HOW STANDARDS DEVELOPMENT, TESTING AND CERTIFICATION SUPPORT THE WASTEWATER INDUSTRY
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How To Spot Wastewater Products That Are Truly Certified

Did you know that not all compliance claims are the same? Just because a product advertises compliance with industry standards doesn’t necessarily mean it has been evaluated by an independent third-party organization. Just like you want your residential and municipal drinking water products thoroughly and independently evaluated – the same goes for wastewater products.

So, how can you verify a wastewater system has been tested and certified by a third party?

1. Look for the certifier’s mark on the product’s data plate.

The mockup below shows how the NSF mark could appear on the data plate of a wastewater product that has been certified by NSF International.

2. Look for a detailed certification mark on the manufacturer’s website, marketing materials, etc.

For products that are certified by NSF International, manufacturers are authorized to use the NSF certification mark with the applicable standard(s) in the box below it.

All colors have equal meaning and are simply changed based on the color of the background the manufacturer is using for its marketing materials.

Did You Know?
Only companies certified through NSF International are authorized to use the NSF mark. Certification to NSF standards by other certifiers does not allow access to the NSF mark.

NSF INTERNATIONAL

NSF International is a global independent organization that writes standards, and separately, 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 170 countries, NSF International is a Pan American Health Organization/World Health Organization (WHO) Collaborating Center on Food Safety, Water Quality and Indoor Environment.

NSF’s global water services include testing, certification and auditing for wastewater systems, municipal water treatment components and chemicals, plastic piping systems, plumbing fixtures and fittings, point-of-use and point-of-entry water systems and filters.
3. Double-check the certifier’s official listings.

When in doubt, always check the certifier’s official listings. To find wastewater products certified by NSF International, you can visit info.nsf.org/Certified/Wastewater/.

The screenshot on the right shows NSF’s wastewater treatment unit listings, where you can search by:

- Trade Name
- Product Standard
- Manufacturer Name

You can also view a complete list of all certified wastewater products or manufacturers in the bottom section.

4. Contact NSF International’s consumer and regulatory hotline.

NSF hosts a hotline staffed by an environmental/sanitarian professional where we welcome regulators and public health officials of any kind to call or email with questions on certified products. Feel free to contact the hotline at +1.800.673.8010 or info@nsf.org.

Product Certification vs. Product Compliance: What’s The Difference?

Wastewater certification and compliance share some overlapping criteria, but there are several key differences that need to be well understood by both end users and regulators. Compliance is a manufacturer-based claim that a product meets certain safety, quality or performance criteria. Certification means that a third-party, independent organization has verified (generally through product testing and a manufacturing facility audit) that a product complies with safety, quality or performance criteria as defined in a specific standard. For example, NSF International is an independent organization accredited by the American National Standards Institute (ANSI) as both a standards developer and as a product certification body. NSF facilitates standards development with representation of stakeholders who are directly affected by the scope of the standard (such as industry experts, regulators and end users) to create standards that protect public health. Separately, NSF also conducts tests and audits manufacturer facilities to certify products that meet the requisite criteria.

Under NSF/ANSI 40: Residential Onsite Systems, for example, aerobic treatment units are tested for six months for biochemical oxygen demand, carbonaceous biochemical oxygen demand (BOD₅/CBOD₅) and total suspended solids (TSS) performance. Certified systems must complete the full six-month test, without any service and maintenance. Testing also includes stress events and alarm panel volume and brightness. The standard requires certified manufacturers to provide a full two-year warranty. The testing is rigorous and it is not uncommon for systems to fail the first time they are tested.

Certification also requires unannounced annual audits of the manufacturing facility to confirm that the manufacturer is still producing the system in the same manner as when it was originally tested and certified.

While certification has very defined criteria, compliance has a looser definition and should not carry the weight or credibility of a formal certification. Compliance does not require the same prescriptiveness, rigor and independence of evaluation. Compliance could mean testing a few samples from the owner’s backyard system using in-house test kits, or it could be more rigorous; manufacturers typically provide the regulatory authority with test methods, engineering reports and other relevant documentation similar to that described in NSF/ANSI 40. This information might include the name of the testing organization or laboratory, the hydraulic capacity of the treatment unit, specific stress-loading records and a summary of the results of the tests for all appropriate parameters. However, unless this data has been verified by an ISO 17025-accredited laboratory and the report comes from an independent accredited third-party certification organization, the results cannot be certified.

In summary, the only way for end users and regulators to have confidence in a wastewater system’s ability to properly perform while protecting public health is to ensure that system is certified to NSF/ANSI 40. The parameters of the standard are readily quantifiable and measurable, and the requirements have been rigorously developed and tested over time with the input of all stakeholder groups. The system should bear the NSF certification mark and be found in NSF’s official certification listings, which are updated daily.
Wastewater Industry Standards

Depending on the product and manufacturer needs, NSF International conducts on-site wastewater treatment system evaluation and certification to the leading industry standards below.

<table>
<thead>
<tr>
<th>NSF/ANSI Standard #</th>
<th>Standard Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>Residential Wastewater Treatment Systems</td>
<td>This standard is for systems treating 400 to 1,500 gallons per day. Class I systems must achieve a 30-day average effluent quality of 25 mg/L CBOD and 30 mg/L TSS or less, and pH 6.0-9.0 spanning six months of testing.</td>
</tr>
<tr>
<td>41</td>
<td>Non-Liquid Saturated Treatment Systems</td>
<td>This standard is for composting toilets and similar treatment technologies, classified as day-use park, cottage (seasonal) and residential systems. Criteria include field and laboratory testing, with effluent criteria for liquids, solid end products and odor control.</td>
</tr>
<tr>
<td>46</td>
<td>Evaluation of Components and Devices Used in Wastewater Treatment Systems</td>
<td>This standard covers grinder pumps, effluent filters and disinfection devices using chlorine, UV and ozone treatment.</td>
</tr>
<tr>
<td>240</td>
<td>Drainfield Trench Product Sizing for Gravity Dispersal Onsite Wastewater Treatment and Dispersal Systems</td>
<td>This standard is for the hydraulic performance of dispersal drain field products used in place of conventional coarse aggregate. Criteria include both laboratory-controlled testing and field performance assessment options.</td>
</tr>
<tr>
<td>245</td>
<td>Wastewater Treatment Systems - Nitrogen Reduction</td>
<td>This standard is for systems treating 400 to 1,500 gallons per day. Products certified to this standard must achieve total nitrogen reduction of 50 percent or more spanning six months of testing. Must also meet the requirements of NSF/ANSI 40.</td>
</tr>
<tr>
<td>350</td>
<td>Onsite Residential and Commercial Reuse Treatment Systems</td>
<td>This standard is for residential wastewater and greywater reuse systems treating up to 1,500 gallons per day, and larger commercial reuse systems. Effluent quality criteria is suitable for indoor use, such as toilet flushing, and outdoor use, such as surface and subsurface irrigation, as measured during minimum six months of testing.</td>
</tr>
</tbody>
</table>

Did You Know?

NSF also conducts testing and certification to other industry standards for specific geographic markets, including CAN/BNQ 3680-600 for the Canadian wastewater market.

Requirements For Certification

Certification to the leading wastewater industry standards, NSF/ANSI-40 and NSF/ANSI 245, is required in different regions around the world, but most commonly in the United States.

The maps below show the acceptance and adoption of these standards in state-level requirements.

Legislation is always changing, so if you know of an updated requirement, please email us at wastewater@nsf.org.
Our Waco, Texas Wastewater Test Site

In 2003, NSF International’s Waco, Texas test facility was established to provide performance information on wastewater treatment systems (WTS) to help ensure the quality and integrity of these products. This site is located adjacent to the Waco Metropolitan Area Regional Sewerage System (WMARSS) in Waco, Texas and is approximately 12,000 ft\(^2\) in size. This test facility has 10 secure, furnished test sites to conduct method and protocol development, customized testing and product testing under recognized NSF/ANSI standards such as NSF/ANSI 40, 46, 245 and 350. The challenge water used for testing of a WTS is municipal wastewater from WMARSS. Wastewater treatment systems are evaluated under known conditions during a six-month (26-week) test to determine if the systems meet the effluent requirements. The test site is also equipped with a specialized test rig for evaluation of on-site greywater treatment systems with capacities up to 1,500 gallons per day.

This facility delivers high-quality testing services and exceptional customer service to help products gain certification and recognition in the residential wastewater treatment industry and regulatory community.
Chat With Our Wastewater Experts

Theresa Bellish
General Manager, Municipal and Wastewater Water Products
bellish@nsf.org
Theresa Bellish is the General Manager of NSF International’s municipal and wastewater products program. In this role, she works with NSF’s global testing, auditing and certification services for these products. Theresa has a long-standing career at NSF with over 18 years of experience in the water industry.

Sharon Steiner
Business Unit Manager, Wastewater
steiner@nsf.org
Sharon Steiner is the Business Unit Manager for NSF International’s wastewater certification program, where she oversees the certification process for all NSF-certified on-site wastewater manufacturers. Sharon works with all manufacturers throughout the entire certification process, assists wastewater regulatory agencies on local rules and policies, and is very involved in writing new policy, regulations and standards for the on-site wastewater industry.

Eliza Nejad Ghafar
Group Leader, Engineering Laboratory
enejadghafar@nsf.org
Eliza Nejad Ghafar is the group leader of the engineering laboratories at NSF International and she has been involved with NSF’s wastewater, sustainability and biosafety cabinetry laboratories for four years. Eliza has over 10 years of experience in laboratory operations and in environmental and energy management consulting services.