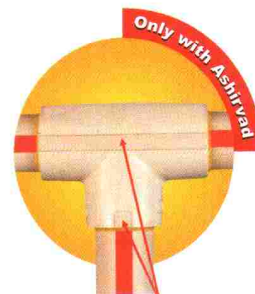




# The world class plumbing system



Design Registered  
for Alignment Marks on  
plastic fittings used in  
plumbing system

## Ideal for Hot and Cold Water Applications

Operational Life of 50 years

Suitable for use upto 93° C.

No Scaling, Pitting, Corrosion or Leakage

Cost Saver

Best Suited for Extremes  
of Indian Climate

Easy and Aesthetic Installation

Proven across the World for  
over Four Decades

Retards Bacterial Growth

Tough and Reliable

Made from NSF Approved Material

Fire Resistant

No Electric Source Required  
for Installation

Energy Saver



## Satisfaction For A Lifetime

**ashirvad**<sup>®</sup>

since 1975

**FLOWGUARD**<sup>™</sup>

**CPVC PIPING SYSTEMS**

licensee of Lubrizol - USA, formerly Noveon





since 1975

**FLOWGUARD™**

**CPVC PIPING SYSTEMS**

**Lubrizol**



Ashirvad Pipes Pvt. Ltd. - Bangalore is the licensee of Noveon Inc- USA (formerly known as BF Goodrich) a company to manufacture and market **FLOWGUARD™** CPVC (Chlorinated Polyvinyl Chloride) plumbing systems in India.

CPVC pipes and fittings are approved in all of the USA's national model codes, are NSF certified and also conform to the stringent requirements of DVGW (Germany), WRAS (UK), CSTB (France), KIWA (The Netherlands), TSE (Turkey) and CSA (Canada) amongst others.

Ashirvad Pipes Pvt. Ltd. with its manufacturing base at Bangalore, uses compounded CPVC resin from Noveon-Belgium and uses latest state of art machinery with advanced technology. **ASHIRVAD FLOWGUARD™** CPVC pipes and fittings assures the highest international quality standards. With the ISO 9001-2000 certification and its constant endeavour towards highest level of customer satisfaction and an urge to give better product, Ashirvad is always ready to hear from its distribution channel and its end-users. With its strict quality-control measures, Ashirvad CPVC pipes assure superior quality through the quality-check at each stage of manufacturing. Our principal M/s. Noveon, USA inspects our plants and carries out quality control audits at regular intervals.



**ASHIRVAD FLOWGUARD™ CPVC Pipes & Fittings** meets the requirement of ASTM D 2846 and are produced in CTS (Copper Tube Sizes)  $\frac{1}{2}$ " - 2".

**ASHIRVAD FLOWGUARD™** SDR 11 and SDR 13.5 pipes are made from identical CPVC compounds having the same physical properties. They have different wall thicknesses and therefore at any given temperature, have different pressure ratings.

For example:

SDR 11	23°C	operating temperature	28 kg/cm <sup>2</sup>	operating pressure
SDR 11	82°C	operating temperature	7 kg /cm <sup>2</sup>	operating pressure
SDR 13.5	23°C	operating temperature	22.5 kg /cm <sup>2</sup>	operating pressure
SDR 13.5	82°C	operating temperature	5.6 kg/cm <sup>2</sup>	operating pressure

These pressure ratings at various temperatures take into account a safety factor of 2. Draft Bureau of Indian Standard specification for CPVC includes both SDR 11 and SDR 13.5 pipe.

SDR 11 pipe complies with the requirements of ASTM D 2846, from which SDR 13.5 is also derived.

#### Temperature Derating Factors

Working Temperature	°F 73.80	90	100	120	140	160	180	200
	°C 23.27	32	38	49	60	71	82	93
Derating Factors	1.00	0.91	0.82	0.65	0.50	0.40	0.25	0.20

#### Excellent Chemical & Corrosion Resistance

Ashirvad CPVC pipes doesn't breakdown even under harshest of water conditions so there is none of the purity worries from corroded metal pipes or soldered joints. Ashirvad CPVC pipes keeps pure water pure.

Even after years of use in the most aggressive service conditions, Ashirvad CPVC piping won't corrode, standing up to low pH water, costal salt air exposure and corrosive soils. Ashirvad CPVC stays as solid and reliable as the day it was installed. It maintains full water carrying capacity because of no scale build up which causes water pressure loss.

#### Fire - Resistance

Ashirvad CPVC has superb fire resistant properties with LOI of 60%. CPVC does not sustain the burning process and extinguishes by itself after removing the fire source.

#### Tough & Rigid

Ashirvad CPVC Piping Systems are tough, rigid and strong and needs less hangers and supports with minimum offsets / looping and with higher pressure bearing capacity than other thermoplastic piping systems.

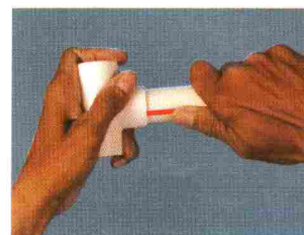
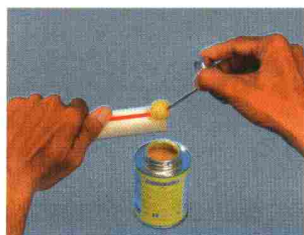
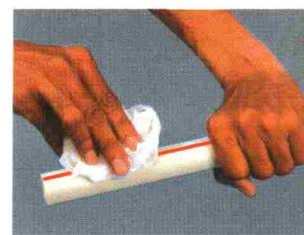
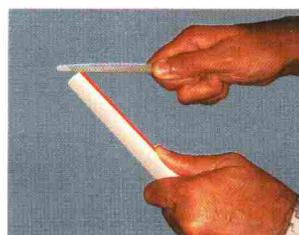






Ashirvad Flowguard™ CPVC Fittings are injection moulded and are available in full range from ½" to 4". For details on range of fittings kindly refer to Ashirvad Fittings manual.

**Quality Control Procedures: For Pipes** 1. *Dimensional Tests*: To ensure that all dimensions conform to appropriate standards. 2. *Flattening Test*: Sample pipes are compressed to check that despite compression pipes do not crack. 3. *Burst Pressure test*: Ensures maximum internal pressure to be over three times the normal pressure rating for the pipe. 4. *Drop impact Test*: Ensures weights dropped on to the pipe, without cracks or failures. 5. *Heat Reversion Test*: Ensures residual stresses left in pipe after the pipe is produced. **For Fittings** 1. *Dimensional Test*: Ensures correctness of dimensions for wall thickness, socket diameters and socket depths as per relevant standards. 2. *Burst Pressure Test*: Ensures maximum burst pressure of fittings must be over three times the normal pressure rating.



**Ashirvad CPVC Solvent Cement:** Ashirvad Flowguard CPVC pipes are joined to fittings with the help of Ashirvad CPVC solvent cement which is one step fast setting solvent cement. The bonding takes place due to chemical fusion of the mating surfaces. Ashirvad Solvent Cement eliminates the use of primer unlike other conventional plastic piping systems. This solvent cement also eliminates the need of electric / heat source for joining.

**Applications:** CPVC Piping systems is designed for use in Hot and Cold Water Distribution Systems (HCWD) and has a proven track record of being used in millions of houses, apartments, hotels, condominiums and offices for more than 4 decades across the world. It's also being used in other applications such as central heating, radiant floor heating and solar heater applications.

**WHY ASHIRVAD?** With three decades of experience in pvc pipe industry and being pioneers and innovators has many firsts to its credit and technically unmatched. Ashirvad Pipes Pvt. Ltd., has a nationwide network. Innovative and customer friendly approach makes Ashirvad Flowguard CPVC Pipes and Fittings a perfect combination of durability, reliability, safety and cost saving. Ashirvad Flowguard CPVC Pipes & Fittings are therefore the most logical choice over any other alternative metallic or plastic plumbing systems.



	Ashirvad - CPVC	Copper	GI	PP-R
Corrosion	No effect due to superb chemical resistance	Will corrode over a period time	Corrodes faster & deteriorates	Has certain amount of chemical resistance on quality.
Scaling, Pitting and Leaching and full bore flow	Absence of scaling, pittings and leaching leads to full bore flow	Scaling, pitting and leaching leads to reduced bore flow	Severe scaling, pitting and leaching leads to reduced bore flow	Scaling, pitting and leaching can occur and reduce bore flow
Thermal conductivity & insulation levels	Lower thermal conductivity reduces heat loss & requires reduced insulation levels	Very high thermal conductivity increases heat loss & requires high insulation levels	Very high thermal conductivity increases heat loss & requires high insulation levels	Higher thermal conductivity than CPVC, more heat loss & requires higher insulation levels.
Bacterial growth	Extremely low	More than in CPVC	More than copper	Higher than CPVC
Fire Resistance	LOI is 60% and hence does not catch fire or sustain burning	Being metallic system has better Fire Resistance	Being metallic system has better Fire Resistance	LOI is 18%, hence can easily catch fire and sustain burning.
Installation	Easy, through cold welding, requiring less manhours. No electric/heat source required, hence cost effective.	Requires highly skilled manpower & electric / heat source.	Very slow and cumbersome, requires more manhours.	Joining process is by heat fusion. Requires greater skill & electric / heat source .
Leakage	Leakfree installation for the entire life span of the piping system.	Leakfree provided carried out by highly trained manpower.	Always susceptible to leakage from day one of installation	Relatively leak free provided high degree of skilled man power is employed.
Thermal Expansion	Lower, leads to less pipe expansions, less looping and offsets	Although thermal expansion is lower, the stresses induced are far greater.	Although thermal expansion is lower, the stresses induced are far greater.	Higher expansion requires more looping / offsets.
Range of Fittings	Wide range of fittings makes layout easier and compact for the Architects, consultants, builders and end users	Limited range of fittings involves frequent cutting / welding to achieve the desired layout	Limited range of fittings	Nominal range of fittings.
Special Tools	Simple cutter or Hex-Saw Blade and CPVC solvent cement is adequate for 100% leak-proof joint and satisfactory plumbing	Needs special tools like metal cutting flame torch, Solder, flux, etc. to carry out the desired plumbing	Needs heavy tools for pipe cuttings, threading	Needs special Electrical heater to achieve the desired hot welded joint. Any failure can result in poor plumbing

### Approved by various countries across the world...

In Poland with Cobrti 'Instal' and P.Z.H.  
In France as per CSTB  
In Germany as per DVGW  
In Great Britain as per WRC, WRD, BBA  
In Belarus, In Bulgaria, In Czech Republic  
In Hungary, In Lithuania, In Russia  
In Slovakia, In Ukraine  
In Netherlands as per KIWA  
In Turkey as per TSE  
In Canada as per CSA

### ASHIRVAD PIPES PVT. LTD.

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Hosur Road, Bangalore - 562 107. India.  
Phone: +91-80-27820542 Fax: +91-80-27820463  
e-mail: info@ashirvad.com

### RANGE OF PRODUCTS

uPVC COLUMN / DROP PIPES FOR SUBMERSIBLE PUMP, uPVC CASING PIPES, uPVC JET PUMP PIPES,  
uPVC SOLVENT WELD PLUMBING SYSTEM

### Approved by National Sanitation Foundation

Ashirvad CPVC Pipes and Fittings are made from NSF approved raw material. National Sanitation Foundation is an independent non-government body in USA for water purity standards and certifies the piping system to be used for potable drinking water application.

Authorised Dealer



Hallmark of Purity

website: [www.ashirvad.com](http://www.ashirvad.com)