RADIANT HEAT TECHNOLOGY

All RHT branded PEX pipe has an oxygen barrier, is NSF certified for domestic potable water systems, and conforms to the SDR9 standard for PEX sizing.

PEX is an abbreviation for Cross-Linked Polyethylene. When polyethylene is cross-linked, the molecular bonds of the plastic are changed chemically to create a product that is stronger and has better temperature properties for plumbing and heating applications.

PEX is classified by three different manufacturing processes:

PEX A is cross-linked with the Peroxide method
PEX B is cross-linked with the Silane method
PEX C is cross-linked with the Irradiation method

All three types of PEX tubing adhere to the same standards and certifications, which cover the following:
Pressure and temperature ratings
Minimum bending radius
Pipe wall thickness and ID/OD dimensions (subject to manufacturing tolerances)

A, B and C are not grades of PEX, they simply delineate the process by which the polyethylene was cross-linked during manufacturing. Each of the processes have different pros and cons which are mentioned below.

All types of PEX regardless of type A, B, or C must comply with the same ASTM F876 and ASTM F877 standards as well as SDR9 dimensional standard before they can be used anywhere in the US. Tubing which conforms to these standards will list them on the side of the pipe in the visible print stream.

Details of the three crosslinking methods used during manufacturing:

PEX-A tubing is produced using the Peroxide (or, “Engel”) method. During the manufacturing process, free radicals are created when HDPE polymer is melted and cross-links between molecules occur at temperatures that exceed the decomposition temperature of the polymer.

PEX-B is made using a "Silane" or "Moisture Cure" method of cross-linking, where links between the molecules of the HDPE polymer are formed after the extrusion process using a catalyst and by exposing PEX tubing to water (steam bath).

PEX-C pipe is manufactured using “Electronic Irradiation” method of cross-linking, also known as "Cold" cross-linking. Here, cross-linking of the molecules is done after the process of extrusion by exposing the pipe to an electron radiation beam. The radiation emitted allows to break the existing links between molecules of the polymer and initiate cross-linking process

Pex A pros and cons

Highest flexibility (softness) among all PEX types

Kinks can often be repaired with a heat gun

Highest degree of cross-linking

Less coil memory

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Highest price (150-200% higher than PEX-B)

Lower bursting pressure than PEX-B

Possible residual or leaching chemicals from manufacturing

Pex B pros and cons

Highest chlorine and oxidative resistance

Highest bursting pressure

Lowest price vs. PEX-A and PEX-C

Minimally stiffer than PEX-A.

Lower cross-linking ratio than PEX-A

More coil memory

Kinks typically must repaired by splicing (using coupling)

Pex C pros and cons

Most environmentally friendly manufacturing process due to lack of chemicals used in the cross-linking step

Lowest variation of dimensional tolerances

RHT PEX C is made in the USA

Marginally increased coil memory

Kinks typically must repaired by splicing (using coupling)

1/2” RHT PEX Nom. Size 1/2” Avg. ID 0.475 (a) Avg. OD 0.625 (b) Avg Fluid Cap. .0092 gal/ft
5/8“ RHT PEX Nom. Size 5/8” Avg. ID 0.574 (a) Avg. OD 0.750 (b) Avg Fluid Cap. .0134 gal/ft
3/4” RHT PEX Nom. Size 3/4” Avg. ID 0.677 (a) Avg. OD 0.875 (b) Avg Fluid Cap. .0184 gal/ft
1” RHT PEX Nom. Size 1” Avg. ID 0.862 (a) Avg. OD 1.125 (b) Avg Fluid Cap. .0303 gal/ft