Summary of Substantive Changes
between the 2018a and the 2019 editions of

ASTM F2159 "Plastic Insert Fittings Utilizing a Copper Crimp Ring, or Alternate Stainless Steel Clamps for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing"

Presented to the IAPMO Standards Review Committee on April 20, 2020

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

- Revised title and expanded scope to include alternate stainless steel clamps (see Sections 1.1, 4.1, 7.1, 11.3, 16.1, and Note X1.2)
- Added stainless steel clamps requirements throughout the Standard (see Sections 5.4, 10.2, and 15.3)

Title was changed as follows:
Plastic Insert Fittings Utilizing a Copper Crimp Ring, or Alternate Stainless Steel Clamps for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing

Section 1, Scope: Expanded the scope to include alternate stainless steel clamps as follows:
1.1 This specification establishes requirements for sulfone plastic insert fittings and copper crimp rings, or alternate stainless steel clamps for four sizes (3/8, 1⁄2, and 3⁄4 and 1) of cross-linked polyethylene (PEX) tubing that meet the requirements for Specification F876 or F3253 and polyethylene of raised temperature (PE-RT) tubing that meet the requirements of Specifications F2623 and F2769. These fittings are intended for use in 100 psi (690 kPa) cold and hot-water distribution systems operating at temperatures up to and including 180 °F (82 °C). Included are the requirements for material, molded part properties, performance, workmanship, dimensions, and markings to be used on the fittings and rings.

Section 2, Referenced Documents: Reference standards were added as follows:
2.1 ASTM Standards
F2098 Specification for Stainless Steel Clamps for Securing SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) to Metal Insert and Plastic Insert Fittings

Section 4, Classification: Expanded the scope to include alternate stainless steel clamps as follows:
4.1 This specification governs one class of fittings and copper crimp rings or alternate stainless steel clamps suitable for use with nominal size 3⁄8, 1⁄2 ,3⁄4 and 1 size PEX tubing that meets the requirements of ASTM Specification F876 or F3253 and PE-RT tubing that meets the requirements of Specifications F2623 and F2769.

Section 5, Materials and Manufacture: Added stainless steel clamps material requirements as follows:
5.4 Alternate Stainless Steel Clamps—Clamps shall be made from stainless steel in conformance with all requirements of Specification F2098.

Section 7, Performance Requirements: Expanded the scope to include alternate stainless steel clamps as follows:
7.1 General—All performance tests shall be performed on assemblies of fittings, crimp rings, or alternate stainless steel clamps, and PEX tubing or PE-RT tubing, or both. Fittings and crimp rings shall meet the material and dimensional requirements of this standard. PEX tubing shall meet the requirements of Specification F876 or F3253. PE-RT tubing shall meet the requirements of Specifications F2623 and F2769. Assembly of test specimens shall be in accordance with Section 10. Use separate sets of assemblies for each performance test requirement.

Section 10, Assembly: Added stainless steel clamps assembly requirements as follows:
10.2 Clamp Joints—Insert fittings shall be joined to PEX tubing by deforming and locking a stainless steel clamp around the outer circumference of the tubing, forcing the tubing material into annular spaces formed by the ribs on the fitting. Plastic insert fittings shall meet the material and dimensional requirements of this specification. PEX tubing shall meet the requirements of Specification F876. PE-RT tubing shall meet the requirements Specifications F2623 and F2769. Clamps shall meet the dimensional and material requirements of Specification F2098.
10.2.1 Clamping Procedure—The clamping procedure shall be as follows: slide the clamp onto the tubing, insert the ribbed end of the fitting into the end of the tubing until the tubing contacts the shoulder of the fitting or tube stop. The clamp shall then be positioned on the tubing so the edge of the clamp is 1⁄8 to 1⁄4 in. (3.2 to 6.4 mm) from the end of the tube. The ratcheting clamping tool shall be used to close the clamp. The tool shall not release until the clamp is properly closed.
10.2.2 Clamping Tools—Clamps and ratcheting hand tools from different manufacturers have similar appearances. Clamps shall be installed using the tools and calibration methods recommended by the clamp manufacturer.

Section 11, Test Methods: Expanded the scope to include alternate stainless steel clamps as follows:
11.3 Sampling—A sample of the fittings, crimp rings, or alternate stainless steel clamps, and PEX tubing sufficient to determine conformance with this specification shall be taken at random.

Section 15, Product Marking: Added stainless steel clamps marking requirements as follows:
15.3 Marking on alternate stainless steel clamps shall be in conformance with all requirements of Specification F2098, which includes manufacturer's name or trademark, or some other identifying mark, and if size permits, the designation, "F2098."

Section 16, Keywords: Expanded the scope to include alternate stainless steel clamps as follows:
16.1 alternate stainless steel clamps; cold- and hot-water distribution; copper crimp rings; cross-linked polyethylene; plastic insert fittings; PE-RT, polyethylene of raised temperature; PEX

Appendix (Nonmandatory): Note X1.2 was added as follows:
NOTE X1.2—Alternate stainless steel clamps shall be installed as per clamp manufacturer's directions using recommended clamping tool.

Table 1: Title was revised to include alternate stainless steel clamps.

Table 2: Title was revised to include alternate stainless steel clamps.