



Frequently Asked Questions on the Safety of PEX Plumbing Products December 16, 2016

In the past 25 years, PEX (crosslinked polyethylene) has become one of the most commonly used piping products for hot- and cold-water distribution in buildings. It is also used for other applications, such as hydronic heating. All major plumbing codes in North America require compliance of all water piping products (including PEX tubing and fittings) with NSF/ANSI 61: *Drinking Water System Components - Health Effects*.

Claims have been made in the past that PEX tubing adds chemicals, which may be harmful to human health, to drinking water. However, those claims ignored the fact that PEX tubing has been tested and certified to NSF/ANSI 61 which helps to ensure that the product will not contribute harmful levels of contaminants to drinking water.

NSF/ANSI 61 requires the identification of all chemicals that could potentially be extracted (or leached) into drinking water from a product. Tests are run to determine extraction amounts, if any. Virtually every material extracts some level of contaminants into drinking water -- the question is whether that level of contaminant is safe for human consumption.

NSF/ANSI 61 establishes allowable levels for contaminants which are based on U.S. EPA regulated contaminant levels or peer reviewed, consensus-based risk assessments for unregulated contaminants.

So while claims that PEX adds contaminants to drinking water might seem alarming, the real issue is whether these levels are harmful based on the allowable levels in drinking water, as permitted by the EPA or as established in NSF/ANSI 61.

So what is NSF/ANSI 61?

NSF/ANSI 61: *Drinking Water System Components - Health Effects* is the American National Standard to evaluate the health effects of drinking water system components. It establishes the health effects requirements for the chemical contaminants and impurities that are indirectly imparted to drinking water from products, components and materials used in drinking water systems.

Plumbing codes and state and provincial drinking water agencies across the U.S. and Canada require products, including plastic pipe and fittings, which contact drinking water to be certified to NSF/ANSI 61 by an accredited certification organization.

The standard is maintained by a joint committee with equal representation from regulators (such as the U.S. EPA, Health Canada and state drinking water officials), users (such as water purveyors, utilities and engineers) and product manufacturers. NSF/ANSI 61 is accredited by the American National Standards Institute (ANSI), which ensures the standard is developed and maintained using an open, consensus process and has representation by all stakeholders. The committee meets annually and any member of the public is allowed to attend the meeting or submit suggestions for improving the standard.



How do I know if PEX tubing that I am buying meets this requirement?

PEX tubing that meets the health effects requirements of NSF/ANSI 61 will bear either the “NSF-61” mark or the “NSF pw” (potable water) mark on the print string, and will be listed <http://www.nsf.org>. The “NSF pw” mark indicates the product meets the health requirements of NSF/ANSI 61 as well as performance, long-term strength and quality control requirements of NSF/ANSI 14: *Plastic Piping Components and Related Materials*.

Products with only the “NSF rfh” mark are intended for radiant floor heating applications and not intended for potable water systems.

Where can I find NSF listed products?

Currently there are 140 PEX tubing products (made by 27 companies) that are certified for potable water applications in NSF’s certified product listings: <http://www.nsf.org/certified-products-systems>.

What ensures the product consistently meets these requirements?

NSF performs at least three unannounced audits of each production facility annually for PEX tubing listed for potable water applications. During these inspections, NSF verifies there are no modifications to the product formulation or processing. In addition, NSF verifies quality control tests are being done by the manufacturer. NSF also collects samples for laboratory retesting of each product family on an annual basis.

Who is NSF International?

NSF International is a global independent organization that writes standards, and tests and certifies products for the water, food, health sciences and consumer goods industries to minimize adverse health effects and protect the environment (nsf.org). Founded in 1944, NSF is committed to protecting human health and safety worldwide. Operating in more than 165 countries, NSF International is a Pan American Health Organization/World Health Organization (WHO) Collaborating Center on Food Safety, Water Quality and Indoor Environment.

NSF led the development of the American National Standards for all materials and products that treat or come in contact with drinking water to help protect public health and the environment and minimize adverse health effects. In 1990, the U.S. EPA replaced its own drinking water product advisory program with these NSF standards. Today, most plumbing codes require certification to NSF standards for pipes and plumbing components in commercial and residential buildings.

Whom can I contact for questions?

If you have questions about the testing and certification of any NSF certified product, please contact our Consumer and Regulatory Affairs Hotline at 1-800-673-8010 or info@nsf.org.