

Residential water filters come in all shapes and sizes. From small faucet-mount systems and pour-through pitchers to under-the-counter plumbed-in systems and large point-of-entry (POE) whole-house systems, the choices are endless for consumers looking for a water filtration system.

By Mark Unger

To make the decision even more difficult, water filters are available with a wide range of performance claims as well. Product certification gives customers confidence that the claims made by a certified product have been verified by an independent third party. Choosing a certified product is recommended and can help narrow the field of available water filtration systems, but purchasing a water filtration system is still a difficult decision.

NSF/ANSI Standard 42

The commonly tested chemical reduction claims for products seeking certification to NSF/ANSI Standard 42 are: chlorine (taste and odor), chloramines, iron, manganese, hydrogen sulfide, pH neutralization and zinc reduction.

Filters subject to line pressure in the field that are tested for one of these non-health claims are installed and operated at a 60 psi dynamic (flowing) inlet pressure and run at the manufacturer's desired rated service flow rate until the filter's reduction capacity is achieved.

All chemical reduction tests are ran using a 16-hour test period with an eight-hour rest period, unless the rated capacity of a filter is achieved prior to the completion of the 16 hours of testing.

Testing for point-of-use (POU) chemical reduction claims is conducted in duplicate, but iron, manganese and all POE chemical reduction testing only requires one system to be tested. The type of system and anticipated pattern use allows the manufacturer the option of choosing the operating cycle of the chemical reduction test.

Batch water treatment systems (pour-through pitcher and other gravity systems) are tested based on the manufacturer's recommended pattern use, typically two to six gallons per day.

Depending on the intended frequency of use, plumbed-in POU systems can be tested using either a 50%-on/50%-off cycle or a 10%-on/90%-off cycle.

For whole house POE systems, one system is tested continuously for 16 hours followed by an eight-hour rest period each day until the rated capacity is reached.

All chemical reduction testing found in NSF/ANSI Standard 42 is conducted to 100% of the manufacturer's anticipated reduction capacity for the drinking water filtration system with the exception of iron and manganese, which are conducted to 120% of the system's reduction capacity.

NSF/ANSI Standard 53

The commonly tested chemical reduction claims for products seeking certification to NSF/ANSI Standard 53 are: heavy metals (arsenic, cadmium, chromium, copper, lead, mercury and selenium), inorganics (fluoride and nitrate plus nitrite) and volatile organic chemicals (chloroform surrogate as well as individual organic chemicals).

Standard 53 testing differs from Standard 42 testing in the fact that testing is conducted at the maximum flow rate that results from a 60-psi dynamic (flowing) inlet pressure and is run to either 120% or 200% of the manufacturer's anticipated reduction capacity.

Testing for health contaminants requires added safety, so NSF/ANSI Standard 53 allows the use of performance indication devices (PIDs). PIDs inform the end user when the product has reached its rated capacity by a flashing light, audible alarm or by reducing or stopping the flow of water through the system.

Chemical reduction testing conducted on a system that has a PID is required to run for 120% of the system's rated capacity. Systems can also be tested without PIDs, but Standard 53 requires that these products be tested to 200% of the system's rated capacity. Testing cycle options are the same as Standard 42, which are 50%-on/50%-off or 10%-on/90%-off for 16 hours with an eight-hour rest period. All chemical reduction testing conducted according to Standard 53 is conducted in duplicate, including POE testing.

Standards in Summary

Certified products assure our customers that the products we sell are safe, perform as expected and do not make any false or misleading claims. Understanding the claims certified products make and the differences in the standards the products are certified against can be beneficial when advising customers with their water treatment issues. *wqp*

Mark Unger is technical manager for the Water Quality Association. Unger can be reached at 630.929.2524 or by e-mail at munger@wqa.org.

NOT ALL 
FILTERS
 ARE CREATED
 OR TESTED
 **EQUAL**

Knowing the different types of chemical reduction claims available for drinking water filters and the differences between the two industry standards for drinking water filters can be useful when helping customers choose the correct product.

Standards for Filters

Residential drinking water filters are covered by two industry standards: NSF/ANSI Standard 42 and NSF/ANSI Standard 53. The standards are identical when it comes to evaluating the materials safety and structural integrity of a filtration system (if connected to a pressurized supply), but each standard covers a different type of chemical reduction performance testing. Standard 42 covers aesthetic (taste and odor) claims, while Standard 53 addresses health-related claims. Although both standards cover drinking water filters, the methods of performance testing found in the standards vary.

Understanding the different types of chemical reduction claims available for drinking water filters

LearnMore! For more information related to this article, visit the web at www.wqpmag.com/lm.cfm/wq070812

For more information on this subject, write in 1022 on the reader service card.