



Frequently Asked Questions on Health Effects of PE Pipe and Fittings

How do I know plumbing products are safe for use?

Most state drinking water regulations and local plumbing codes require pipe and fittings conveying drinking water to meet the NSF/ANSI Standard 61 to ensure components will not contribute harmful levels of contaminants to the drinking water.

What is NSF/ANSI Standard 61?

NSF/ANSI Standard 61 is entitled Drinking Water System Components-Health Effects. This is the American National Standard for 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.

NSF/ANSI Standard 61 is overseen by the NSF Drinking Water Additives Joint Committee comprised of equal representation from the regulatory community, the manufacturing industry and user groups. The American National Standards Institute accredits NSF standards development procedures to ensure a balanced committee of stakeholders develops the standards in an open process. Providing technical oversight is the NSF Council of Public Health Consultants. The council is a group of 30 representatives from academia and local, state and federal regulatory agencies that provide technical advice and oversight of the NSF Standards.

A standing task group is NSF Health Advisory Board. This group consists of toxicologist from USEPA, Health Canada, state and provincial agencies as well as toxicologists from industry and private consulting firms. This group is responsible for reviewing and approving all allowable contaminant concentrations that are published in NSF/ANSI Standard 61.

How are PE pipe and fittings tested?

First, a formulation review is performed on the material to determine what possible contaminants could leach into drinking water and determines what type of chemical extraction testing is necessary.

PE pipe and fittings are tested by exposing the products to formulated exposure waters, and the exposure waters are then analyzed for contaminants. Three separate formulated waters are used during the product exposure. A pH 5.0 and 10.0 exposure water with 2 mg/L available chlorine are separately used for exposures as these waters are aggressive toward extraction of metallic contaminants. A pH 8.0 water is used during the exposure for organic based contaminants. PE products are tested at ambient temperature 73°F (23C).

Product is conditioned by exposure to the formulated waters with 2mg/L available chlorine for 14 days with water being changed on 10 of those days. The water collected from a final 16-hour exposure period is then analyzed for contaminants. Any contaminants found must be below EPA or Health Canada levels for regulated contaminants. For non-regulated contaminants found, NSF/ANSI Standard 61 sets health based pass/fail levels based on review of available toxicity data using the risk assessment procedures in annex A of the standard.

What types of analysis are performed on PE pipe and fittings?



Water exposed to PE pipe or fittings is tested for the following contaminants as required by NSF/ANSI 61:

- Volatile Organic Compounds (VOCs)
- Semivolatile base/neutral/acid target and scan by GC/MS
- Regulated Metals scan including antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, selenium, and thallium
- Any other potential contaminant identified during the formulation review.

How do I know if PE pipe or fittings meets this requirement?

PE pipe or fittings meeting the health effects requirements of NSF/ANSI Standard 61 will bear either the NSF-61 Mark or the NSF pw (potable water) Mark on the print string. The NSF pw Mark indicates the product meets the health requirements of NSF-61 as well as performance, long term strength and quality control requirements as required by NSF/ANSI Standard 14- Plastic Piping Components are Related Materials.

Where Can I find NSF Listed Products?

NSF certified products can be found on our website in two locations depending on whether the product are listed to NSF-61 <http://www.nsf.org/Certified/PwsComponents/> or NSF-14 <http://www.nsf.org/Certified/Plumbing/>

What ensures the product consistently meets these requirements?

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

Who can I contact for questions?

If you have questions about the testing and certification of any NSF Certified product, you may contact our Consumer and Regulatory Affairs Hotline at 1-877-867-3435

Who is NSF?

NSF International, The Public Health and Safety Company™, a not-for-profit, non-governmental organization, is the world leader in standards development, product certification, education, and risk-management for public health and safety. For 60 years, NSF has been committed to public health, safety, and protection of the environment. While focusing on food, water, indoor air, and the environment, NSF develops national standards, provides learning opportunities through its Center for Public Health Education, and provides third-party conformity assessment services while representing the interests of all stakeholders. The primary stakeholder groups include industry, the regulatory community, and the public at large.

NSF/ANSI 61, and subsequent product certification against it, has replaced the USEPA Additives Advisory Program for drinking water system components. USEPA terminated its advisory role in April 1990. For more information with regard to USEPA's actions, refer to the July 7, 1988 Federal Register (53FR25586).