WaterSense Performance Overview: *Lavatory Faucets and Faucet Accessories*

Equal or superior product performance is a pillar of the WaterSense label. Ensuring performance is vital for maintaining program integrity and consumer confidence in WaterSense labeled products. As part of specification development, the U.S. Environmental Protection Agency (EPA) also evaluates whether high-efficiency products will have other environmental or economic impacts. This includes whether there will be unintended or negative impacts to overall system performance, which may affect user satisfaction and health and safety. This Performance Overview details EPA's process for developing performance test methods and criteria for lavatory faucets and faucet accessories. In general, as part of the specification development process, EPA involves many WaterSense stakeholders, including manufacturers, certifying bodies and testing laboratories, standard development organizations, trade organizations, water and energy utilities, and other water efficiency experts and advocates. Each of these stakeholders offers a unique perspective and has dedicated technical expertise and other resources that have contributed to the development of performance criteria used to ensure WaterSense labeled products perform as well or better than standard products on the market.

EPA released the WaterSense *High-Efficiency Lavatory Faucet Specification* and associated supporting statement on October 1, 2007.[1]

Summary of Performance Requirements

Table 1 summarizes the performance requirements included in the WaterSense *High-Efficiency Lavatory Faucet Specification*, either directly or by reference to an applicable national standard. Table 1 also describes the purpose of each performance requirement, the applicable standard the WaterSense specification references, and any specific requirements or deviations from the referenced standard. Unless noted, WaterSense labeled lavatory faucets and faucet aerators must meet the specific performance requirements outlined in the applicable referenced standard.

[1] More information on EPA's rationale for establishing its efficiency and performance criteria for lavatory faucets and faucet accessories can be found in the supporting statement, response to comments, and other background documents found at www.epa.gov/watersense/product-background-materials.

Table 1. Summary of Performance Criteria Included in the *WaterSense High-Efficiency Lavatory Faucet Specification*

Performance Requirement	Purpose	Referenced Standard (if applicable)	Applies to Conventional Models	Applies to WaterSense Labeled Models
Life cycle test	Tests whether lavatory faucets continue to function as intended after 500,000 cycles.	ASME A112.18.1/ CSA B125.1 *Plumbing supply fittings*	✓	✓
Lead-free test	Ensures plumbing fittings intended to dispense water for human consumption are lead-free.	NSF/ANSI Standard 61 *Drinking Water System Components – Health Effects*	✓	✓
Minimum flow rate	Ensure adequate flow rate at low water pressure is provided for typical end uses.	ASME A112.18.1/ CSA B125.1 *Plumbing supply fittings** The minimum flow rate shall not be less than 0.8 gallons per minute (gpm) at a flowing pressure of 20 pounds per square inch (psi).		✓

* This performance requirement was incorporated into ASME A112.18.1/CSA B125.1 for high-efficiency lavatory faucets (i.e., lavatory faucets with flow rates ≤1.5 gpm) after its initial inclusion within WaterSense's *High-Efficiency Lavatory Faucet Specification*. Because the performance requirement only applies to high-efficiency models, not all lavatory faucet models are tested to meet the requirement.

Development of Performance Requirements

When establishing efficiency and performance criteria for lavatory faucets and faucet accessories, WaterSense investigated user satisfaction studies to determine the maximum and minimum flow rates to include within the WaterSense specification. WaterSense established a maximum flow rate of 1.5 gpm at 60 psi because stakeholders that provided comments on the draft specification generally agreed that a flow rate of 1.5 gpm would provide no noticeable difference for most users in performing routine tasks such as shaving and handwashing. In addition, WaterSense reviewed data collected from three retrofit studies conducted by Aquacraft, Inc.,[2] which demonstrated a high level of user satisfaction with high-efficiency lavatory faucets that operated with maximum flow rates of 1.0 and 1.5 gpm. Several utilities also indicated that users were generally satisfied with 1.0 gpm lavatory faucet aerators provided to customers.

WaterSense also considered the impact of pressure changes on product flow rates for various types of lavatory faucet accessories to establish a minimum flow rate of 0.8 gpm at 20 psi. This

[2] a) *Seattle Home Water Conservation Study: The Impacts of High-Efficiency Plumbing Fixture Retrofits in Single-Family Homes*, December 2000; b) *Water Conservation Study: Evaluation of High-Efficiency Indoor Plumbing Fixture Retrofits in Single-Family Homes in the East Bay Municipal Utility District Service Area*, July 2003; c) *Tampa Water Department Residential Water Conservation Study: The Impacts of High-Efficiency Plumbing Fixture Retrofits in Single-Family Homes*, January 2004.

minimum flow rate is intended to ensure user satisfaction in homes with low water pressure. It also reflected the flow rate at 20 psi for a variety of products on the market with maximum flow rates as low as 1.0 gpm, which utility programs indicated had a high level of user satisfaction. WaterSense's minimum flow rate has since been incorporated into ASME A112.18.1/CSA B125.1 *Plumbing supply fittings,* which is now a requirement for all high-efficiency lavatory faucets sold in the United States or Canada.