

# VALVE SOLUTIONS FOR CORROSIVE APPLICATIONS



**UNPP Polyvalves**

Manufacturer of PFA/FEP/PTFE Lined & Plastic Valves,  
Pipes & Pipe Fittings



# VALVE SOLUTIONS for Corrosive Applications



## About Us

UNP Polyvalves is manufacturing Corrosive application valves since 1988.

UNP started with all plastic valves with limited size options, today has a complete range of corrosive application valves in both options of Solid Plastic valves and Lined valves. UNP now has in its range Ball, Plug, Butterfly, Diaphragm valves, Non-return Valves, Strainers, Sampling valves, Pipes and Pipe Fittings. This completes range of complete piping solution in corrosive applications.

UNP has most modern facility situated at Por with latest moulding technology and highest moulding capacity to manufacture lined valves as large as 24" with Injection moulding machines of largest capacity in the country.

Envisioned for quality and reliability, UNP Polyvalves aims for highest level of Customer satisfaction through its solutions with the commitment for excellence in all spheres of business.

UNP Polyvalves possesses live skill sets headed by highly knowledgeable, technically

experienced entrepreneurs. These experts lead and guide their team with a great vision to achieve high quality standards to make products for its high performance and unmatched quality.

UNP Polyvalves, over all these years has been dealing with almost all chemical process industries in Chlor Alkali, Chemical, Pharmaceutical, Mining, Refineries etc., in India and exporting to 35+ countries in the world including market such as USA, Europe, Latin America, Africa, Russia, South East Asia, Australia etc. . . .

## Achievements

UNP Polyvalves through its technical expertise and involvement in knowing Physical process parameters could help resolving corrosion problems related to valves and piping system in Industries such as Chlor Alkali, CRM in Steel Industries, Chemical injection skids for Oil and Gas and many more chemical plant across the world. UNP today has approvals from leading consultants such as UHDE, Jacobs Engineering, Mott McDonald, Toyo Engineering, Fluor Daniel, TUV, EIL etc., and have worked for their prestigious projects.

## GENERAL PROPERTIES OF POLYMERS

TECHNICAL PROPERTIES	SPECIFIC GRAVITY	WATER ABSORPTION (%)	HARDNESS ROCKWELL YIELD PSI	TENSILE STRENGTH NOTCHED FT.LB /IN	IMPACT STRENGTH	ELONGATION AT BREAK TEMP. °C	HDT °C	INJECTION MOULDING	MAX WORKING TEMP °C
NORMAL GRADE POLYPROPYLENE	0.90-0.91	0.01-0.03	50	4400	1.5-2.5	200	90	200-300	80-85
ISOTACTIC POLYPROPYLENE	0.90	0.01	70	4800	2.2-2.7	200	142	200-300	120
PVDF	1.77-1.78	0.03	76-80	7000	2.0-4.0	50-250	168	200-300	-40 TO + 140
ETFE	1.70	0.007	75	6700	2.0	300	176	310-330	-100 TO + 160
FEP	2.15	0.004	60	3400	2.9	325	260	350-370	205
PFA	2.15	<0.03	72	3600	1.2	300	305	350-370	260

## ADVANTAGES OF ISOTACTIC POLYPROPYLENE V/S NORMAL GRADE PP

- Isotactic Polypropylene is a fractional MFI homopolymer therefore it has sufficiently better toughness than any other homopolymer.
- Due to the presence of atmospheric oxygen, Degradation and Oxidation of normal grade PP is inevitable, even when there is no direct sunlight, while ISOTACTIC POLYPROPYLENE is immune to such degradation and oxidation.
- Chemical resistance of ISOTACTIC PP is more than that of normal grade PP even at an elevated temperature.
- Isotactic polypropylene has excellent heat resistance upto 120°C as against 85-90°C of normal grade PP, w.r.t water.
- This grade is proven in pickling lines (CRM) as well as ARP in steel Industries for handling HCL containing ferrous and ferric chloride at an elevated temp, upto 110°C.
- This grade is also proven in Caustic Chloro Plant for application in brine for Anolyte and Catholyte service upto 100°C temp.
- This grade is also proven in application of HCL with solvent traces such as benzene, toluene etc. at an elevated temperature upto 110°C.

## MINIMUM LIFE EXPECTED IN HOURS FOR THREE CONTINUOUS SERVICE & TEMPERATURE LEVELS

FORMULATION	AT 120°C	AT 100°C	AT 80°C
ISOTACTIC POLYPROPYLENE	18,000 (2 YRS)	1,04,000 (12YRS)	7,15,000 (80YRS)

### POLYVINYLIDENE FLUORIDE (PVDF)

- Exceptional outdoor weather resistance, due to its transparency and total inertness to ultraviolet light.
- Excellent resistance to most of the chemicals.
- Remarkable thermal stability under operating and processing application temperatures. It does not darken when subjected to heat.
- Good abrasion resistance, enabling it to be used with slurries.
- Very low creep.
- High mechanical strength.
- The crystalline content of PVDF was chosen in order to obtain excellent properties, such as low permeability to gases and fluids as well as low swelling in certain solvents, while retaining a high impact resistance, good stress cracking resistance and a very high dimensional stability.
- PVDF may be used over wide temperatures from - 40°C to + 140°C. It is non-flammable and may be used for contact with foodstuffs.

### ETHYLENE TETRA FLUORO ETHYLENE (ETFE)

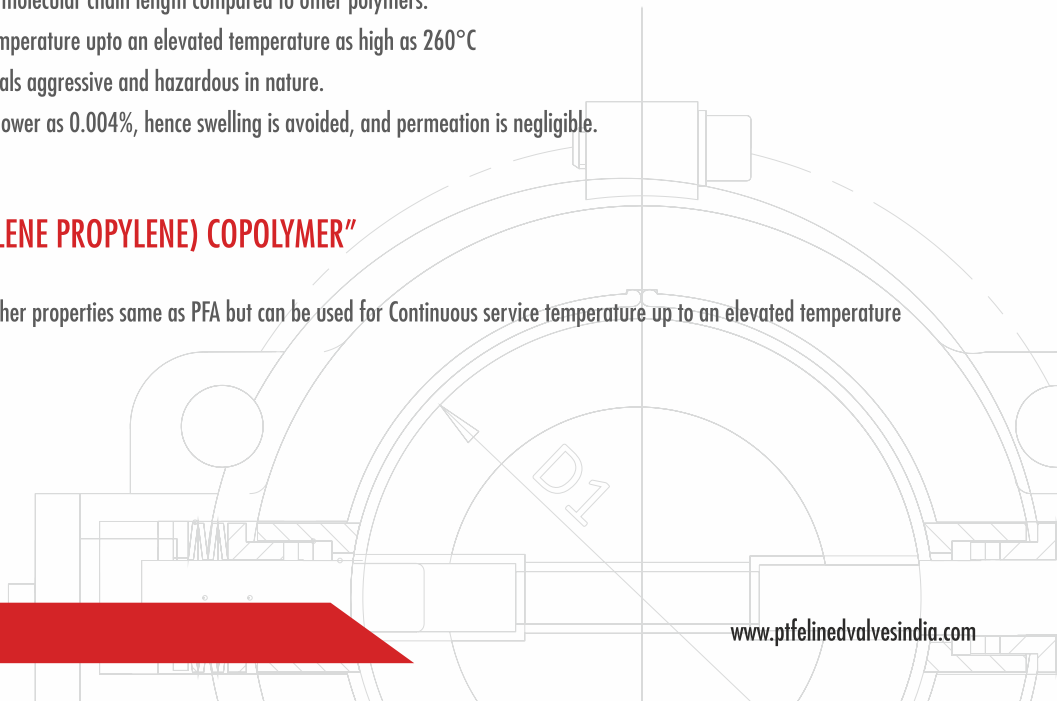
- It has very high temperature resistance from -100°C to +160°C.
- It is resistant to a wide variety of corrosive chemicals and organic solvents, including strong acids and strong bases. No known solvent dissolves or stress cracks the polymer at temp, upto 121°C.
- It possesses excellent mechanical properties over a wide temperature from cryogenic temperature to 204°C. It has nylon like durability and provides excellent impact resistance at ambient and subambient temperatures.
- It is fluoropolymer which is mouldable and weldable with an ordinary thermoplastic welding equipment.

### PFA (PER FLUORO ALKOXY)

- PFA is a fluorocarbon resin having very strong interatomic bonds between carbon and fluorine atoms.
- It has very high molecular weight or long molecular chain length compared to other polymers.
- PFA can be used for continuous service temperature upto an elevated temperature as high as 260°C
- This fluorocarbon is resistant to all chemicals aggressive and hazardous in nature.
- Absorption rate of this fluorocarbon is as lower as 0.004%, hence swelling is avoided, and permeation is negligible.

### TEFLON FEP "PER FLUORO (ETHYLENE PROPYLENE) COPOLYMER"

- FEP is also a Fluorocarbon resin with all other properties same as PFA but can be used for Continuous service temperature up to an elevated temperature as high as 205°C (400°F)..



# THERMOPLASTIC MANUAL VALVES

SIZE RANGE :15mm to 600mm NB



**DIAPHRAGM VALVE**  
(Advanced Version)



**DIAPHRAGM VALVE**  
(Advanced Version)



**DIAPHRAGM VALVE**



**DIAPHRAGM VALVE**



**BALL VALVE**  
Flanged End



**BALL VALVE**  
Socket Weld/Threaded End



**BUTTERFLY VALVE**  
Lever Operated



**BUTTERFLY VALVE**  
Gear Operated



**CHECK VALVE**  
Ball Type – Flanged End



**SWING CHECK VALVE**  
Wafer Type



**SAMPLING VALVE**  
Flanged Type



**SAMPLING VALVE**  
Sandwich Type



**FOOT VALVE**  
Flanged End



**SIGHT GLASS**  
Flanged End



**STRAINER**  
'T' / Basket Type

**THERMOPLASTIC VALVES & PIPING SYSTEM MADE OUT OF**  
POLYPROPYLENE / HHS ISOTACTIC PP/PPH  
PVDF / ETFE (TEFZEL) / UPVC  
CPVC

# FLUOROPOLYMER LINED VALVES

SIZE RANGE : 15mm to 600mm NB

MOCs : PPH/PVDF/ETFE/FEP/PFA LINED



**LINED DIAPHRAGM VALVE**  
Rising Spindle



**LINED DIAPHRAGM VALVE**  
Rising Hand Wheel Type



**LINED PLUG VALVE**  
Lever Operated



**LINED PLUG VALVE**  
Gear Operated



**LINED BUTTERFLY VALVE (WAFER)**  
Lever Operated



**LINED BUTTERFLY VALVE (FULL LUGGED)**  
Gear Operated



**LINED BALL VALVE**  
Side Split Design, Full Port



**ANTISTATIC TFA LINED BALL VALVE**  
Lever Operated



**LINED 'Y' TYPE STRAINER**



**LINED BALL CHECK VALVE**



**LINED GLOBE VALVE**  
Straight Type



**LINED SWING CHECK VALVE**



**LINED SAMPLING VALVE**  
Flanged Type



**LINED SAMPLING VALVE**  
Sandwich Type

## THERMOPLASTIC ACTUATED VALVES

SIZE RANGE : 15mm to 600mm NB

MOCs : PP/ISO.PP/PPH/PVDF/ETFE



**PNEUMATICALLY ACTUATED**  
Diaphragm Valve



**ELECTRICALLY ACTUATED**  
Diaphragm Valve



**PNEUMATICALLY ACTUATED**  
Ball Valve



**ELECTRICALLY ACTUATED**  
Ball Valve



**PNEUMATICALLY ACTUATED**  
CPVC - Butterfly Valve



**PNEUMATICALLY ACTUATED**  
CPVC Ball Valve



**PNEUMATICALLY ACTUATED**  
PPH - Butterfly Valve



**ELECTRICALLY ACTUATED**  
Butterfly Valve

## FLUOROPOLYMER LINED ACTUATED VALVES

SIZE RANGE : 15mm to 600mm NB

MOCs : PPH/PVDF/ETFE/FEP/PFA LINED



**ELECTRICALLY ACTUATED**  
Lined Ball Valve



**LINED GLOBE**  
Control Valve



**PNEUMATICALLY ACTUATED**  
Lined Ball Valve



**ELECTRICALLY ACTUATED**  
Lined Diaphragm Valve



**PNEUMATICALLY ACTUATED**  
Lined Diaphragm Valve



**PNEUMATICALLY ACTUATED**  
Lined Butterfly Valve



**PNEUMATICALLY ACTUATED**  
Lined Plug Valve



**ELECTRICALLY ACTUATED**  
Lined Butterfly Valve

# THERMOPLASTIC PIPES & FITTINGS

SIZE RANGE : 15mm to 600mm NB



**PIPES PVDF**  
PLAIN ENDS



**PIPES PP/ISO.PP/PPH**  
PLAIN ENDS



**CONCENTRIC REDUCERS**  
PP/ISO.PP/PPH/PVDF  
ENDS : BUTT WELD



**COUPLINGS**  
PP/ISO.PP/PPH/PVDF  
END : SOCKET WELD



**ELBOWS**  
PP/ISO.PP/PPH/PVDF  
ENDS : SOCKET WELD



**BENDS 90° PVDF**  
BUTT WELD ENDS



**ELBOW 90° PVDF**  
BUTT WELD ENDS



**ELBOW 45° SOCKET WELD ENDS**  
PVDF/PP/ISO.PP/PPH



**STUB ENDS PVDF**  
BUTT WELD ENDS - LONG NECK



**STUB ENDS**  
PP/ISO.PP/PPH PVDF  
BUTT WELD ENDS - SHORT NECK



**SOCKET WELD STUB ENDS**  
PP/ISO.PP/PPH/PVDF



**FLANGES**  
PP/ISO.PP/PPH/PVDF  
SLIP ON & PIPE BORE



**EQUAL TEES**  
PP/ISO.PP/PPH/PVDF ENDS:  
SOCKET WELD



**EQUAL TEE PVDF**  
BUTT WELD ENDS

## THERMOPLASTIC PIPING SYSTEM

### MADE OUT OF

POLYPROPYLENE / HHS ISOTACTIC PP / PPH  
PVDF / UPVC / CPVC





# FLUOROPOLYMER LINED PIPES & FITTINGS

SIZE RANGE : 15mm to 600mm NB



LINED ELBOW 90°



LINED EQUAL TEE



LINED EQUAL CROSS



LINED REDUCING TEE



LINED SIGHT GLASS  
Double Window



LINED REDUCING FLANGE



LINED REDUCER



LINED PIPE

**FLUOROPOLYMER LINED PIPING  
SYSTEM MADE OUT OF :**

PTEE / PVDF / FEP / PFA  
ETFE / ECTFE

## SPECIALITY VALVES

SIZE RANGE : 150mm to 1500mm NB



**DAMPER**

Gear, Pneumatically & Electrically Actuated



**STRAINER**

'T'/ Basket Type Large Size



**CHECK VALVE**

Float Type Vertical Installation - Large Size



**CHECK VALVE**

Float Type Horizontal Installation - Large Size

## CAUSTIC & BRINE DISTRIBUTION HEADER PIPE

- Caustic & Brine distribution header pipes are a vital component of caustic chloro plant, manufacturing caustic soda with membrane cell technology.
- These header pipes are installed in combination of left and right or Tee type on electrolyser of caustic chloro plant. Different electrolyzers have requirements of various numbers of nozzles on header pipes depending on the capacity of electrolyzers.
- Entire ranges of 14 nos., 17 nos., 21 nos., 34 nos. & 46 nos. are manufactured by us.
- These pipes are subjected to elevated temperatures upto 110°C, and are manufactured from special grade Isotactic PP, the most suitable material of construction for such application.
- The pipes are in operation in the leading caustic chloro plants in India for last 20 years.





## LIST OF OUR ESTEEMED CUSTOMERS

## CONSULTANT WITH WHOM OUR PRODUCTS ARE APPROVED

Aker Powergas Pvt Ltd	Kaverner John Brown Limited	Shroff & Associates Pvt Ltd
Chempro Expertise Pvt Ltd	KTI India Limited	Simon India Limited
Chemtex Engineering of India Limited	Lele & Associates	SNS Lavlin Associates
Engineer India Limited	Lurgi India Limited	Tata Consulting Engineering
Furnace Fabrica India Ltd	M.N. Dastur & Company Ltd	Tata Projects
Hindustan Door Oliver Limited	Monsanto-DMCC Environ Tech Limited	Technimont ICB Limited
IBI Chematur (Engg & Consultancy) Ltd	Mott McDonald Limited	Toyo Engineering India Limited
Idea Babcock	Protech Consultants Pvt Ltd	TUV India Pvt Ltd
Jacobs Engineering India Pvt Ltd	Shriram Projects Limited	UHDE India Limited

## CHLOR ALKALI PLANTS

Aditya Birla Nuvo Ltd (Indian Rayon)	Veraval	Meghmani Finechem Ltd	Dahej
Aditya Birla Chemicals Ltd (Bihar Caustic)	Jharkhand	Nirma Limited	Bhavnagar
Andhra Sugar Limited	Kovvur/Saggonda	NRC Limited	Sahad
Atul Limited	Valsad	Punjab Alkalies & Chemical Ltd	Naya Nangal
Century Rayon	Sahad	Reliance Industries Ltd (IPCL)	Dahej
Chemfeb Alkalies & Chemical Ltd	Pondicherry	United Phosphorus Ltd (Search Chem Industries)	Jhagadia
Chemplast Sanmar Ltd	Karaikal/Mettu Dam	Shriram Alkalies & Chemical Ltd	Jhagadia
DCW Limited	Sahapuram, TN	Shriram Vinyl & Chemicals Ltd	Kota
Gujarat Alkalies & Chemical Ltd	Baroda & Dahej	Siel Chemical Complex	Rajpura
Gujarat Fluoro Chemicals Ltd	Dahej	Sree Royalseema Alkalies & Chemicals Ltd	Kurnool
Grasim Industries Ltd (Chemical Division)	Nagda Tamil Nadu	Petroproducts Ltd	Chenna
Hukumchand Jute & Industries Ltd	Shadol	Tata Chemicals Ltd	Mithapur
Jayshree Chemicals Ltd	Orissa	Teamec Chlorates Ltd	Andhra Pradesh
Kanoria Chemicals Ltd	Renukoot	Travencore Cochin Chemicals Ltd	Cochin

## COLD ROLLING MILLS &amp; STEEL INDUSTRIES

Bhushan Power & Steel Ltd	Orissa
Essar Steel Ltd	Hajira
Hindalco Industries Ltd (Birla Copper)	Dahej
Hindustan Copper Ltd	Khetri
Hindustan Zinc Ltd	Debari & Visakhapatnam
ISPAT Industries Ltd	Kalmeshwar
Jaghadia Copper Ltd	Jaghadia
JSW Ltd	Vasind
Jindal Iron & Steel Co Ltd	Tarapur
JSW Ltd	Hissar
Lloyds Steel Industries Ltd	Wardha
NMDC Ltd	Visakhapatnam
Panchmahal Steel Ltd	Halol
Nicomet Industries Ltd	Mumbai & Goa
Steel Authority of India Ltd	Bokaro
Steel Authority of India Ltd	Salem
Steelco Gujarat Ltd	Palej
SWIL Ltd	Jhagadia
Tata SSL Ltd Boisar	Borivali & Navasari
Thyssen Krupp Electrical Steel India Pvt Ltd	Nasik
Tinplate Co of India Ltd	Jamshedpur
Uttam Galva Ltd	Khopoli

## ORIGINAL EQUIPMENT MANUFACTURERS

Aquatech Asia Ltd	Mumbai
Andritz Ltd	Bangalore
CMI FPE Ltd	Andheri, Mumbai
Doshi-Ion Ltd	Mumbai
Driplex Water Engineering Ltd	Mumbai
Furnace Fabrica India Ltd	Mumbai
GEA Energy System Ltd	Mumbai
Hindustan Door Oliver Ltd	Bangalore
Hollow Block Mfg Co	Thane
Ion Exchange India Ltd	Navi Mumbai
ISSI	New Delhi
KTI Ltd	New Delhi
Multiform Machinery Bombay Pvt Ltd	Mumbai
Paramount Pollution Control Ltd	Baroda
Rotex Ltd	Dombivali
Sulzer India Ltd	Pune
SNS Lavlin Associates	Mumbai
Shachi Engineering Pvt Ltd	Pune
VA-Tech Wabag	Pune, Chennai
Wipro Water Ltd	Navi Mumbai

## CHEMICAL &amp; PHARMACEUTICAL INDUSTRIES

Anshul Chemicals Pvt Ltd	Mumbai	Gharda Chemicals Ltd	Dombivali
Arii Organics Ltd	Vapi	Hindustan Lever Ltd	Taloja
Amoli Organics Ltd	Ekalbara	Indian Organics	Khopoli
Andhra Pradesh Rayons Ltd	Secunderabad	Lupin Ltd	Ankleshwar & Panoli
BASF Ltd Navi	Mumbai & Mangalore	Pesticides India Ltd	Panoli & Udaipur
Ballarpur Industries Ltd	Ballarpur	Phthalo Colours & Chemicals (I) Ltd	Vapi
Bharat Rasayan Ltd	Rohtak	Pfizer Ltd	Chandigarh
Bamni Proteins Ltd	Chandrapur	Ranbaxy Laboratories Ltd	Dewas, Manoli & Ropar
BPCL	Mumbai	Salaries Chemtech Ltd	Karwar, Khavda & Vadodara
Bayer India Ltd	Thane, Maharashtra	SRF Ltd	Bhiwadi, Rajasthan
Chemnova India Ltd	Panoli	South India Bromiders & Chemicals Ltd	Tuticorin
Chmphor & Allied Products	Mumbai	Sun Pharmaceuticals Ind Ltd	Panoli
Clariant India Ltd	Thane & Roha	Transpek Industry Ltd	Baroda
Daurala Organics Ltd	Daurala	The Dharmi Morajis Chemical Ltd	Anbarnath
DSM Anti Infective Ltd	Mohali	The Andhra Pradesh Paper Mills Ltd	Rajamundri
Emcure Pharma Ltd	Pune	Trichy Distilleries & Chemicals Ltd	Tiruchirappalli
Exide Industries Ltd	Pune & Taloja	United Phosphorus Ltd	Vapi
Galaxy Surfactants Ltd	Navi Mumbai	Vasant chemicals Ltd	Hyderabad
Gemini Distilleries Ltd	Nanjangad	Wohardt Ltd	Mumbai & Ankleshwar



## Distributor



## VADODARA



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## USA



DJK - Energy Houston

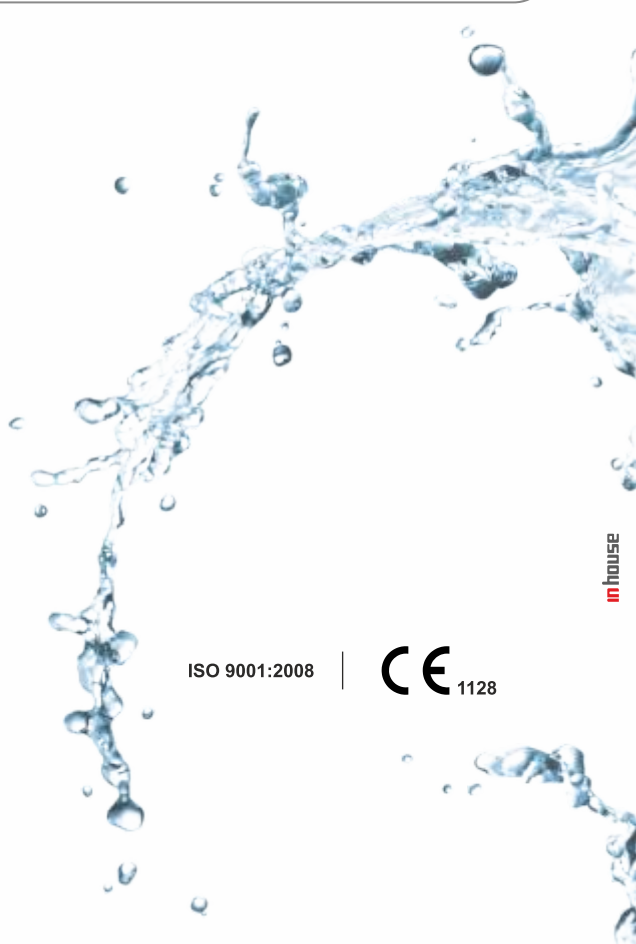
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- UNP Polyvalves does not assume any responsibility for the data given in this brochure. It is necessary for the customers to carry out necessary tests before selecting the MOC for their applications.



ISO 9001:2008

