



**Summary of Substantive Changes
between the 2014 and 2017 editions of
ASTM D2846 “Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic
Hot- and Cold-Water Distribution Systems”**

Presented to the IAPMO Standards Review Committee on October 16, 2017

General: The changes to this standard should not have an impact on currently listed products. The substantive changes are:

- Moved the requirements for assembly from Appendix X2.2.2 to Section 15 and revised the requirements for cleaning and step by step assembly (see Section 15).

Section 2, Referenced Documents: Added the referenced standards D2855 and F645 as follows:

2.1 ASTM Standards:

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D2122 Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings

[D2855 Practice for the Two-Step \(Primer and Solvent Cement\) Method of Joining Poly \(Vinyl Chloride\) \(PVC\) or Chlorinated Poly \(Vinyl Chloride\) \(CPVC\) Pipe and Piping Components with Tapered Sockets](#)

D2444 Test Method for Determination of the Impact Resistance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight)

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F493 Specification for Solvent Cements for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe and Fittings

[F645 Guide for Selection, Design, and Installation of Thermoplastic Water- Pressure Piping Systems](#)

F1498 Specification for Taper Pipe Threads 60° for Thermoplastic Pipe and Fittings

Section 15, Assembly: Moved the requirements for assembly from Appendix X2.2.2 to Section 15 and revised the requirements for solvent cleaning and step by step assembly as follows:

~~X2.2.15~~. Assembly

~~X2.2.15.1~~ Solvent Cemented Joints:

15.1.1 Interference Fit—Components meeting the dimensional requirements of this specification are designed to have an interference fit. Before making a cemented joint, it is advisable to check for an interference dry-fit. A good interference dry-fit exists when the pipe or tubing makes contact with the fitting socket wall between one third and two thirds of the way into the socket.

~~X2.2.1.2~~~~15.1.2~~ Cutting—Pipe and tubing may be cut to length with tubing cutters. Tubing cutters with thin cutting wheels designed specially for plastic are recommended. Where tubing cutters



are not available, a saw and mitre box may be used. Burrs and ridges caused by handling or cutting must be removed before assembling a joint.

~~X2.2.1.3 15.1.3 Solvent Cleaning— When recommended by the cement manufacturer, organic liquids can be used as a cleaning solvent for CPVC 41 components. These organic liquids should have a low solvation power for CPVC, to prevent mistaken use of the cleaning solvent for a cement. Uncemented joints with a good solvent. THF for instance, will pass the usual cold water pressure check but are likely to fail later in hot water service. A clean, dry cloth shall be used to clean the surfaces of pipe and fittings to remove all foreign materials, (Specification D2855, Section 7.4, Notes 10 and 11).~~

~~X2.2.1.4 15.1.4 Step-by-Step Assembly—Correct assembly consists of the following steps:~~

~~(1) cut the pipe square; (2) remove burrs; (3) check for interference fit; (4) clean both pipe end and fitting socket with a recommended CPVC cleaner or by light sanding, or both; (5) apply a liberal coat of CPVC solvent cement to the pipe and apply a light coat of cement to the fitting socket; (6) assemble immediately by bottoming the pipe in the socket and rotating a quarter turn as the joint is assembled; and (7) remove excess cement from the joint. If a joint has been properly made, a small bead of cement will always appear at the juncture between the pipe or tubing and the fitting.~~

~~(1) Pipe shall be cut square (Specification D2855, Section 7.1, Fig. 5);~~

~~(2) Pipe shall be chamfered and deburred (Specification D2855, Section 7.2 Fig. 6);~~

~~(3) Dry fit pipe and fitting, pipe should enter fitting socket easily and go in from 1/3 to 2/3 of the socket depth (Specification D2855 Section 7.3);~~

~~(4) Pipe and fitting socket shall be clean and dry (Specification D2855, Section 7.4);~~

~~(5) Applicator shall be at least 1/2 the nominal pipe diameter (Specification D2855, Section 7.6);~~

~~(6) The cement shall be worked into the surfaces to be joined using a circular motion;~~

~~(7) A heavy even coat of CPVC cement shall be applied to the outside of the pipe end, (If the print line exists on the inserted pipe end, obliteration by the scrubbing action of the solvent cement indicates proper cement application).~~

~~(8) A light even coat of cement shall be applied to the fitting socket;~~

~~(9) A second layer of cement shall be applied to the pipe~~



end if preparing joints 1-1/4-in. or larger;
(10) Assemble immediately, rotating the pipe 1/4 turn as the pipe is bottomed in the fitting socket;
(11) Hold the assembly for 15 to 20 s (colder weather may require longer hold times) to ensure the pipe does not back out and initial bonding occurs. A continuous bead of cement shall be visible around the socket entrance. If the bead is not continuous around the socket entrance, insufficient cement was used.
(12) Excess cement should be wiped off with a clean dry cloth.

~~X2.2~~15.2 Adhesive Joints—Assemble according to the manufacturer’s instructions paying particular attention to whether sanding of the pipe or tubing is recommended to eliminate the interference fit.

~~X2.2.3~~ 15.3 Plastic-to-Metal Transitions—Assemble in accordance with the manufacturer’s instructions. Union and compression type transition fittings are likely to include ferrules or O-rings, or both, which form an essential part of the fitting assembly and should not be omitted. Plastic socket-to-male threaded adapters should be installed with a recommended thread sealant.

~~X2.3~~16. Installation

Section X2.1, Design: Changed the recommended reference for surge or water hammer pressure calculations as follows:

X2.1.5 ~~Surge or Water Hammer and Surge~~ —A CPVC hot-water system will withstand repeated pressure surges well in excess of its rated pressure, but water hammer arrestors may be advisable when solenoid valves or other quick closing devices are used in the system. In designing for such situations it is advisable to consult the pipe or fitting manufacturer for recommended surge pressure limits. ~~Water hammer and Surge~~ or water hammer pressure ~~calculations are reviewed in AWWA Manual M11,~~
~~“Steel Pipe Design and Installation”, 1964, Chapter 7, American Water Works Association Inc., 2 Park Ave., New York, NY~~
~~10016.~~ Change resulting from rapid valve closure may be calculated using Eq. 2 in Specification F645.