



# MARYLAND PIPE & SUPPLY CO., LLC



## CPVC

### SUBMITTAL AND DATA SHEET

**STANDARDS: ASTM D1784, ASTM F441, ASTM F439, ASTM F437, ASTM F1970**

**NSF 14, NSF 61**

**CSA B137.6**

(Please see our listing on agency websites for NSF and CSA complaint fittings. [www.nsf.org](http://www.nsf.org) [www.CSAGroup.org](http://www.CSAGroup.org) )

#### Introduction:

CPVC has physical properties similar to those of PVC and chemical resistance similar to or generally better than that of PVC. The design stress of CPVC is also 2,000 psi at 73°F (23°C). The maximum service temperature is 200°F (93°C) under pressure with occasional exposure to boiling water (212°F, 100°C). CPVC has proved to be an excellent piping material for hot corrosive liquids, hot and cold water distribution and similar applications above the temperature range of PVC.

MATERIAL PROPERTIES			
PROPERTIES	CPVC	CPVC (high impact)	STANDARDS
Cell Classification	23447	24448	ASTM D1784
Specific gravity	1.5	1.51	ASTM D792
Tensile strength, psi at 73°F	7,500	7,320	ASTM D638
Modulus of elasticity tensile, psi at 73°F	380,000	423,000	ASTM D638
Flexural strength, psi	11,400	13,200	ASTM D790
Izod impact, ft.lbs./in. at 73°F, notched	2.0	10.0	ASTM D256
Compressive strength, psi	10,100	10,100	ASTM D695
Poisson's ratio	0.33	0.33	
Working stress, psi at 73°F	2,000	2,000	
Coefficient of thermal expansion in./in./°F (x 10 <sup>-5</sup> )	3.8	3.4	ASTM D696
Linear expansion, in./10°F per 100' of pipe	0.44 – 0.46	0.41	
Maximum operating temperature under pressure	200°F (93°C)	200°F (93°C)	
Deflection temperature under load, °F at 66 psi	n/a	n/a	ASTM D648
Deflection temperature under load, °F at 264 psi	212	239	ASTM D648
Thermal conductivity, BTU.in./hr.ft <sup>2</sup> .°F	0.95	0.95	ASTM C177
Burning rate	Self extinguish	Self extinguish	ASTM D635
Burning class	V-0	V-0	UL-94
Flash ignition, °F	900	900	
Limited oxygen index (%)	60	60	ASTM D2863-70
Water absorption, %, (24 hrs. at 73°F)	0.03	0.03	ASTM D570

Pipe Size	
Schedule 40 Grey	Schedule 80 Grey
1/2" – 16"	1/2" – 16"

<b>MOLDED FITTINGS AVAILABILITY</b>	
<b>Fittings</b>	<b>Size (inches) Schedule 80</b>
Tee (Soc)	1/4" – 12"
Reducing Tee (Soc)	3/4" – 10" x 3/4" – 10" x 1/2" – 6"
Tee (Soc x Soc x Fpt)	1/2" – 2"
Tee (Fpt)	1/4" – 4"
90° Elbow (Soc)	1/4" – 12"
90° Elbow (Soc x Fpt)	1/4" – 2"
90° Elbow (Fpt)	1/4" – 4"
45° Elbow (Soc)	1/4" – 12"
45° Elbow (Fpt)	1/4" – 4"
22-1/2° Elbow (Soc)	2" – 4"
11-1/4° Elbow (Soc)	2" – 4"
30° Elbow (Soc)	6"
Cross (Soc)	1/4" – 4"
Coupling (Fpt)	1/4" – 4"
Coupling (Soc)	1/4" – 8"
Reducer Coupling (Soc)	3/4" – 8" x 1/2" – 6"
Female Adapter (Soc x Fpt)	1/4" – 4"
Female Adapter (Soc x Fpt SS Reinforced)	1/2" – 4"
Female Adapter (Spig x Fpt SS Reinforced)	1/2" – 4"
Male Adapter (Soc x Mpt)	1/2" – 4"
Reducer Bushing (Spig x Soc)	3/8" – 8" x 1/4" – 6"
Reducer Bushing (Spig x Fpt)	3/8" – 6" x 1/4" – 4"
Reducer Bushing (Mpt x Fpt)	3/8" – 4" x 1/4" – 3"
Cap (Soc)	1/4" – 8"
Cap (Fpt)	1/4" – 4"
Plug (Mpt)	1/4" – 4"
Wye (Soc)	1/2" – 2"

<b>FABRICATED FITTINGS AVAILABILITY</b>	
<b>Fittings</b>	<b>Size (inches) Schedule 80</b>
Fabricated Tee (Soc)	14" – 16"
Fabricated Reducing Tee (Soc)	12" x 12" x 8"
Fabricated 90° Elbow (Soc)	14" – 16"
Fabricated 45° Elbow (Soc)	14" – 16"
Fabricated Coupling (Soc)	10" – 16"
Fabricated Reducer Bushing (Spig x Soc)	10" – 12" x 6" – 10"
Fabricated Cap (Soc)	10" – 16"
Fabricated Vanstone Flange (Soc)	14" – 16"
Blind Flange	10" – 12"
Heavy Duty Vanstone Flange (Soc)	16"
Vanstone Flange (Spig)	10" – 12"
Nipples	1/4" – 4"
Expansion Joints	1/2" – 4"

<b>FABRICATED FITTINGS AVAILABILITY</b>	
<b>Fittings</b>	<b>Size (inches) Schedule 80</b>
Fabricated Tee (Soc)	14" – 16"
Fabricated Reducing Tee (Soc)	12" x 12" x 8"
Fabricated 90° Elbow (Soc)	14" – 16"
Fabricated 45° Elbow (Soc)	14" – 16"
Fabricated Coupling (Soc)	10" – 16"
Fabricated Reducer Bushing (Spig x Soc)	10" – 12" x 6" – 10"
Fabricated Cap (Soc)	10" – 16"
Fabricated Vanstone Flange (Soc)	14" – 16"
Blind Flange	10" – 12"
Heavy Duty Vanstone Flange (Soc)	16"
Vanstone Flange (Spig)	10" – 12"
Nipples	1/4" – 4"
Expansion Joints	1/2" – 4"

<b>ASTM F1970 FITTINGS AVAILABILITY</b>	
<b>Fittings</b>	<b>Size (inches) Schedule 80</b>
One Piece Flange (Soc)	1/2" – 8"
One Piece Flange (Fpt)	1/2" – 4"
Blind Flange	1/2" – 8"
Heavy Duty Vanstone Flange (Soc)	1/2" – 12"
Vanstone Flange (Fpt)	1/2" – 4"
Vanstone Flange (Spig)	1/2" – 8"
Union (Soc)	1/4" – 4"
Union (Fpt)	1/4" – 4"

Manufacturers: George Fischer, Harvel, I-Pex, Spears

## **SCHEDULE 40 & 80 CPVC**

### **INDUSTRIAL PIPE & SCHEDULE 80 CPVC FITTINGS**

#### **SCOPE:**

This specification sheet covers the manufacturers' requirements for CPVC Schedule 40 and Schedule 80 IPS pressure pipe and Schedule 80 IPS pressure fittings. The pipe and fittings meet or exceed all applicable ASTM and NSF standards and are suitable for potable water.

#### **CPVC MATERIALS**

Rigid CPVC (chlorinated polyvinyl chloride) used in the manufacturing of Schedule 40 and 80 pipe complies with the material requirements of ASTM D1784 and has a cell classification of 24448 (23477 from 10" to 16"). Rigid CPVC used in the manufacture of Schedule 80 Fittings shall meet the material requirements of ASTM D1784 and have a cell classification of 23477 and carry a pressure rating listed by PPI (Plastic Pipe Institute).

Raw material used in the manufacturing shall contain the standard specified amounts of color pigment, stabilizers, and other additives. The compounds used are listed to the requirements of NSF 61 for use in potable water service. The compound must exhibit a flame spread rating of 10 and a smoke development classification of 25 when tested in accordance with CAN/ULC S102.2.

#### **DIMENSIONS**

Physical dimensions and properties of CPVC Schedule 40 and Schedule 80 pipe shall meet or exceed the requirements of ASTM F441.

Physical dimensions and properties of CPVC Schedule 80 fittings – socket type – shall meet the requirements of ASTM F439. Physical dimensions and properties of CPVC Schedule 80 Fittings – threaded type – shall meet the requirements of ASTM F437. Threaded fittings have a taper pipe thread in accordance with ANSI/ASME B1.20.1.

#### **MARKING**

CPVC Schedule 40 and 80 pipe is marked as prescribed in ASTM F441 and NSF 14. The marking includes the following: IPEX; CORZAN 24448 (23447); IPS CPVC and the schedule and pressure rating at 73°F (23°C); ASTM F441; NSF 14; and NSF 61 Potable.

\*\*\*1-1/4" to 2'1/2" Schedule 80 CPVC pipe is third party certified by NSF to CSA B137.6\*\*\*

CPVC Schedule 80 fittings are marked as prescribed in ASTM F437 and F439. The marking includes the following: IPEX; CPVC and the size of the fitting; ASTM F437 or ASTM F439; NSF 14; and NSF 61 potable.

#### **SAMPLE SPECIFICATION**

All CPVC Schedule 80 pipe shall conform to ASTM F441/F441M and be third party certified to NSF 14. All CPVC Schedule 40 and Schedule 80 pipe from 1/2" to 8" shall be made with a CPVC compound having a minimum cell classification of 24448. CPVC Schedule 80 socket fittings shall conform to ASTM F439 and Schedule 80 threaded fittings shall conform to ASTM F437. All fittings must be third party certified to NSF 14.

All CPVC Schedule 40 and 80 pipe and fitting shall be made from a 4000psi HDB PPI rated compound.

ALL CPVC Schedule 80 fabricated fittings shall be reinforced with fiberglass reinforced plastic (FRP). All CPVC fittings shall be molded or fabricated from CPVC compound that is compatible with the pipe material.