NSF International
Special Engineered Specification
NSF SE 7956

Metal or Plastic PEX System Components Utilizing an Alternate Material

The Public Health and Safety Company.™

SPECIFICATIONS FOR A SPECIAL ENGINEERED (SE) PRODUCT NSF SE 7956

Metal or Plastic PEX System Components Utilizing an Alternate Material

1. Purpose:

This specification defines the product specific requirements for PEX System Components for use with cross-linked polyethylene (PEX) tubing which complies with ASTM F876/F877.

2. Scope of Specification:

This specification covers the required initial testing, marking, in-plant QC and annual testing requirements for PEX System Components manufactured with alloys or materials not currently referenced in ASTM PEX Standards for use with cross-linked polyethylene (PEX) tubing which complies with ASTM F876/F877.

3. Application:

Products meeting the requirements of this specification may be used in Potable Water or Radiant Heating applications.

4. Reference Documents:

ASTM Standards:

ASTM D792 –	Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement
ASTM D1505 –	Standard Test Method for Density of Plastics by the Density-Gradient Technique
ASTM D4101 –	Specification for Polypropylene Injection and Extrusion Materials
ASTM D 6778 –	Standard Specification for Polyoxymethylene (POM, Acetal) Molding and Extrusion Materials
ASTM F876 –	Specification for Crosslinked Polyethylene (PEX) Tubing
ASTM F877 –	Standard Specification for Crosslinked Polyethylene (PEX) Plastic Hot and Cold Water Distribution Systems

NSF Standards:

NSF/ANSI 14 –	Plastic Piping System Components and Related Materials
NSF/ANSI 61 –	Drinking Water Systems Components – Health Effects

5. Materials:

5.1 – Materials used in the production of products complying with this specification shall be per the manufacturer's specifications.

5.2 – Acetal or POM materials shall meet a minimum cell class of B66450 when tested against the requirements specified in ASTM D6778.

5.3 – Polypropylene materials shall be of type PP-R or PP-RCT in accordance with Specification D4101.

5.3.1 – The density of the unreinforced, natural color PP-R and PP-RCT material shall not exceed 56.9 lbm/ft3 (912 kg/m3), when tested in accordance with Test Method D1505 or Test Method D792.

6. Testing Requirements:

6.1 – Workmanship – Products complying with this specification shall not, upon a visual inspection, contain imperfections that would interfere with the performance of the PEX system it is used with.

6.2 – Dimensions, & Tolerances – Products complying with this specification shall meet the dimensional requirements specified in ASTM F877 Section 6.3. In cases where the size of the system component falls outside the identified dimensional specifications of ASTM F877, the dimensions shall be compliant with the manufacturer's specifications. In these cases, the manufacturer's dimensions shall follow the same tolerances as the standards identified in ASTM F877 Section 6.3.

6.3 – Hydrostatic (Short-term) Burst – Products complying with this specification shall meet the Short-term Burst requirements specified in ASTM F877 Section 6.5.

6.4 – Hydrostatic Sustained Pressure Strength – Products complying with this specification shall meet the Hydrostatic Sustained Pressure requirements specified in ASTM F877 Section 6.6.

6.5 – Thermocycling – Products complying with this specification shall meet the Thermocycling requirements specified in ASTM F877 Section 6.7.

6.6 – Excessive Temperature – Products complying with this specification shall meet the Excessive Temperature requirements specified in ASTM F877 Section 6.8.

6.7 – Oxidative Stability in Potable Chlorinated Water Applications – System components produced from an Acetal, PP-R, or PP-RCT material shall meet the Oxidative requirements of ASTM F2854 Section 8.4. After initial qualification, the system components shall be tested at a minimum of once every three years.

6.8 – Dezincification and Stress Corrosion Cracking – System components made from copper alloys containing more than 15% zinc by weight shall meet the Dezincification and Stress Corrosion Cracking (SCC) requirements of NSF/ANSI Standard 14.

7. Potable Water Requirements:

Products intended for contact with potable water shall be evaluated, tested and certified for conformance with NSF/ANSI Standard 61.

8. Product Marking:

Marking on the product shall be legible and permanent, and shall include the following:

- Manufacturers name or trademark.
- Certification mark of the agency making the evaluation.

9. In-plant Q.C. Requirements:

The following tests are to be performed at start-up and designated frequencies thereafter and performed in accordance with Section 6 of this document.

Test	Frequency
Burst pressure	Weekly **
Dimensions	
Insert OD	Weekly
Body wall thickness	Weekly
Insert length	Weekly
Thread Gauge	Weekly
Thread length	Weekly
Wall thickness (insert)	24 Hours
All other required insert dimensions	Weekly
Excessive temperature	Annually
Sustained pressure	Annually
Thermocycling	Annually
Dezincification and Stress Corrosion Cracking	Annually
** Metal fittings need only be tested annually for burst pressure.	