Summary of Substantive Changes
between the 2014 and the 2018a editions of

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

Presented to the IAPMO Standards Review Committee on May 6, 2019

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

- Expanded the scope to include PEX tubing with oxygen barrier for hot and cold water systems in multiple sections (see Sections 1.1, 2.1, 4.1, 7.1 and 10.1)
- Replaced one of the requirements of Sustained Hydrostatic Pressure test to be conducted in accordance with ASTM D1598 (see Section 11.6.3)

Section 1, Scope: Expanded the scope to include PEX tubing with oxygen barrier for hot and cold water systems as follows:

1. Scope

1.1 This specification establishes requirements for sulfone plastic insert fittings and copper crimp rings 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.

Added a statement regarding the standards development in accordance with internationally recognized principles as follows:

1.5 This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Section 2, Referenced Documents: Reference standards were added as follows:

2.1 ASTM Standards

F3253 Specification for Crosslinked Polyethylene (PEX) Tubing with Oxygen Barrier for Hot- and Cold-Water Hydronic Distribution Systems

Section 4, Classification: Expanded the classification scope to include F3253 as a reference for PEX tubing requirements as follows:
4.1 This specification governs one class of fittings and copper crimp rings 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 7, Performance Requirements: Expanded the scope to include F3253 as a reference for PEX tubing testing requirements as follows:
7.1 General—All performance tests shall be performed on assemblies of fittings, crimp rings, 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: Expanded the crimp joints insert fittings scope to include F3253 as a reference for PEX tubing requirements as follows:
10.1 Crimp Joints—Insert fittings shall be joined to PEX tubing or PE-RT tubing by the compression of a copper crimp ring around the outer circumference of the tubing forcing the tubing material into annular spaces formed by ribs on the fitting. Insert fittings and crimp rings shall meet the dimensional and material 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. The dimensions and out-of-roundness of the crimp ring after it has been crimped shall be in accordance with Table 3.

Section 11, Test Methods: Revised the test specimen conditioning requirements as follows:
11.6 Sustained Hydrostatic Pressure—Perform the test on at least six assemblies in accordance with Test Method D1598, except for the following:
11.6.1 Test temperature shall be 180 ± 4 °F (82 ± 2 °C).
11.6.2 The external test environment shall be air or water.
11.6.3 ~~Fill the specimens with water at a temperature of at least 120°F (50°C).~~ Condition the specimens in accordance with Test Method D1598.