FDA approved ETFE grades for our Coatings.

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PVDF is a special plastic material from the fluoropolymer family. PVDF coating is a special purpose coating that can be used in various applications that require highest purity, strength, resistance to solvents, acids, and bases and for low smoke generation during a fire event.

PVDF coatings are easy to melt when compared with other fluoropolymers because of its low melting point of around 177°C. Also it has a relatively low density and involves low cost when compared with other fluoropolymers. PVDF can be injected, molded or welded & most commonly used in chemical, medical & defense industries as well as in lithium ion batteries.

KYNAR FLEX® 2850 PC Powder Coating Offers

- Pigment able
- Excellent thermal stability
- Excellent abrasion resistance
- Impervious to UV degradation
- Self extinguishing material
- Excellent purity and chemical resistance
- Extremely low smoke emission characteristics

Typical Applications

Chemical Process Equipments, the pulp and paper industry, (chemically resistant to halogens and acids), Semi conductor industries, Ion Batteries, Nuclear waste processing.

Kynar Typical Applications/Chemicals

Chlorine, Bromine (Gaseous), Methyl Chloroform, Bromine Water, Hydrochloric Acid, Hydrobromic Acid, Salt Water, Bromobenzene, Chlorobenzene, Brominated Salts, Sodium Hypochlorite, Iodine, Hot Sugars, Salicylic Acid, Sulfuric Acid, Acetic Acid, Chlorinated Salts, Methyl Alcohol, Phosphoric Acid, Chromic Acid, Hydrofluoric Acid, Nitric Acid

Mixtures of chemicals can create aggressive by-products.

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PFA coatings that are applied on carbon steel or stainless steel have a continuous service temperature ranging between -20°C to 240°C. A primer is compulsory before applying the PFA coating. There is a little bit of drawback for PFA coatings, if once damaged, they cannot be repaired. Heat is required to cure the coating. We use FDA approved PFA grades for our Coatings.

**Properties of PFA**

- High melting strength
- Stability at high processing temperatures
- Excellent crack resistance
- Excellent stress resistance
- Low coefficient of friction
- More than 10 times flex life of FEP

**ECTFE (HALAR®)**

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ECTFE coatings offer excellent chemical and corrosion resistance over a wide temperature range of -76°C to 150°C. Good electrical properties, A tough material with excellent impact strength, ECTFE coatings maintain useful properties on exposure to cobalt 60 radiation at dosages of 200 megabends. It is one of the best fluoropolymers for abrasion resistance. Coatings withstand full vacuum and high speed agitation. Our coatings are successful in many different chemical services, including caustics, acids, and organic solvents. The Thickness of the Coating 800 Microns to 1000 Microns will be maintained uniformly.

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The enterprise is a pioneer in India in Surface Coating Technology with Fluoro Polymers, as far as functional coatings with non-stick effect, low friction; chemical protection and corrosion protection are concerned. State-of-the-art technology is ensured through continuous protection and corrosion protection are concerned. We have Facility and coating Equipment to coat up to 30 kilos capacity vessels. The Thickness of the Coating 800 Microns to 1000 Microns will be maintained uniformly.

About Us

D.V. Polymers India is an ISO 9001:2008 Certified and DuPont India Preferred Processor network Member, it is one of the few companies in India which adheres to all International standards set by leading International bodies for manufacturing plants. We are proud to offer a wide variety of proven Quality Assurance products at aggressive direct sale prices. D.V.Polymers offers High Build coatings where customer is required.

Properties of Coatings

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Method</th>
<th>ETFE</th>
<th>ECTFE</th>
<th>PVDF</th>
<th>PFA</th>
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<tbody>
<tr>
<td>Mechanical Properties</td>
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<tr>
<td>Specific Gravity</td>
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<tr>
<td>Melting Point</td>
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<td>Linear Thermal Expansion Coefficient</td>
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<td>Continuous Service Temperature</td>
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<td>Chemical Properties</td>
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<td>Water Absorption</td>
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<td>Electrical Properties</td>
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<td>Volume Specific Resistance</td>
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<td>Dielectric Tangent</td>
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<td>Break-down Voltage</td>
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<td>Arc Resistance</td>
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</tbody>
</table>

Electrical and Mechanical Properties of Coatings

High Build ETFE/ECTFE/PVDF/PFA Coatings

Using appropriate product combinations, coating systems are now available for use in a wide variety of applications ranging from thin-film systems for service in abrasion resistance or mild chemical resistance to thick-film systems for linings where excellent chemical protection is required. Thick-film coatings have been improved for application in thicker films per coat. The application technique involves a spray-and-bake procedure whereby multiple coats, sprayed and baked individually, are used to achieve the desired final film thickness. The resulting finish is tough, seamless, and without pin holes – perfect for applications in harsh chemical environments and also where maintaining product purity is critical. D.V.Polymers offers High Build coatings where customer is required.
D.V. POLYMERS INDIA (P) LIMITED

D.V. Polymers is one of the fastest growing firms offering complete range of corrosion resistant products under one roof. The firm has emerged as one of the most preferred vendor in the area of manufacturing and supplying of Flouropolymer Lined Pipes, Fittings, and Valves Industrial Vessels by leading industries in the domain of Chemical, Pharmaceutical, agrichemical, petroleum and General Engineering.

Certified by International Standard Organization (ISO 9001:2008) & other leading quality assessment organization D.V. Polymers team of engineers provides complete line of services from manufacturing to after sales support to customers based in India, Middle East & European Countries.

Our Coated Products

- Reactors
- Receivers
- Tanks
- Collems
- Pressure Nutche Filters
- Nutche Filters
- Lined Elbows
- Lined Tees
- Lined Reducers
- Lined Reducing Flanges
- Lined Mani Folds (Header)
- Lined Strainers
- Lined Man Hole Covers
- Lined Blind Flange
- Lined Dip Pipe
- Lined Sparser
- Lined Sampler
- Lined Sight Glass
- Leaf Filters
- On Line Filters
- Candy Filters
- Mobile Vessels
- Centrifuse
- VTD’s
- Impellers
- Vapour Separators
- Cyclone Separators
- Rollers
- Textile Rollers
- Agitators & etc.

Our Other Products

- Reactors
- Receivers
- Tanks
- Collems
- Pressure Nutche Filters
- Nutche Filters
- Lined Elbows
- Lined Tees
- Lined Reducers
- Lined Reducing Flanges
- Lined Mani Folds (Header)
- Lined Strainers
- Lined Man Hole Covers
- Lined Blind Flange
- Lined Dip Pipe
- Lined Sparser
- Lined Sampler
- Lined Sight Glass
- Leaf Filters
- On Line Filters
- Candy Filters
- Mobile Vessels
- Centrifuse
- VTD’s
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- Cyclone Separators
- Rollers
- Textile Rollers
- Agitators & etc.

Coating for Chemical Vessels Range from 20 Litres to 30000 Litres Capacity Vessels.

D.V. POLYMERS INDIA (P) LIMITED

Dupont FlouroPolymer Solutions: One of the largest flouro polymers mfg. company in the world. Dupont certified D.V. Polymers as preferred Processor network Member for maintaining the quality in building and producing Lined Piped Systems (LPS) and Fittings from Teflon®.

Certified by International Standard Organization (ISO 9001:2008) & other leading quality assessment organization D.V. Polymers team of engineers provides complete line of services from manufacturing to after sales support to customers based in India, Middle East & European Countries.

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Email: info@dvpolymers.com
Web: www.dvpolymers.com

Excellence In Corrosion Solutions
Multi-disciplined, Vertically-Integrated

Manufacturers of:
ETF (Tefzel®) | PFA | ECTFE (Halar®) | PVDF

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