

Welcome

WaterSense® Specification Development
– Research Driving Innovation

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Overview

- Introduction to WaterSense
- Keys to Program Success
- Research Driving Innovation
 - Showerheads
 - Pre-Rinse Spray Valves
- Products in the Pipeline



What Is WaterSense?

A partnership program
sponsored by the U.S. EPA

Promotes the value of water and helps
Americans make smart decisions
regarding water use and water-using
products.

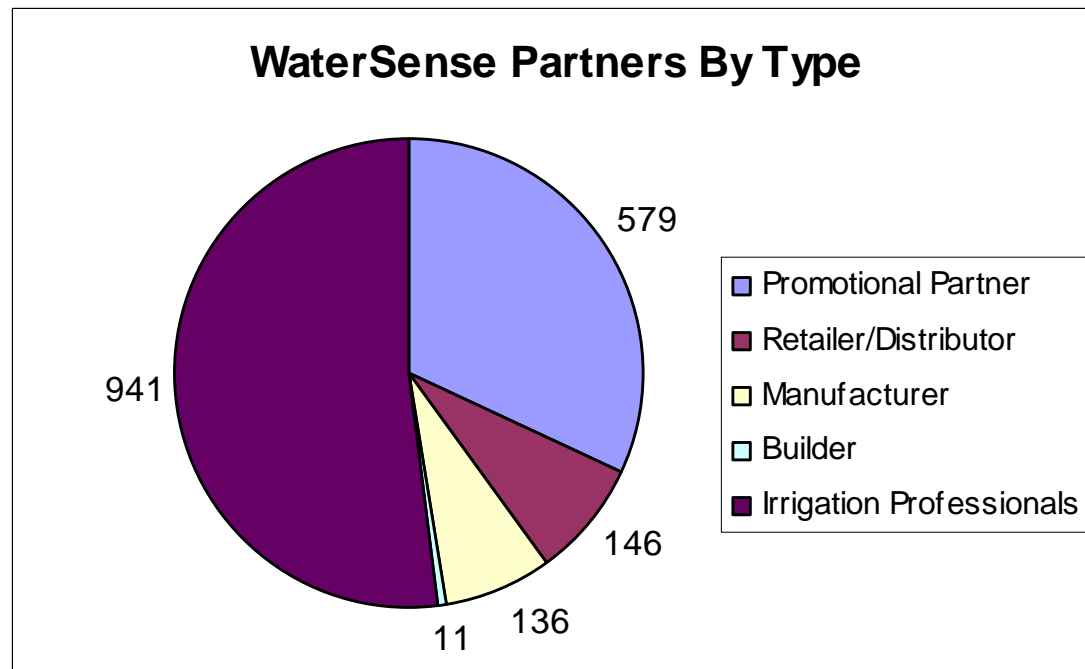
Aims to increase the adoption of water-
efficient products and services by
consumers and organizations.



Program History and Accomplishments



- Officially launched in June 2006
- Over 880 partners



Program History and Accomplishments

- Final Specifications
 - Tank-type toilets
 - Lavatory faucets
 - Flushing urinals
 - Showerheads
 - Single-family new homes
- Draft Specifications
 - Weather-based irrigation controllers
- Notifications of Intent
 - Pre-rinse spray valves
 - Soil moisture sensors



Program History and Accomplishments

- WaterSense labeled products
 - **518** tank-type toilets
 - **1,699** lavatory faucets
 - **5** flushing urinals
 - **4** showerheads

	Percent Market Share (Based on Data Reported by Partners)			Water Saved
	Tank-Type Toilets	Lavatory Faucets	Lavatory Faucet Accessories	(million gallons)
2007	2.0%	NA	NA	277
2008	8.8%	11.7%	24.6%	9,300



Keys to Program Success

- Quality Data
- Stakeholder Support

Quality Data

- First, EPA needs data to determine whether a product is a good candidate for the WaterSense label:
 - Potential for significant water savings on a national level
 - Equal or superior product performance compared to conventional models
 - State of technology development—product categories that rely on a single, proprietary technology will not be eligible for the label
 - Ability to measure and verify water savings and performance
 - Cost-effectiveness



Quality Data

- For viable product candidates, EPA needs data to answer three key questions:
 - What performance attributes are important?
 - Are there defined evaluation methods for the attributes of importance?
 - Do the evaluation methods produce consistent and reproducible results within an independent laboratory community?

Stakeholder Support

- EPA engages with existing standards, specifications, and test method development organizations to develop specifications
 - Provides access to a variety of stakeholders, product expertise, lab testing capabilities, specialized equipment, consumer preference data, product performance data
- Collaboration is critical for obtaining quality data, developing effective evaluation methods, and defining efficiency and performance requirements

Research Driving Innovation: Showerheads



- In 2007 EPA joined the ASME/CSA task force on water-efficient showerheads
- At that time no performance requirements for showerheads existed
- To start, the task force identified key performance attributes including:
 - Flow rate verses pressure
 - Temperature drop
 - Water distribution (shape of cone, volume and area of distribution)
 - Droplet size
 - Water stream (spray exit velocity)

Research Driving Innovation: Showerheads



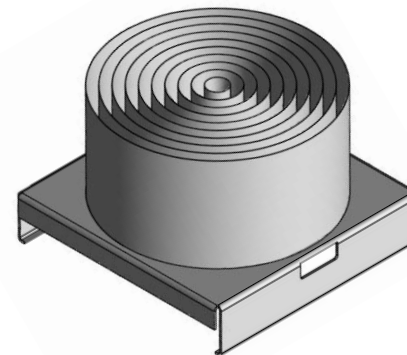
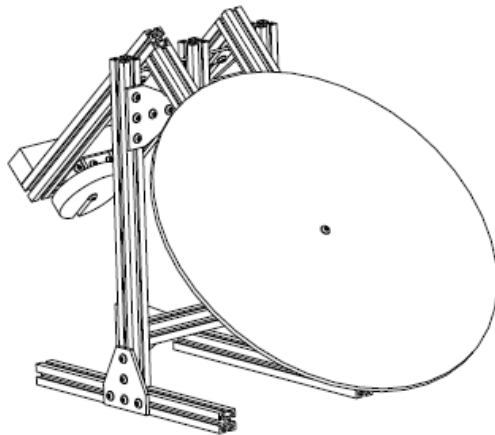
- In 2008 WaterSense conducted consumer testing to:
 - Determine if users uniformly liked or disliked certain showerheads
 - Confirm which characteristics were important to users
 - Establish minimum acceptable performance levels
- Consumer testing methodology
 - 37 users tested 4 different showerheads in their own homes for a week each
 - 22 different showerheads were tested in all (16 different models) with flow rates ranging from 0.7 to 2.5 gpm
 - Consumers were asked to rate each showerhead based on its temperature profile, force, spray coverage, rinsing ability, and their overall opinion of the showerhead

Showerhead	Flow Rate	Temp	Force	Coverage	Rinse	% No Buy
S	2.5					0%
R	2.5					11%
L	2.0					14%
M	2.0					14%
V	2.5					20%
E	2.5					25%
K	1.6		X			40%
Q	1.5					43%
U	1.5			X		57%
N	1.5					60%
O	1.5					63%
H	2.5		X			63%
A	2.5			X	X	67%
F	1.0		X	X	X	71%
I	2.5		X	X		75%
C	0.7	X		X	X	83%
G	1.5		X	X	X	83%
P	1.5					83%
J	2.5	X	X	X		83%
T	1.5		X	X	X	100%
B	2.0	X	X	X	X	100%
D	2.5					100%

Research Driving Innovation: Showerheads



- The task force developed laboratory test protocols to measure the important characteristics:
 - Pressure compensation
 - Spray pattern/distribution
 - Effectiveness (force of the shower spray)



Research Driving Innovation: Showerheads



- The task force then:
 - Correlated consumer and laboratory test data to identify the appropriate performance levels
 - Conducted round-robin testing at manufacturer and independent laboratories to ensure tests are repeatable and data reproducible
- EPA released the final specification in March 2010
- The ASME/CSA standard is currently under revision and will include these performance tests

Research Driving Innovation: Pre-Rinse Spray Valves



- EPA issued a notice of intent in July 2009 and joined the ASME/CSA task force on pre-rinse spray valves in October 2009
- EPA is interested in referencing the existing ASTM F2324-03 test method, but is concerned about:
 - The correlation of lab results and user satisfaction
 - The repeatability of the test method among labs

Research Driving Innovation: Pre-Rinse Spray Valves



- In 2010, EPA conducted a field study to answer some outstanding questions:
 - How do water usage and time usage vary among pre-rinse spray valves currently on the market?
 - Do usage times in the field correlate to cleanability times achieved using the ASTM F2324-03 test method?
 - How do flow rate, actual field usage time, and ASTM-tested cleanability time correlate to user satisfaction?

Research Driving Innovation: Pre-Rinse Spray Valves



- Study methodology:
 - 10 participating facilities will test one pre-rinse spray valve for three weeks from each of the following flow rate categories:
 - Category 1: ≥ 1.25 to 1.6 gpm
 - Category 2: ≥ 1.0 to <1.25 gpm
 - Category 3: < 1.0 gpm

Research Driving Innovation: Pre-Rinse Spray Valves



- Study methodology:
 - EPA will monitor the water use, time use, operating temperature, and pressure of each pre-rinse spray valve
 - Users will be asked to rate each pre-rinse spray valve based on overall satisfaction, pressure, ability to clean dishes, and spray pattern

Research Driving Innovation: Pre-Rinse Spray Valves

- Next steps
 - Evaluate data to determine:
 - How water and time usage vary among pre-rinse spray valves on the market
 - Whether there is a relationship between flow rate and usage time that results in less than expected water savings
 - Whether it is possible to correlate usage time in the field to cleanability times achieved using the ASTM test method

Research Driving Innovation: Pre-Rinse Spray Valves

- Next steps
 - Work with ASME/CSA task force to define the appropriate performance test method (ASTM or other)
 - Correlate consumer and laboratory test data to identify the appropriate performance levels
 - Assess test method's repeatability and reproducibility among labs
 - Develop a draft specification

Products in the Pipeline

	<i>Complete</i>	<i>2010/2011</i>	<i>2011 and Beyond</i>
<i>Irrigation</i>	<i>Professional Certification Programs</i>	<i>Irrigation Controllers Moisture Sensors</i>	<i>Irrigation Sprinklers</i>
<i>Residential Plumbing</i>	<i>Toilets Faucets Showerheads</i>	<i>Water Softening Systems</i>	<i>Water Treatment Systems</i>
<i>Commercial Plumbing</i>	<i>Urinals</i>	<i>Pre-rinse Spray Valves</i>	<i>Flushometer Valve Toilets Food Disposals</i>
<i>Other</i>	<i>New Homes</i>		<i>Autoclaves Glassware Washers Additional Professional Certifications</i>



More Information



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