ATLANTA INDUSTRIES

TÜV SÜD ISO 9001

SCAN & VISIT OUR WEBSITE

FlowGuard® Plus

CPVC PLUMBING SYSTEMS™

The Bacteria-Safe Pipe.

- ☑ FAREWELL TO LEGIONELLA DISEASE
- ☑ FAREWELL TO BIRD FLU
- ☑ FAREWELL TO S.A.R.S.
- ☑ FAREWELL TO VIRUS

50 YEAR LIFESPAN

No.1 in USA Now available in the PHILIPPINES

BOCA BUILDING OFFICIALS CODE ADMINISTRATORS INTERNATIONAL

2015 UNIFORM PLUMBING CODE

Revised National Plumbing Code of the Philippines

FlowGuard® is a Hot and Cold Potable Water Distribution System made of chlorinated polyvinyl chloride (CPVC) for use in single and multi-family homes, apartments, high-rises, hotel/motels and commercial installations. **FlowGuard®** CPVC has been used for hot and cold water distribution in the United States since 1960. It has a history of superior performance and competitive prices compared to metal and other alternative piping systems. CPVC pipe and fittings are jointed by solvent cementing which, through chemical bonding, essentially makes the pipe and fitting become one continuous piece. FlowGuard® CPVC is the only piping material that meets requirement of **NSF/ANSI Standard 61 - Drinking Water System components.**

Atlanta Industries Inc. is the licensed manufacturer of Lubrizol USA, formerly BF Goodrich, for FlowGuard® CPVC plumbing systems in the Philippines. FlowGuard® pipes & fittings are made from specialty plastic, chemically known as **Chlorinated Polyvinyl Chloride (CPVC)**. This CPVC compound meets cell class 24448 B as defined by ASTM D1784 and have a design stress of 2000 PSI and a maximum service temperature up to 93°C.

STANDARDS & SPECIFICATIONS AND APPROVALS

ASTM D1784 Standard Specification for Rigid Polyvinyl Chloride (PVC) Compounds and Chlorinated Polyvinyl Chloride (CPVC) Compounds.

ASTM D2846 Specification for Chlorinated Polyvinyl Chloride (CPVC) Plastic Hot & Cold water distribution systems.

ASTM F493 Standard Specification for Solvent Cements for Chlorinated Polyvinyl Chloride (CPVC) Plastic Pipe & Fittings.

ASTM F441 Standard Specification for Chlorinated Polyvinyl Chloride (CPVC) Plastic Pipe, SCH

ASTM F438 Socket-Type Chlorinated Polyvinyl Chloride Plastic Pipe Fittings. SCH 40.

ASTM F439 Socket-Type Chlorinated Polyvinyl Chloride Plastic Pipe Fittings. SCH 80.

IS 15778 Chlorinated Polyvinyl Chloride (CPVC) pipe for potable hot & cold water distribution

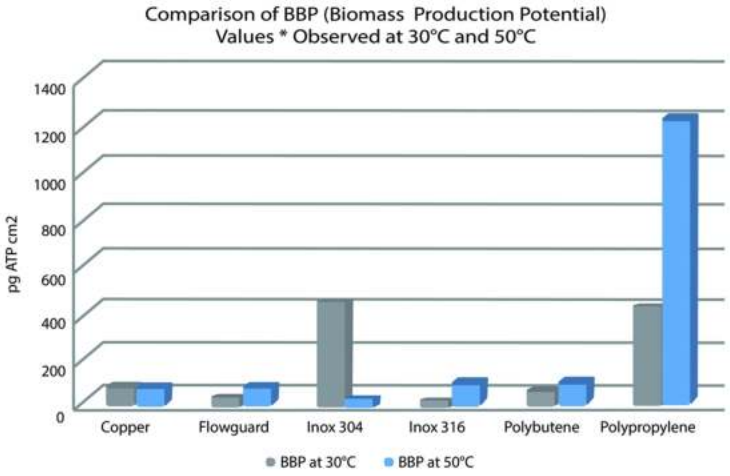
IAPMO International Association of Plumbing and Mechanical Officials

ADVANTAGES
FLOWGUARD® PIPE & FITTINGS: THE PREMIERE CHOICE

BIOFILM FORMATION RESISTANCE

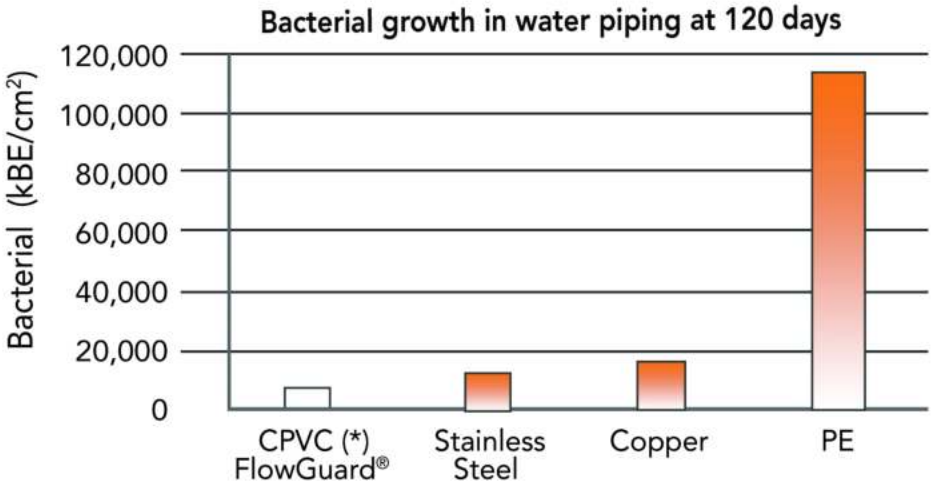
Biofilm is a glue-like substance that forms when cateria adhere to surfaces in aqueous environments. Multiple international s tudies have confirmed the superior antimicrobial performance of CPVC over other piping materials, especially polypropylene (PPR).

Biofilm Formation Potential (BFP): Potential growth of bacteria on a material surface that is in contact with water (e.g., pipes, flushing containers, storage containers).



SCIENTIST HAVE PROVEN THE FOLLOWING:

A.) LOW BACTERIAL BUILD-UP



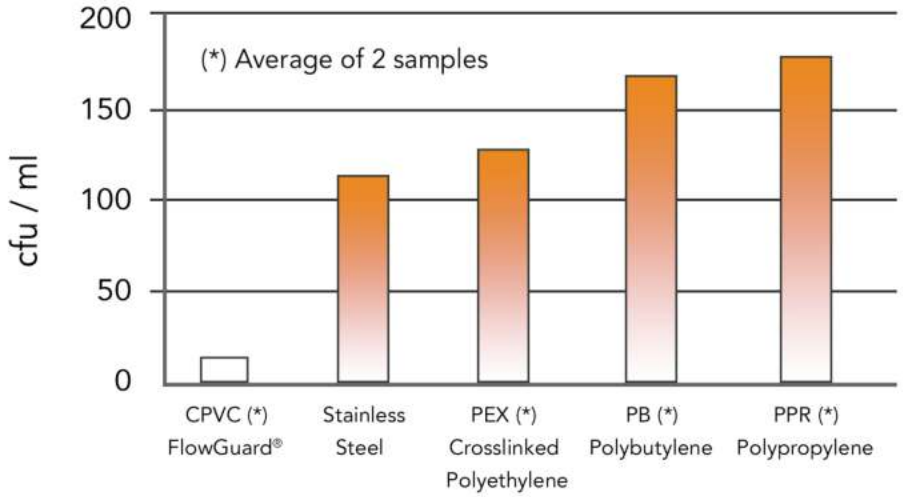
Studies have shown that bacteria build up with CPVC is far lower than with alternative piping materials - copper, steel and other thermoplastics.

"CPVC piping supports the lowest bacterial growth compared with traditional piping material." - based on the study conducted by Dr. Georg-Joachim Tuschewitzki, Institute of Private Hygiene, University of Bonn, Germany.

- Dr. GJ. Tuschewitzki

B.) HEALTH CONCERNS / LEGIONELLA PROOF

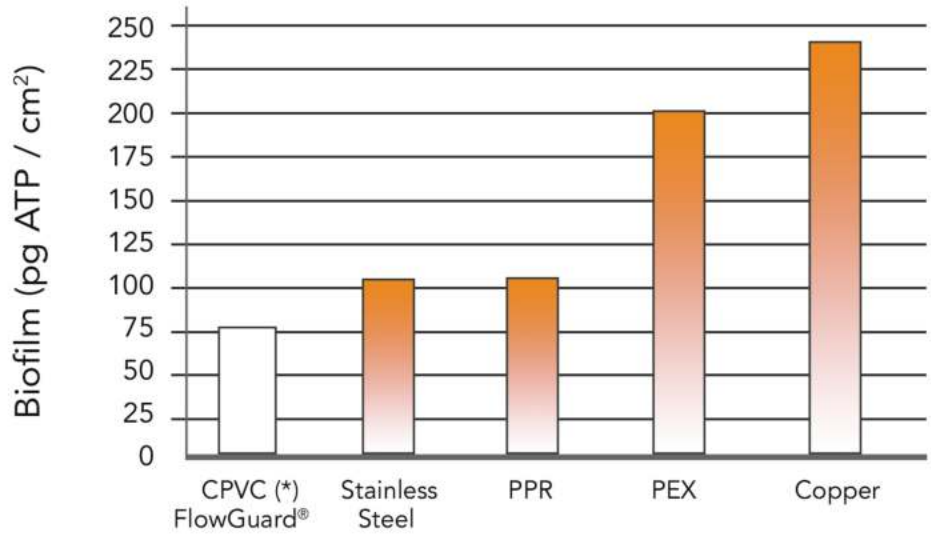
Number of Legionella Bacteria in the test water (average after 8,12 and 16 weeks - static test, no flow)



"In the presence of two cPVC materials, the growth of Legionella bacteria in the water was low."

WHY OTHER PIPES HAVE BACTERIA?

In the case of PPR, cross-link and other pipes, the germs and bacteria will stay, eat and live there.



Study 3:

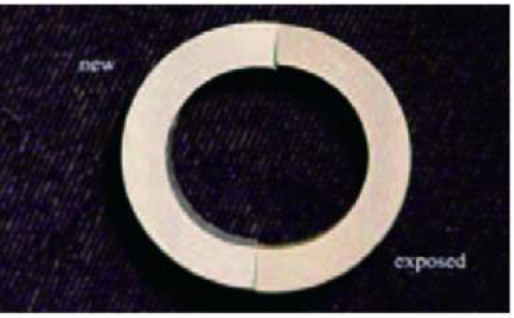
Biofilm-forming characteristics of pipe materials for drinking water installation *

(*) Study : "Biofilm Formation Potential of Pipe Materials in internal installation" by order of VROM. Authors : H. R. Veenendaal and D. Van de Kooly - KIWA N.V - division Chemistry and Biology. June 1999.(KIWI is the netherlands approvals agency for potable water piping systems).

DURABILITY

FlowGuard® Pipes and fittings has been tested for chlorine resistance according to NSF P171 Protocol. After 23 years of use, there was no erosion of the pipe wall and no decrease in long-term hydrostatic performance.

Testing began in Baltimore, Maryland in the 1960s.



FlowGuard® CPVC Testing

Corrosion Resistance

PB Testing

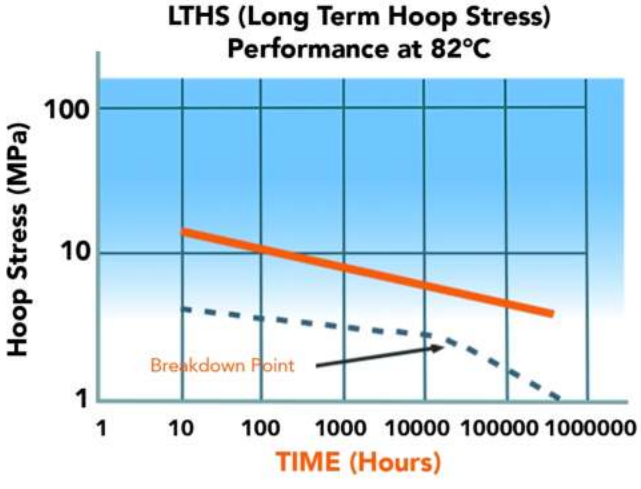
Wall erosion same phenomenon as seen in PPR tubes.

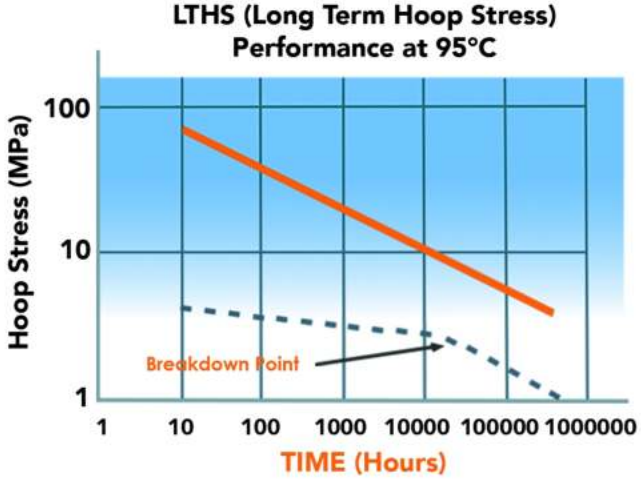
Unlike other materials, like metals, FlowGuard® will no corrode and deteriorate due to oxidation.

FlowGuard® Pipe

Metal Pipe

Atlanta cPVC FlowGuard® has a 50-year life span, probably 40 years more than other materials. With a record of more than 45 years of continuous, trouble-free service, the cPVC Hot & Cold-water piping system withstands aggresive water conditions of high pressures and high temperatures. It also conforms to ASTM D-2846, the same standard being used in the US. Now, almost 40% of American household highly prefer cPVC-made pipes for their water system.





FIRE THREAT AND TOXICITY

CPVC resists ignition, as evaluated and tested by fire protection organization in US. The results of CPVC fire tests indicates that CPVC is not as toxic than forest wood and much less toxic compared to everday items such as wool and cotton.

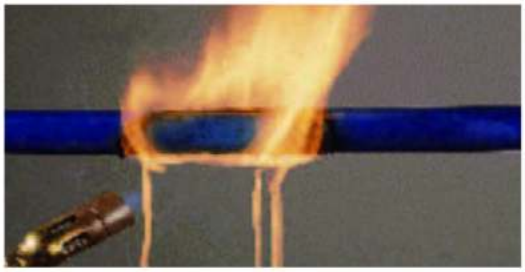
Environmental impact reports also indicated that smoke toxicity of plastic pipe is low compared with that of common building materials present present in homes and furnishings.

CPVC has a limiting Oxygen Index (LOI) of 60. Thus in air CPVC does not support combusion. No flaming drips, does not increase the fire load, low flame spread, low smoke generation.

FIRE SAFETY

FlowGuard® Pipe and Fittings have a Limiting Oxygen Index (LOI) of 60. Thus, FlowGuard® Pipe and Fittings do not support combustion and won't spread flames or generate smoke like other plastics. It also does not **increase the fire load of a property.**

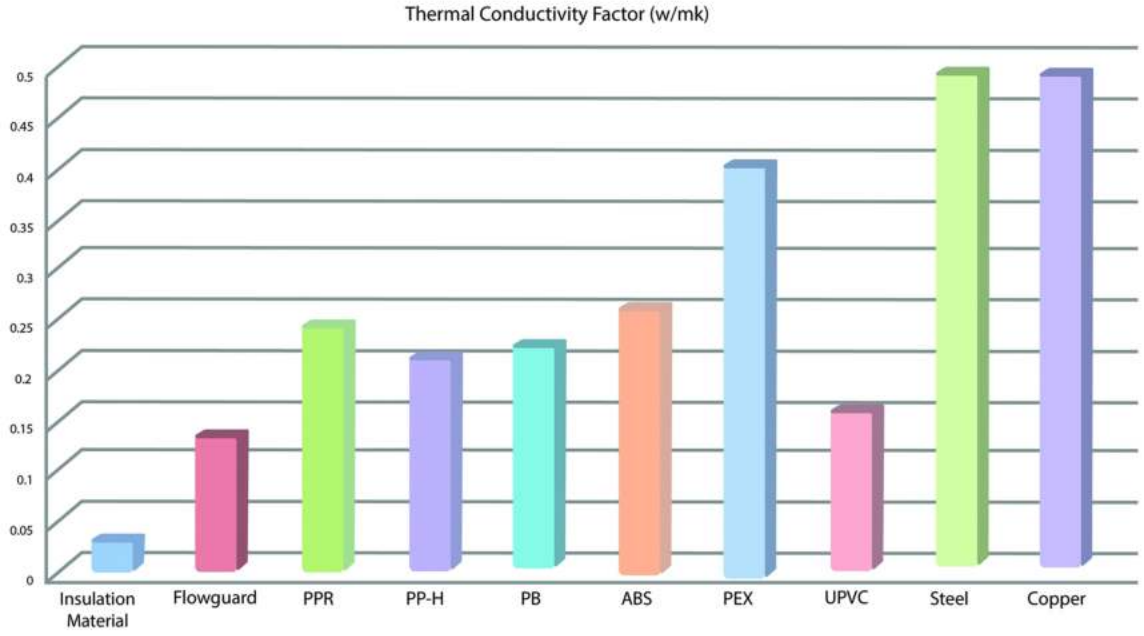
FlowGuard® CPVC



Other Plastics

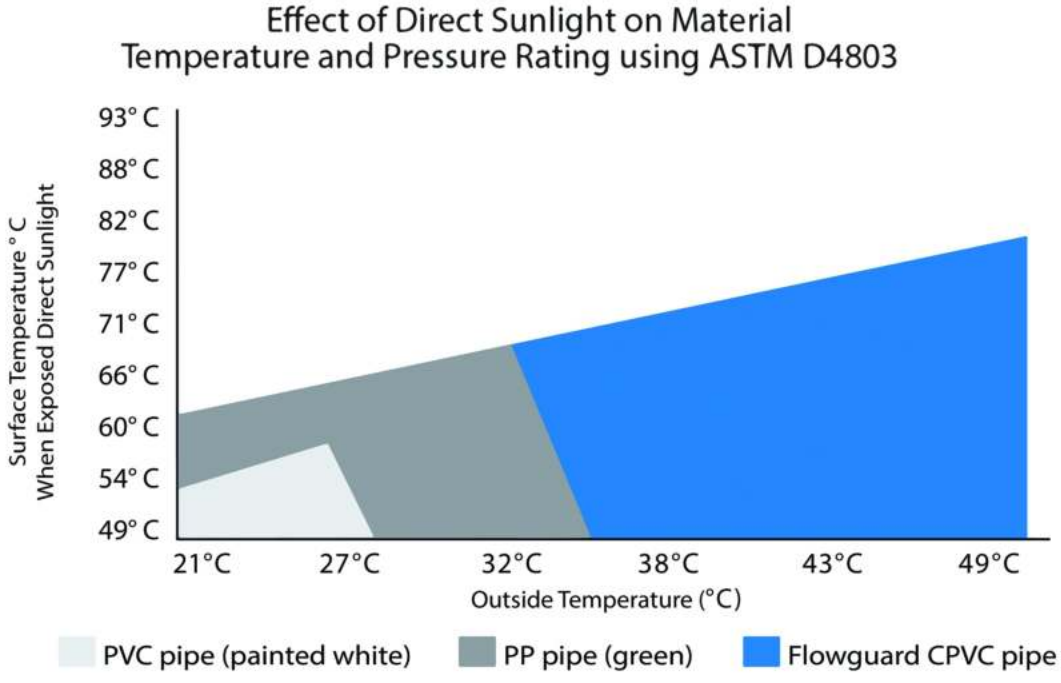
THERMAL CONDUCTIVITY

FlowGuard® plumbing systems have low thermal conductivity, helping hot water run more efficiently.



WEATHER RESISTANCE

In-use applications, including many long-standing outdoor installations, demonstrate that FlowGuard® Pipes and Fittings can withstand long-term exposure to environmental elements without significant adverse effects.



CUSTOMER BENEFITS

HEALTH CERTIFICATES

FlowGuard® piping systems are recognized by a variety of domestic and international water quality organizations that test and monitor drinking water quality.

- Germany (DVGW) - Deutscher Verein des Gas-und Wasserfaches
- The United Kingdom (WRC) - Water Research Council
- Canada (CAS) - Canadian Standards Association
- Holland (KIWA) - Keuiingsinstituut voor Waterleidingartikelen
- China - Disease Prevention and Control Center in TianJin, Beijing, Shanghai, Guangdong and Zhejiang, etc.

QUIET OPERATION

Transports water four times quiter than copper.

Velocity of Sound	m/s
FlowGuard®	1350
Copper	3600
Water	1473

Based on classical approach (Newton) using Youngs modulus: Velocity = (Youngs Modulus/Density).

CONDENSATION RESISTANCE

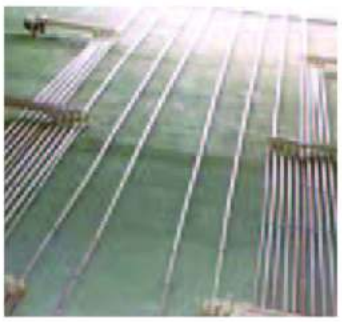
When tested alongside copper piping, FlowGuard® Pipes and Fittings produce less condensation at the same ambient air temperature, water temperature and humidity level.

EASY INSTALLATION

- Needs less hanger and supports
- No unsightly looping of the pipe
- Higher pressure bearing capability. Leads to same flowrate with smaller pipe size
- Suitable for vertical riser

FlowGuard® CPVC

Looping of other plastics

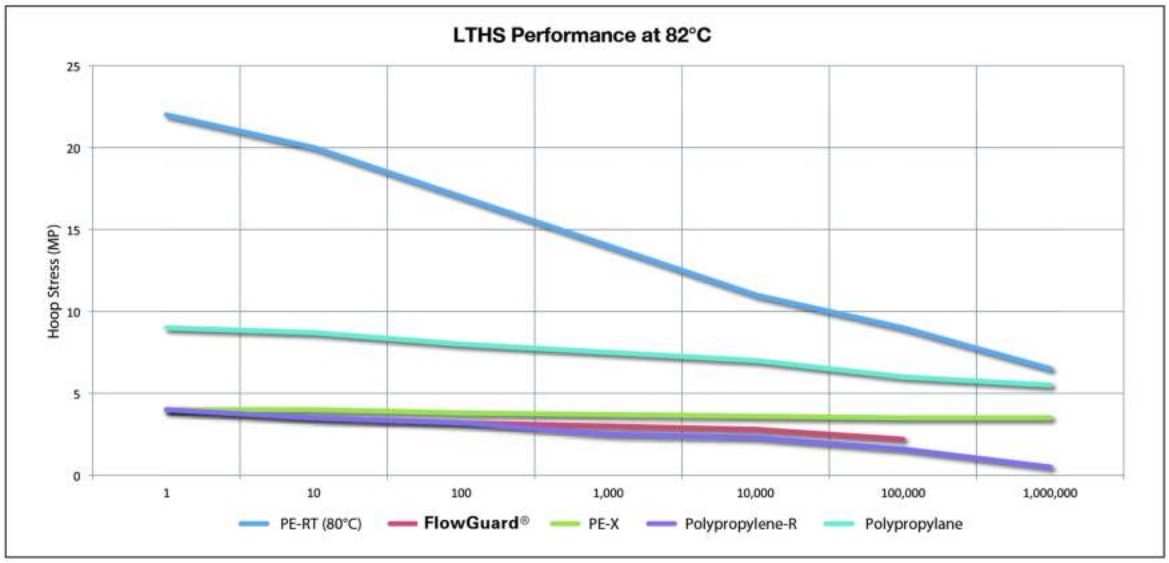


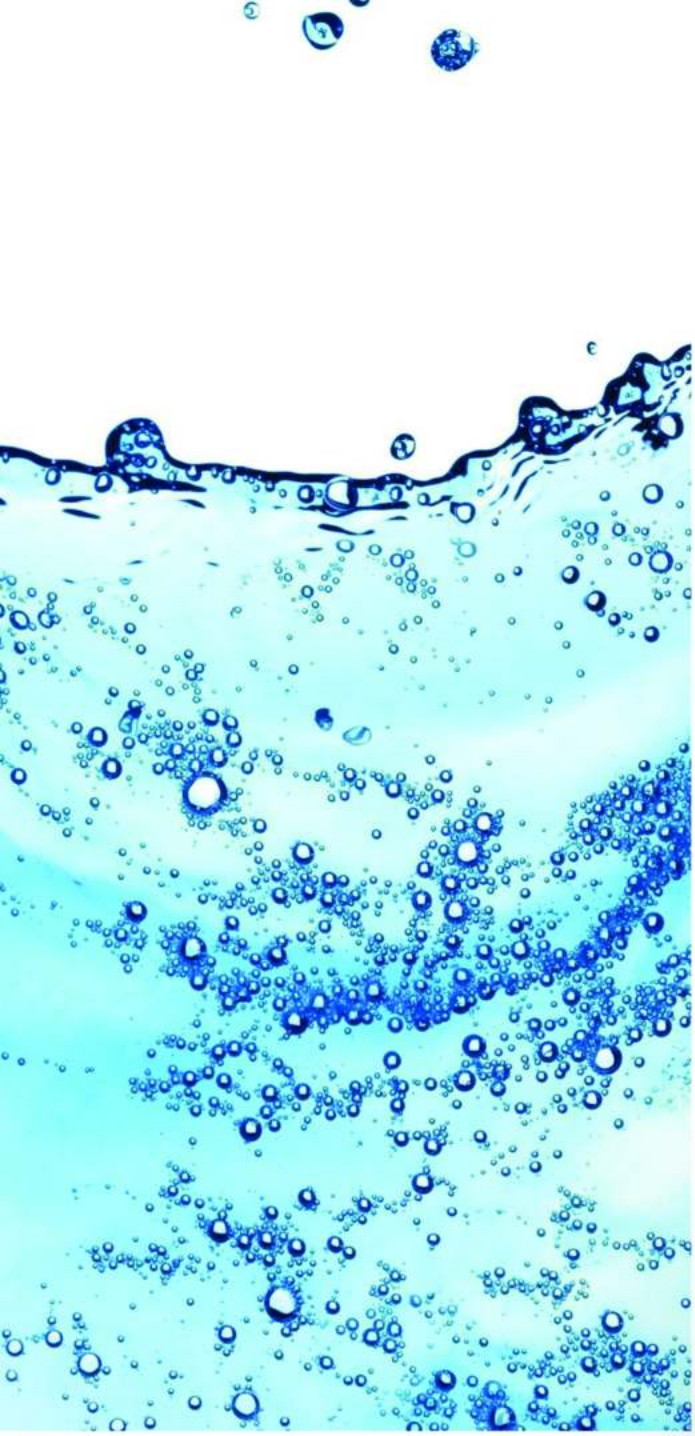
FlowGuard® CPVC

Other Plastics

LONG TERM PERFORMANCE

Compared to other non-metal materials, FlowGuard® Pipes and Fittings provide consistent pressure ratings at elevated temperatures for longer – meaning greater reliability and less maintenance.





EASY INSTALLATION

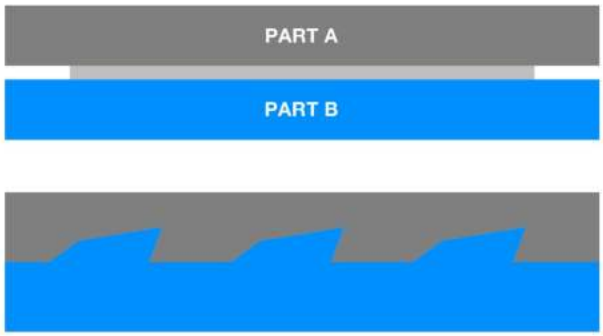
- Requires fewer hangers to support the pipe
- No unsightly pipe drop
- Higher Pressure bearing capability: smaller pipe sizes provide equivalent flowrate to larger, alternative material pipes.
- Suitable for vertical risers
- Does not require electricity or specialized tools

INSTALLATION SOLVENT WELDING

JOINT STRENGTH

Adhesion: Glues bond to part A on one side and to part B on the other side. The glue bond does not work properly when there is space between part A and part B.

Solvent Welding: Some components in a solvent cement penetrate, melt and/or swell the material and then evaporate, which allows the substrates to regain crystallinity and with it all of their physical property. 80 percent of the bond strength in a solvent weld comes by fusing part A into part B.



CPVC: SOLVENT WELDING

- Tools required are simple and cheap
- Solvent welding process allows for fast and easy assembly
- Same procedure for CPVC as for PVC
- Chemically welded joints are the strongest part of the system
- No need for electrical source

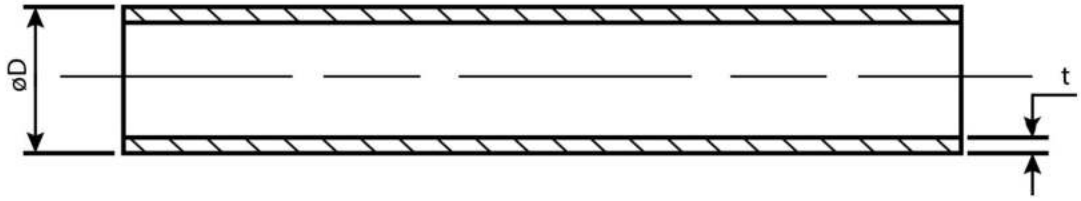
CPVC is listed for Potable & Non-Potable line application:

Nation Plumbing Code of the Phil.

Uniform Plumbing Code

Building Officials Code Administrators

PRODUCT RANGE: PIPES & FITTINGS



Specification: conforms to (CTS) SDR 13.5,
ASTM F441 (Schedule 40)

Standard Cutting Length: 3 meters

Jointing Method: CPVC 1 - Step Solvent Cement

Color: Beige with Red Strip (for SDR 11)
Beige with Black Strip (for SDR 13.5)
Beige with Red Strip (for SCH 40)

COPPER-TUBE SIZE (CTS) SDR 11 AS PER ASTM D-2846

NOMINAL SIZE		OD mm		Wall Thickness (t) mm		PRESSURE RATING . PSI	
in	mm	ave.	tolerance	min	tolerance	23°C	82°C
1/2	15	15.9	0.08	1.73	0.51	400	100
3/4	20	22.2	0.08	2.03	0.51	400	100
1	25	28.6	0.08	2.59	0.51	400	100
1 1/4	32	34.9	0.08	3.18	0.51	400	100
1 1/2	40	41.3	0.10	3.76	0.51	400	100
2	50	54.0	0.10	4.90	0.58	400	100

COPPER-TUBE SIZE (CTS) SDR 13.5 AS PER ASTM D2846

NOMINAL SIZE		OD mm		Wall Thickness (t) mm		PRESSURE RATING . PSI	
in	mm	ave.	tolerance	min	tolerance	23°C	82°C
1/2	15	15.9	0.08	1.40	0.51	320	80
3/4	20	22.2	0.08	1.65	0.51	320	80
1	25	28.6	0.08	2.12	0.51	320	80
1 1/4	32	34.9	0.08	2.59	0.51	320	80
1 1/2	40	41.3	0.10	3.06	0.51	320	80
2	50	54.0	0.10	4.00	0.58	320	80

SCHEDULE 40 PIPING SYSTEM AS PER ASTM F441

NOMINAL SIZE		OD mm		Wall Thickness (t) mm		PRESSURE RATING PSI
in	mm	ave.	tolerance	min	tolerance	
2 1/2	65	73.0	0.18	5.16	0.61	300
3	80	88.9	0.20	5.49	0.66	280
4	100	114.3	0.23	6.02	0.71	220
6	150	168.3	0.28	7.11	0.86	180

COPPER TUBE SIZE AS PER ASTM D-2846

ELBOW 90°	in	mm
	1/2	15
	3/4	20
	1	25
	1-1/4	32
	1-1/2	40
	2	50

ELBOW 45°	in	mm
	1/2	15
	3/4	20
	1	25
	1-1/4	32
	1-1/2	40
	2	50

CROSS TEE	in	mm
	1/2	15
	3/4	20
	1	25
	1-1/4	32
	1-1/2	40
	2	50

TEE	in	mm
	1/2"	15
	3/4"	20
	1"	25
	1-1/4"	32
	1-1/2"	40
	2"	50

END CAP	in	mm
	1/2"	15
	3/4"	20
	1"	25
	1-1/4"	32
	1-1/2"	40
	2"	50

COUPLING	in	mm
	1/2"	15
	3/4"	20
	1"	25
	1-1/4"	32
	1-1/2"	40
	2"	50

MALE ADAPTER	in	mm
	1/2"	15
	3/4"	20
	1"	25
	1-1/4"	32
	1-1/2"	40
	2"	50

FEMALE ADAPTER	in	mm
	1/2"	15
	3/4"	20
	1"	25
	1-1/4"	32
	1-1/2"	40
	2"	50

UNION COUPLING (PLASTIC/PLASTIC)	in	mm
	1/2"	15
	3/4"	20
	1"	25
	1-1/4"	32
	1-1/2"	40
	2"	50

REDUCER COUPLING	in	mm
	3/4 x 1/2	20 x 15
	1 x 1/2	25 x 15
	1 x 3/4	25 x 20
	1-1/4 x 1/2	32 x 15
	1-1/4 x 3/4	32 x 20
	1-1/4 x 1	32 x 25
	1-1/2 x 1/2	40 x 15
	1-1/2 x 3/4	40 x 20
	1 1/2 x 1	40 x 25
	1-1/2 x 1-1/4	40 x 32
	2 x 1/2	50 x 15
	2 x 3/4	50 x 20
	2 x 1	50 x 25
	2 x 1-1/4	50 x 32
	2 x 1-1/2	50 x 40

REDUCER BUSHING	in	mm
	3/4 x 1/2	20 x 15
	1 x 1/2	25 x 15
	1 x 3/4	25 x 20
	1-1/4 x 1/2	32 x 15
	1-1/4 x 3/4	32 x 20
	1-1/4 x 1	32 x 25
	1-1/2 x 1/2	40 x 15
	1-1/2 x 3/4	40 x 20
	1-1/2 x 1	40 x 25
	1-1/2 x 1-1/4	40 x 32
	2 x 1/2	50 x 15
	2 x 3/4	50 x 20
	2 x 1	50 x 25
	2 x 1-1/4	50 x 32
	2 x 1-1/2	50 x 40
	2-1/2 x 1-1/4	65 x 32
	2-1/2 x 1-1/2	65 x 40
	2-1/2 x 2	65 x 50

MALE ADAPTER WITH BRASS	in	mm
	1/2"	15
	3/4"	20
	1"	25
	1-1/4"	32
	1-1/2"	40
	2"	50

FEMALE ADAPTER WITH BRASS	in	mm
	1/2"	15
	3/4"	20
	1"	25
	1-1/4"	32
	1-1/2"	40
	2"	50

ELBOW REDUCER 90°	in	mm
	3/4 x 1/2	20 x 15
	1 x 1/2	25 x 15
	1 X 3/4	25 x 20

TRANSITION BUSHING (IPS/CTS) SPIGOT X SOCKET	in	mm
	1/2 x 1/2	15 x 15
	3/4 x 3/4	20 x 20
	1 x 1	25 x 25
	1-1/4 x 1-1/4	32 x 32
	1-1/2 x 1-1/2	40 x 40
	2 x 2	50 x 50
	2-1/2 x 2	65 x 50
	3 x 2	80 x 50
	4 x 2	100 x 50

THREADED FEMALE TEE WITH BRASS	in	mm
	1/2 x 1/2 x 1/2	15 x 15 x 15
	3/4 x 3/4 x 1/2	20 x 20 x 15
	3/4 x 3/4 x 3/4	20 x 20 x 20
	1 x 1 x 3/4	25 x 25 x 15
	1-1/4 x 1-1/4 x 1-1/4	32 x 32 x 32
	1-1/4 x 1-1/4 x 1/2	32 x 32 x 15

BALL VALVE	in	mm
	1/2"	15
	3/4"	20
	1"	25
	1-1/4"	32
	1-1/2"	40
	2"	50

GATE VALVE	in	mm
	1/2"	15
	3/4"	20

BRASS FPT COUPLING	in	mm
	3/4 x 1/2	20 x 15
	1 x 1/2	25 x 15

FEMALE ELBOW ADAPTER WITH BRASS	in	mm
	1/2 x 1/2	15 x 15
	3/4 x 1/2	20 x 15
	3/4 x 3/4	20 x 20
	1 x 1/2	25 x 15
	1-1/2 x 1/2	32 x 32
	1-1/4 x 1-1/4	32 x 15

TEE REDUCER	in	mm	in	mm
	3/4 x 1/2 x 1/2	20 x 15 x15	1-1/2 x 1/2 x 1-1/2	40 x 15 x 40
	3/4 x 1/2 x 3/4	20 x 15 x 20	1-1/2 x 3/4 x 1-1/2	40 x 20 x 40
	1 x 1/2 x 1/2	25 x 15 x 15	1-1/2 x 1 x 1-1/2	40 x 25 x 40
	1 x 1/2 x 3/4	25 x 15 x 20	1-1/2 x 1-1/4 x 1-1/2	40 x 32 x 40
	1 x 3/4 x 3/4	25 x 20 x 20	2 x 1-2 x 2	50 x 15 x 50
	1 x 1/2 x 1	25 x 15 x 25	2 x 3/4 x 2	50 x 20 x 50
	1 x 3/4 x 1	25 x 20 x 25	2 x 1 x 2	50 x 25 x 50
	1-1/4 x 1/2 x 1-1/4	32 x 15 x 32	2 x 1-1/4 x 2	50 x 32 x 50
	1-1/4 x 3/4 x 1-1/4	32 x 20 x 32	2 x 1-1/2 x 2	50 x 40 x 50
	1-1/4 x 1 x 1-1/4	32 x 25 x 32		

UNION COUPLING MALE THREAD (BRASS/PLASTIC)	in	mm
	1/2	15

UNION COUPLING FEMALE THREAD (BRASS/PLASTIC)	in	mm
	1/2"	15
	3/4"	20
	1"	25
	1-1/4"	32
	1-1/2"	40
	2"	50

STEP OVER BEND	in	mm
	1/2"	15
	3/4"	20
	1"	25
	1-1/4"	32
	1-1/2"	40
	2"	50

SCH - 40 FITTINGS AS PER ASTM F-438 / F-439

ELBOW 90°	in	mm
	2-1/2	65
	3	80
	4	100
	*6	150

END CAP	in	mm
	2-1/2	62
	3	80
	4	100
	*6	150

COUPLING	in	mm
	2-1/2	62
	3	80
	4	100
	*6	150

ELBOW 45°	in	mm
	2-1/2	65
	3	80
	4	100
	*6	150

TEE	in	mm
	2-1/2	65
	3	80
	4	100
	*6	150

FLANGE	in	mm
	2-1/2	65
	3	80
	4	100
	*6	150

REDUCER TEE	in	mm
	2-1/2 x 1	65 x 25
	2-1/2 x 1-1/2	65 x 40
	2-1/2 x 2	65 x 50
	3 x 1	80 x 25
	3 x 1-1/4	80 x 32
	3 x 1-1/2	80 x 40
	3 x 2	80 x 50
	3 x 2-1/2	80 x 65
	4 x 1-1/2	100 x 40
	4 x 2	100 x 50
	4 x 2-1/2	100 x 65
	4 x 3	100 x 80

REDUCER BUSHING	in	mm
	2-1/2 x 1-1/2	65 x 40
	2-1/2 x 2	65 x 50
	2-1/2 x 2-1/2	65 x 65
	4 x 2	100 x 50
	4 x 2-1/2	100 x 65
	4 x 3	100 x 80
	*6 x 4	150 x 100

REDUCER COUPLING	in	mm
	3 x 2	80 x 50
	4 x 2	100 x 50
	4 x 3	100 x 80
	*6 x 4	150 x 100

*Note: Above 4" Subject to Availability

ACCESSORIES

PIPE CUTTER	in	mm
	1/2 - 1-1/4	15 - 32

CPVC 1 STEP SOLVENT CEMENT YELLOW	Size
	1/2 pint 1 pint

DEBURRING TOOL	mm
	12 - 60

STRONG WELD CPVC CEMENT ORANGE	Size
	1/2 pint 1 pint

STRONG WELD P48 PRIMER	Size
	1 pint

JOINING FLOWGUARD® PIPES AND FITTINGS

1.) CUT

Tubing cuts easily with a wheel-type plastic tubing cutter, a hacksaw or other fine-toothed hand or power saw.

2.) DEBURR

Remove any burrs and filings, as these can prevent proper contact between the tube and fitting during assembly.

3.) PREPARE THE FITTING

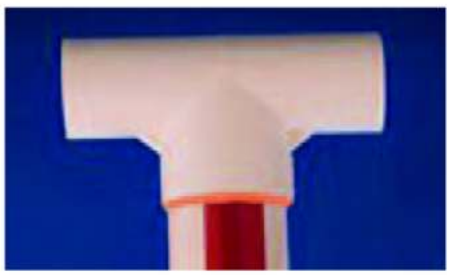
Wipe any dirt or moisture from the fitting sockets and tubing end.

4.) CLEAN THE BONDING AREA

Use primer or cleaner to prep the bonding area.

5.) APPLY SOLVENT

When the pipe and fitting surfaces are dry, apply a heavy, even coat of solvent weld cement on the end of the tubing. Without replacing the dauber in the can, apply a coat of solvent weld cement to the inside of the fitting.



6.) ASSEMBLE

Immediately insert the tubing into the fitting socket, rotating the tubing 1/4 to 1/2 way around while inserting.

AREZZO PLACE

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Unit 35th Atlanta Centre, #31 Annapolis St. Greenhills, San Juan City
Tel. nos.: 8723.0781 to 88 Fax no.: 7744-4703 | 8584-2997
Website: **http://www.atlanta.ph** Email: **marketing@atlanta.ph**
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