



**Summary of Substantive Changes
between the 2012 and the 2013 editions of
ASTM F442, “Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe (SDR–PR)”**

Presented to the IAPMO Standards Review Committee on August 13, 2013

General: The changes to this standard will have an impact on currently listed products. The significant changes are:

- Increased the required HDB from 2000 to 4000 psi (14 to 28 MPa) at 73°F (23 °C) and from 500 to 1000 or 1250 psi (3.45 to 7.0 or 8.6 MPa) at 180°F (82 °C) (see Section 5.2)
- Added marking requirement to include the pipe pressure rating at 180°F (82 °C), in addition to the already marked pressure rating at 73°F (23 °C), and revised the format used in marking the pipe (see Section 10.2.1.4)
- Updated and clarified the nonmandatory information regarding the source of hydrostatic design stresses in this type of pipe (see Appendix X1)

Section 3, Terminology: Clarified the thermoplastic pipe material designation code as follows:

3.2.5 standard thermoplastic pipe materials designation code—the pipe materials designation code shall consist of the abbreviation CPVC for the type of plastic, followed by the ASTM type and grade in Arabic numerals and the design stress at 73°F [23°C] in units of 100 psi [690 kPa] with any decimal figures dropped, followed by the design stress at 180°F [82°C] in units of 100 psi [0.7 MPa] with any decimal figures dropped. When the design stress code contains less than two figures, a cipher shall be used before the number. Thus a complete material code shall consist of four letters and four six figures for CPVC plastic pipe materials (see Section 5, Note 5 and X1.2.1).

Section 5, Materials: Increased the required HDB from 2000 to 4000 psi (14 to 28 MPa) at 73°F (23°C) and from 500 to 1000 or 1250 psi (3.45 to 7.0 or 8.6 MPa) at 180°F [82°C] and clarified the pipe material designation terminology as follows:

5.2 Basic Materials:—~~This specification covers CPVC pipe made from compounds meeting the requirements of Class 23447 as defined in Specification D1784. The materials shall have an established HDS (Hydrostatic Design Stress) equal to or greater than 2000 psi [13.80 MPa] at 73° F [23° C] and 500 psi [3.45 MPa] at 180° F [82° C] when evaluated in accordance with Test Method D2837.~~

5.2.1 Basic Materials – Short-term Tests—This specification covers pipe made from CPVC plastics having certain physical properties as described in Specification D1784.

5.2.1.1 Compound—The CPVC compounds used for this pipe shall equal or exceed the classification 23447 described in Specification D1784. 5.2.2 Basic Materials – Long-term Test—This specification covers pipe made from CPVC plastics having certain Hydrostatic Design Bases (HDB) and Hydrostatic Design Stresses (HDS) described in Test Method D2837.

5.2.2.1 Compound—The CPVC compounds used for this pipe shall have a Hydrostatic Design Basis at 73°F [23°C] of 4000 psi [28 MPa], and a Hydrostatic Design Basis at 180°F [82°C] of either 1000 psi [7.0 MPa] or 1250 psi [8.6 MPa] when evaluated in accordance with Test Method D2837.



5.2.3 Standard thermoplastic pipe materials designation—The pipe materials designation shall consist of the material designation code CPVC 4120-05 or CPVC 4120-06 for the type of plastic.

NOTE 5—As per Terminology F412 (see, “code, thermoplastic pipe materials designation”) the pipe materials designation code CPVC 4120 is as follows: CPVC is the abbreviation for chlorinated poly(vinyl chloride) as per Terminology D1600, 41 represents Cell Classification 23447 per Specification D1784, and 20 represents a HDS of 2000 psi [14 MPa] for water at 73°F (23°C) per Test Method D2837. In addition, the -05 or -06 suffix represents a HDS of 500 psi [3.4 MPa] or 625 psi [4.3 MPa] respectively for water at 180°F [82°C] per Test Method D2837.

Section 10, Marking: Revised the marking requirements as follows:

10.2.1.2 Type of plastic pipe material in accordance with the designation code given in 3.2.5 (for example, CPVC 4120-05)

10.2.1.3 Standard thermoplastic pipe dimension ratio in accordance with the designation code given in 3.2.4~~3.2.5~~ (for example, SDR 13.5~~21~~).

10.2.1.4 ~~or the~~ Pressure rating in pounds-force per square inch for water at both 73°F [23°C] and 180°F [82°C], shown as the number followed by psi and the temperature (for example, “400 psi at 73°F, 100 psi at 180°F”). ~~(for example, 200 psi), except that when intended for pressure application the pressure rating shall be shown (for example, 200 psi [1380 kPa]). When the indicated pressure rating is lower than that calculated in accordance with 3.2.3 (see Appendix), the SDR shall also be included in the marking code~~

Appendix (Nonmandatory Information)

Appendix X1, Source Of Hydrostatic Design Stresses: Updated and clarified the nonmandatory information regarding the source of hydrostatic design stresses in this type of pipe.