



**Summary of Substantive Changes
between the 2020 and the 2022ae1 editions of
ASTM F876 “Crosslinked Polyethylene (PEX) Tubing”**

Presented to the IAPMO Standards Review Committee on January 6, 2023

General: The changes to this standard might have an impact on currently listed products. The substantive change is:

- Section 7.6.5 now specifies test method D1598 which expands the modes of failure.
- Section 7.6.6, new section identifies sample failure requirements.

Section 1.3

~~1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.~~

The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined. The values given in parentheses are mathematical conversions that may not be exact

Section 5, Materials

5.1 *General*—Crosslinked polyethylene material in tubing form, meeting the requirements of this specification, is primarily defined by means of three criteria, namely, (1) nominal density, (2) degree of crosslinking, and (3) long-term hydrostatic strength. ~~There is a strong correlation between nominal density and results of short-term strength tests.~~

~~NOTE 1—PEX tubing intended for use in the transport of potable water should be evaluated and certified as safe for this purpose by a testing agency acceptable to the local health authority. The evaluation should be in accordance with requirements for chemical extraction, taste, and odor that are no less restrictive than those included in NSF/ANSI 14. The seal or mark of the laboratory making the evaluation should be included on the tubing.~~

Section 6.3

6.3 *Density*—When determined in accordance with 7.5, the crosslinked polyethylene tubing shall have a minimum density of 0.926 ~~W~~g/cm³.

Section 6.13, Excessive Temperature—Pressure Capacity: The following section was deleted

~~**6.13.1 General**—In the event of a water heating system malfunction, PEX tubing shall have adequate strength to accommodate short-term conditions, 48 h of 210°F (99°C), 150 psi (1034 kPa) until repairs can be made.~~

~~NOTE 6—PEX tubing, larger than 1 in. nominal diameter, is typically installed as main distribution lines and is installed in straight runs. Fittings are used when a change in direction of 90° or greater and a bend radius of 6 times the outside diameter is needed. The test procedures in 6.12.2 and 6.12.3 are intended~~



~~to evaluate PEX tubing installed in tight bend applications in accordance with the procedures in X3.2.4 and X3.2.5. This application applies to tubing up to and including 1 in nominal diameter only. (99 °C), 150 psi (1034 kPa) until repairs can be made.~~

The rationale for test requirement 6.13 is so that in the event of a domestic hot-water system malfunction, PEX tubing should have adequate strength to accommodate short-term conditions, 48 h of 210 °F (99 °C), 150 psi (1034 kPa) until repairs can be made.

7.6.5 ~~Delamination~~-Failure of the tubing shall be defined in accordance with Test Method D1598, which includes ballooning, bursting, seeping or weeping. Specimens which show delamination (separation of the layers visible to the unaided eye) are also considered to have failed.

7.6.6 Failure of any two or more of the specimens tested in less than the specified time at any given temperature constitutes failure of the test. If one of six specimens tested at a temperature and pressure in accordance with Table 5 or Table 6 fails, retest of six additional specimens at the same temperature but with pressures in accordance with Table 5 for a minimum of 1000 h is permitted and, in this case, any additional failures shall constitute failure of the test with no additional retest permitted.

9. Certification

9.1 PEX tubing intended for use in the transport of potable water shall be evaluated and certified as safe for this purpose by a testing agency acceptable to the local health authority. The evaluation shall be in accordance with the requirements for chemical extraction, taste, and odor that are no less restrictive than those included in NSF/ANSI 14 and NSF/ANSI/CAN 61.

Table 6 was revised.