

Product Standards

Making the Right Choice

Product standards provide a valuable structure and support to any product category. They are used universally to establish a single set of methods and criteria by which products are evaluated, leveling the playing field for the industry, enabling a single specification of compliance by regulators and other specifiers, and simplifying the purchasing decision of buyers. All of these critical elements are certainly true of the drinking water industry where standards have existed for more than three decades.

Most of the NSF Standards are widely applied and understood by the industry; however, it is easy to confuse the subtle differences between some, and even easier yet to be confused by the requirements of individual standards. Table 1 is a quick reference to the eight American National Standards that are used today throughout the drinking water industry. Each of these is developed through a consensus process facilitated by NSF, involving representation from the regulatory, user and industry communities. They are the

most comprehensive set of standards in the world for drinking water products, and set a very high bar to ensure product safety and public health protection.

The Standards differ primarily by product type and by the type of product evaluation. Six of the eight are applied to the point-of-use (POU) and point-of-entry (POE) drinking water treatment industry. These include Standards 42, 44, 53, 55, 58 and 62. In all of these, the water treatment systems must undergo

Table 1: Overview of the Eight American National Standards

Standard	Description
NSF/ANSI Standard 42 Drinking Water Treatment Units – Aesthetic Effects	<ul style="list-style-type: none"> Public or private water supplies Microbiologically safe water only Systems and components
NSF/ANSI Standard 44 Cation Exchange Water Softeners	<ul style="list-style-type: none"> Public or private water supplies Microbiologically safe water only Systems and components
NSF/ANSI Standard 53 Drinking Water Treatment Units – Health Effects	<ul style="list-style-type: none"> Public or private water supplies Microbiologically safe water only Systems only (components covered under NSF/ANSI 42)
NSF/ANSI Standard 55 Ultraviolet Microbiological Water Treatment Systems	<ul style="list-style-type: none"> Public or private water supplies Class A: Visually clear water, but of unknown microbiological safety Class B: Microbiologically safe water only Systems only
NSF/ANSI Standard 58 Reverse Osmosis Drinking Water Treatment Systems	<ul style="list-style-type: none"> Public or private water supplies Microbiologically safe water only Systems or components
NSF/ANSI Standard 60 Drinking Water Treatment Chemicals – Health Effects	<ul style="list-style-type: none"> Public or private water supplies Drinking water contact only
NSF/ANSI Standard 61 Drinking Water System Components – Health Effects	<ul style="list-style-type: none"> Public or private water supplies Drinking water contact only Components only
NSF/ANSI Standard 62 Drinking Water Distillation Systems	<ul style="list-style-type: none"> Public or private water supplies Systems or components Microbiologically safe water, or reduction of microbiological contaminants

demonstration of compliance with material safety, structural integrity (plumbed-in systems only) and product literature. Finally, they must be certified for at least one contaminant reduction claim, of which there are many options they can select from (see Table 2 on page 8).

The remaining two, Standards 60 and 61, are applied to all other products that come in contact with drinking water, whether simply for distribution or treatment. In the case of these, material safety is the only product evaluation performed.

Future Standards

The NSF Standards are in a constant state of change and expansion, keeping pace with the evolving needs of the marketplace. There are several new areas

under development, with completion expected in 2004/2005. They include a new standard for shower filters, several new standards for bacteria and virus reduction, and new contaminant reduction claims under existing standards for perchlorate and arsenic (total and trivalent arsenic).

Shower Filters. NSF Standard 177 will apply to shower filters only. The Standard will carry the same basic template as the other NSF POU/POE standards, including structural integrity testing, requirements for product literature and demonstration of material safety. Material safety will be limited to a wetted parts list review, prohibiting lead as an ingredient and solvent bonding as a manufacturing technique. No extraction test will be required. With respect to contaminant reduction claims, there

will be a single, mandatory claim for free available chlorine. Additional, optional claims are expected to be added in the future.

Microbiological Treatment. Bacteria and virus reduction claims are being developed for several product technologies, all of which will fall under a new set of NSF Standards with the designation of 240. These will also incorporate the current requirements for cyst reduction, making the standards comprehensive in their requirements for microbial treatment claims. Mechanical and halogen treatment technology standards are the furthest along in development.

New Chemical Reduction Claims. Two new contaminant reduction claims are expected to be available soon. They

Product Type	Product Evaluations
<ul style="list-style-type: none"> Mechanical filtration POU and POE Adsorptive technologies (e.g. carbon) 	<ul style="list-style-type: none"> Material safety Performance claims (minimum one) Structural integrity Product literature
<ul style="list-style-type: none"> Cation exchange resins POE 	<ul style="list-style-type: none"> Material safety Structural integrity Additional performance claims (optional) Softener performance Product literature
<ul style="list-style-type: none"> Mechanical filtration POU and POE Adsorptive technologies (e.g. carbon) 	<ul style="list-style-type: none"> Material safety Structural integrity Performance claims (min. one) Product literature
<ul style="list-style-type: none"> Ultraviolet radiation POU and POE 	<ul style="list-style-type: none"> Material safety Structural integrity Disinfection performance claims Product literature
<ul style="list-style-type: none"> Reverse osmosis POU only 	<ul style="list-style-type: none"> Material safety Structural integrity Additional performance claims (optional) TDS Reduction Product literature
<ul style="list-style-type: none"> All municipal water treatment chemicals Well drilling products 	<ul style="list-style-type: none"> Material safety only
<ul style="list-style-type: none"> Water treatment and distribution materials excluding POU and POE systems 	<ul style="list-style-type: none"> Material safety only
<ul style="list-style-type: none"> Distillation POU and POE 	<ul style="list-style-type: none"> Material safety Structural integrity Additional performance claims (optional) TDS Reduction Product literature

Table 2: Contaminant Reduction Claims

Specific Claim	NSF/ANSI Standard					
	42	44	53	55	58	62
2,4,5-TP 2,4-D			✓			
Alachlor Arsenic			✓ ✓		✓	✓
Asbestos Atrazine			✓ ✓		✓	
Bacteriostatic Effects Barium	✓	✓	✓		✓	✓
Cadmium Carbofuran			✓ ✓		✓	✓
Chlordane Chlorine	✓		✓			
Copper Cyst			✓ ✓		✓ ✓	✓
Dibromochloropropane Disinfection			✓	✓		
Ethylene Dibromide Fluoride			✓ ✓		✓	✓
Heptachlor Epoxide Hexavalent/Trivalent Chromium			✓ ✓		✓	✓
Hydrogen Sulfide Iron	✓ ✓					
Lead Lindane			✓ ✓		✓	✓
Mercury Methoxychlor			✓ ✓		✓	✓
Methyl tert-butyl ether (MTBE) Monochlorobenzene			✓ ✓			
Nitrate/Nitrite o-dichlorobenzene			✓ ✓		✓	
Particulates PCB	✓		✓			
Perchlorate Radium 226/228		✓			✓ ✓	
Scale Control Selenium	✓		✓		✓	✓
Softener Performance Styrene		✓	✓			
Taste and Odor Total Dissolved Solids	✓ ✓				✓	✓
Toxaphene Trichloroethylene			✓ ✓			
TTHM Turbidity			✓ ✓		✓	
Xylenes Volatile Organic Chemicals Zinc	✓		✓ ✓		✓	

Living Up to Standards

Standards play a vital role in the drinking water treatment industry, and many thousands of products have demonstrated their ability to meet these important criteria. To stay current with new developments, visit the NSF Standards' web site.

www.nsf.org/business/standards_and_publications

include perchlorate for non-reverse osmosis systems, including anion exchange resins, and arsenic. Both of these are already addressed to some degree by the NSF POU/POE Standards. In the case of perchlorate, this claim already exists for reverse osmosis treatment technologies as covered under NSF/ANSI Standard 58. The expansion will include the same under NSF/ANSI Standard 53. In the case of arsenic, the pentavalent form of arsenic (As V, As⁺⁵) already exists under both Standards 53 and 58. The expansion will include a new section under Standard 53 for trivalent arsenic (As III, As⁺³), and by default will include a total arsenic claim for those able to reduce both the trivalent and pentavalent forms. **WQP**

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