



**WaterSense® ~~High-Efficiency Lavatory Faucet~~
Specification for Private Lavatory Faucets**

Version ~~1.02.0~~ (Draft)

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WaterSense® High-Efficiency Lavatory Faucet Specification for Private Lavatory Faucets

1.0 Scope and Objective

This specification establishes the criteria for high-efficiency lavatory faucets and faucet accessories¹ under the United States Environmental Protection Agency's (EPA's) WaterSenseSM Program. It is applicable to private lavatory faucets, private lavatory faucet accessories specifically designed to control the flow of water, and any other private lavatory faucet technologies that meet these performance specifications criteria.

This specification applies to lavatory faucets in private use (i.e., restricted from walk-in traffic); such as Private lavatory faucets can be found in homes/dwelling units/residences and in private restrooms in hotels, motels, and hospitals, congregate living facilities, and senior care facilities. This specification also applies to metering faucets in private use that are equipped with a WaterSense labeled accessory. Metering faucets, Public lavatory faucets in public use (i.e., lavatory faucets intended to be installed in non-residential bathrooms that are exposed to walk-in traffic), and residential kitchen faucets, and bar faucets are not covered by this specification and may not earn the WaterSense label.

Several faucet types with functions solely intended for volumetric activities or otherwise not suitable for water savings are also excluded from the scope of this specification. This includes but is not limited to:

- Laundry and service sink faucets, which are used for filling a laundry sink, mop buckets, or other basins;
- Lawn or sediment faucets (i.e., hose bibbs);
- Tub faucets, including Roman tub faucets, which are used for filling a bathtub;
- Pot fillers, which are typically installed over a stovetop or range or in a commercial kitchen for filling pots with water; and
- Drinking water dispensers, which typically are connected to an under-sink or whole-house water treatment, cooling, or heating system and are used for glass or pot filling.

The specification is designed to ensure both sustainable, efficient water use and a high level of user satisfaction with private lavatory faucet and lavatory faucet accessory performance.

2.0 Water Efficiency and Performance Criteria General Requirements

- 2.1 Lavatory faucets and lavatory faucet accessories must shall conform to applicable requirements in American Society of Mechanical Engineers (ASME) A112.18.1/Canadian Standards Association (CSA) B125.1 Plumbing Supply Fittings and NSF International Standard (NSF)/American National Standard

¹ Accessory, as defined in ASME A112.18.1/CSA B125.1, means a component that can, at the discretion of the user, be readily added, removed, or replaced, and that, when removed, will not prevent the fitting from fulfilling its primary function. For the purpose of this specification, an accessory can include, but is not limited to, lavatory faucet flow restrictors, flow regulators, aerator devices, and laminar devices.

(ANSI)/National Standard of Canada (CAN) Standard 61 *Drinking Water System Components – Health Effects*, Section 9.²

2.2 Metering faucets equipped with a WaterSense labeled accessory shall conform to NSF/ANSI/CAN 61, Section 9.

3.0 Water Efficiency and Performance Criteria

3.1 The flow rate of the lavatory faucet or the lavatory faucet accessory shall be tested in accordance with the procedures in ASME A112.18.1/CSA B125.1 and shall meet the following criteria:

- The maximum flow rate shall not exceed 1.25 gallons per minute (gpm)³ (4.55-7 liters per minute {[L/min]}) at a pressure of 60 pounds per square inch (psi) at the inlet, when water is flowing; and
- The minimum flow rate shall not be less than 0.8 gpm (3.0 L/min) at a pressure of 20 psi at the inlet, when water is flowing.

A lavatory faucet or metering faucet is also considered to meet this flow rate requirement if equipped with a lavatory faucet accessory that meets this requirement.

3.2 The **maximum** flow rate, tested in accordance with the procedures in ASME A112.18.1/CSA B125.1, shall meet the testing verification protocol as described in 10 CFR ~~429.28430 Subpart F, Appendix B~~. The minimum flow rate, tested in accordance with the procedures in ASME A112.18.1/CSA B125.1, shall meet the testing verification protocol as described in Appendix B.

3.3 If the lavatory faucet operates in multiple modes, at least one mode shall meet all of the above requirements, including the minimum flow rate. All modes shall have a maximum flow rate not to exceed 1.2 gpm (4.5 L/min).

3.0 — Non-Adjustability Criteria

~~The lavatory faucet or lavatory faucet accessory shall not be packaged, marked, or provided with instructions directing the user to an alternative water-use setting that would override the maximum flow rate of 1.5 gpm at 60 psi, as established by this specification.~~

~~Any instruction related to the maintenance of the product, including changing or cleaning faucet accessories, shall direct the user on how to return the product to its intended maximum flow rate.~~

4.0 Optional Criteria for Cold-Start Faucets

4.1 Lavatory faucets looking to be designated as cold-start faucets shall meet the following criteria.

² References to ASME/CSA and NSF/ANSI/CAN standards apply to the most current version.

³ ~~The maximum flow rate has been established as 1.5 gpm, which is a 32 percent reduction from the 2.2 gpm standard codified under 10 CFR Part 430 (63 FR 13307; March 18, 1998).~~

- 4.1.1 The lavatory faucet shall have a single-control mixing valve.
- 4.1.2 The lavatory faucet shall be tested in accordance with the procedures outlined in Appendix C and meet the following criteria:
- When the faucet is turned on with the lever at or within a 10-degree arc of the middle position (as shown in Figure 1 and Figure 2 in Appendix C), it shall only deliver cold water. There shall be no water flow or leakage at the hot water inlet.
 - When the lever is turned more than a 10-degree arc away from the middle position towards the hot water position, the faucet shall deliver hot water.
- 4.1.3 The lavatory faucet shall have its temperature control settings permanently identified alphabetically, numerically, or graphically (i.e., through color) and clearly indicate that the middle position only delivers cold water.

5.0 Flow Rate Marking Product Marking and Documentation

- 5.1 The lavatory faucet or lavatory faucet accessory shall not be packaged, marked, or provided with instructions directing the user to an alternative water use setting that would override the maximum rated flow rate, as established by this specification. Any instruction related to the maintenance of the product, including changing or cleaning faucet accessories, shall direct the user on how to return the product to its intended flow rates.
- 5.2 The product and/or the product packaging shall be marked in accordance with 16 CFR 305.24(a)11(f) and ASME A112.18.1/CSA B125.1 with the maximum flow rate in gpm and L/min as determined through testing and compliance with this specification. The manufacturer may alternatively mark the product with the maximum “rated” flow rate, which is defined as the flow rate of the faucet as specified by the manufacturer, verified through testing and in compliance with the specification. Marking shall be in gpm and L/min in two- or three-digit resolutions (e.g., 1.25 gpm (4.55-7 L/min)).

6.0 Effective Date

This specification is effective on ~~October 1, 2007~~[DATE].

7.0 Future Specification Revisions

EPA reserves the right to revise this specification should technological and/or market changes affect its usefulness to consumers, industry, or the environment. Industry partners and other interested parties would be notified in advance of anticipated changes. Revisions to the specification would be made following discussions with industry partners and other interested parties.

8.0 Definitions

Definitions within ASME A112.18.1/CSA B125.1 and NSF/ANSI/CAN Standard 61, ~~Section 9~~ are incorporated herein by reference.

- **Cold-start faucet:** A faucet with a single-control mixing valve that turns on only in the cold position and supplies hot water only when the user turns the handle toward the hot position.
- **Private Use:**— Applies to fittings faucets for the private and restricted use of one or more individuals. Note: Examples of private use faucets include those in homes/dwelling units and, including; hotel and motel guest rooms; congregate living facilities; senior care facilities; and private rooms in hospital or healthcare rooms facilities; and other facilities that are not intended for public use.
- **Public Use:**— Applies to fittings faucets in non-residential bathrooms and toilet facilities that are exposed to walk-in traffic. Note: Public use bathrooms and toilet facilities are those available for the unrestricted use of more than one individual (including employees), such as those in: assembly occupancies; business occupancies; public buildings; transportation facilities; schools and other educational facilities; office buildings; restaurants, bars, other food service facilities; mercantile facilities; manufacturing facilities; military facilities; and other facilities that are not intended for private use.
- **Sink faucet:** A faucet intended for discharge into a sink.
 - **Bar faucet:** A faucet intended for discharge into a bar sink.
 - **Kitchen faucet:** A faucet intended for discharge into a kitchen sink.
 - **Laundry faucet:** A faucet intended for discharge into a laundry sink.
 - **Service sink faucet:** A faucet intended for discharge into a service sink.

Appendix A: Informative Annex for WaterSense Labeling

The following requirements must be met for products to ~~earn~~be marked with the WaterSense label.

1.0 WaterSense Partnership

The manufacturer⁴ of the product must have a signed partnership agreement in place with EPA.

2.0 Conformity Assessment

Conformance to this specification must be certified by an EPA licensed certifying body ~~either~~ accredited for this specification in accordance with the *WaterSense Product eCertification System* scheme, ~~or otherwise approved for that purpose by EPA in accordance with the WaterSense Program Guidelines.~~

3.0 WaterSense Label Use

3.1 Per the *WaterSense Program Mark Guidelines*, manufacturers must include the WaterSense label on product packaging and in online and printed specification sheets. Manufacturers should display the WaterSense label in association with any labeled product on the organization's website.

⁴Manufacturer, as defined in the WaterSense program guidelines, means “Any organization that produces a product for market that might be eligible to meet WaterSense criteria for efficiency and performance. Manufacturers may also produce “private label” products that are sold under the brand name of a separate organization, which is treated as a separate partner/application from the original product Manufacturer.”

Appendix B: Minimum Flow Rate Verification Protocol

To evaluate the minimum flow rate for faucets, licensed certifying bodies shall adhere to 10 CFR 429.28, with the modifications as indicated below.

For each basic model of faucet, a sample of sufficient size shall be randomly selected and tested to ensure that the minimum flow rate for a basic model, as represented by the lower of the following, is greater than or equal to 0.8 gpm:

- i) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

And, \bar{x} is the sample mean; n is the number of samples; and x_i is the i^{th} sample;

Or,

- ii) The lower 95 percent confidence limit (LCL) of the true mean multiplied by 1.05, where:

$$LCL = \bar{x} - t_{0.95} \left(\frac{s}{\sqrt{n}} \right)$$

And, \bar{x} is the sample mean; s is the sample standard deviation; n is the number of samples; and $t_{0.95}$ is the t statistic for a 95 percent one-tailed confidence interval with n-1 degrees of freedom.

Appendix C: Cold-Start Faucet Test Procedure

1.0 Performance Criteria

To be designated as a cold-start faucet, the lavatory faucet shall have a single-control mixing valve and meet the criteria specified in Section 4.1.2.

2.0 Test Procedure

2.1 Set-Up

- a) Before testing, the lavatory faucet shall be conditioned at ambient laboratory conditions for not less than 12 hours.
- b) For test purposes, the lavatory faucet shall be installed in accordance with the manufacturer's instructions and have its standard accessories installed.
- c) Water at a flowing pressure of 410 ± 35 kPa (60 ± 5 psi) and a supply pressure of 550 kPa (80 psi) maximum (valve closed) shall be supplied to the specimen throughout the test.
- d) Hot water shall be at $66 \text{ }^\circ\text{C} \pm 6 \text{ }^\circ\text{C}$ ($150 \text{ }^\circ\text{F} \pm 10 \text{ }^\circ\text{F}$) and cold water shall be at $10 \text{ }^\circ\text{C} \pm 6 \text{ }^\circ\text{C}$ ($50 \text{ }^\circ\text{F} \pm 10 \text{ }^\circ\text{F}$).
- e) The hot water supply shall have a mechanism for monitoring water flow (e.g., flow meter).

2.2 Test Procedure

- a) The middle position of the faucet shall be identified and marked on the faucet spout or neck. The middle position is where the handle is in line with the faucet's spout or neck. See Figure 1.

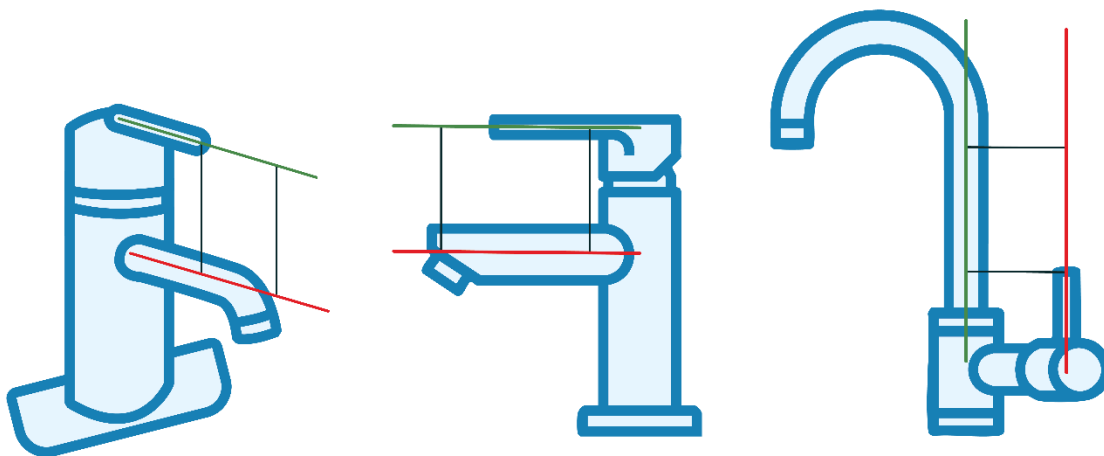


Figure 1. Examples of Middle Position of Different Faucet Designs

- b) The faucet handle shall be placed in the middle, fully closed position.
- c) Operate the faucet handle from fully closed to fully open. The faucet handle shall remain open in the middle position and water shall flow for at least one minute.

- d) Verify that no water flow or leakage is observed from the hot water inlet while the handle is in the middle position.
- e) After at least one minute, adjust the handle towards the hot position such that the handle is placed within a 10-degree arc of the middle position. See Figure 2. Note: A protractor or other tool for measuring arc degrees shall be used to establish this position in relation to the middle position.
- f) Verify that no water flow or leakage is observed from the hot water inlet while the handle is within a 10-degree arc of the middle position.
- g) After at least one minute, adjust the handle to the hot position and allow water to flow for at least one minute.
- h) Verify that hot water flow is observed from the hot water inlet.
- i) After at least one minute, return the handle to the middle position. The faucet handle shall remain open in the middle position, and water shall flow for at least one minute.
- j) Verify that no water flow or leakage is observed from the hot water inlet while the handle is in the middle position.
- k) Return the handle to the fully closed position.

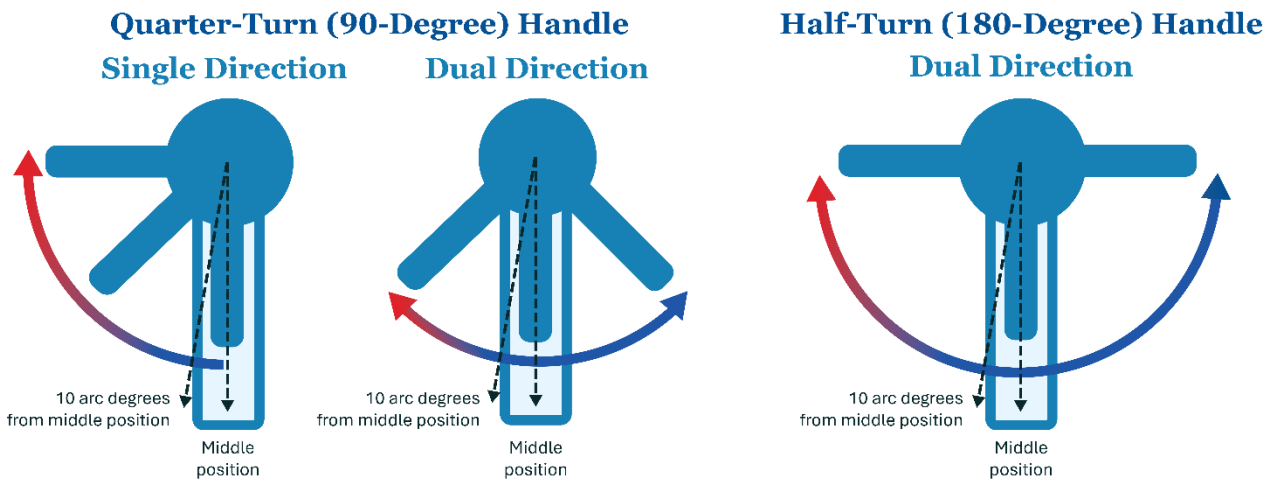


Figure 2. Examples of No Hot Water Flow Occurring Within the 10-Degree Arc of the Middle Position

2.3 Results

If no water flow or leakage is observed from the hot water inlet throughout the test while the handle is in the middle position or within a 10-degree arc of the middle position, the faucet can be designated as a cold-start faucet.

Appendix D: Transition Period for Version 2.0 of the Specification

The revisions included in Version 2.0 of this specification will impact the certification status of private lavatory faucets with a maximum flow rate greater than 1.2 gpm and, eventually, the certification status of all labeled bar faucets. Otherwise, EPA anticipates that the revisions will not impact the certification status and will not require the retesting or recertification of private lavatory faucets that have a maximum flow rate less than or equal to 1.2 gpm. Further, the revisions will not impact the current licensing status of certifying bodies, and EPA will not require edits to licensing agreements or licensing agreement amendments currently in effect.

While the effective date of the specification is dependent on the future publication date for the final specification, EPA anticipates that the specification will take effect approximately 12 months following publication. Manufacturers may begin delisting ineligible products from their certification listing at any time ahead of the effective date. Further, private lavatory faucets manufactured after the effective date that do not meet the water efficiency criteria in the revised specification are not permitted to bear the WaterSense label. Upon the effective date, EPA will designate models deemed ineligible under the revised specification (e.g., all private lavatory faucet models with a maximum flow rate greater than 1.2 gpm) as delisted. Models will remain on the WaterSense Product Search Tool for six months following the date they were delisted, which allows time for previously manufactured and labeled models to be sold in the marketplace. Bar faucets are not permitted to earn the WaterSense label upon the effective date of Version 2.0, but previously labeled bar faucets that otherwise meet the requirements of the Version 2.0 specification may remain on certification listings until EPA releases a new WaterSense specification with criteria for kitchen and bar faucets.

Within 90 days of the effective date, certifying bodies are required to remove ineligible products from their certification listings and submit updated product notification templates (PNTs). Certifying bodies must use Version 4.0 of the PNT (currently in draft form), which reflects the revisions included in Version 2.0 of the specification.

EPA plans to have a six-month grace period between the effective date and the discontinue date, during which packaged inventories of private lavatory faucet models that were manufactured and labeled prior to the effective date may still be distributed and sold. During this time period, for products no longer earning the WaterSense label, manufacturers and private labelers should discontinue use of the WaterSense label or associated language communicating WaterSense certification on product packaging of ineligible products. Product packaging includes specification sheets, product web pages, and other online or newly printed materials. In acknowledgement of the time it will take for manufacturers and private labelers to make comprehensive updates to these materials associated with products that are no longer labeled, EPA will pause brand monitoring related to private lavatory faucets during this time. Further, as has always been EPA's policy, EPA will not require previously labeled products or previously printed materials associated with models that are ineligible under Version 2.0 of the specification to be destroyed or recalled from the market.

Upon the discontinue date (e.g., six months following the effective date of the specification), all private lavatory faucet models with a maximum flow rate greater than 1.2 gpm will be removed from the WaterSense Product Search Tool. However, EPA will still be able to confirm the prior labeled status of models upon inquiries from consumers, utilities, or other interested parties. EPA expects that, by the discontinue date, manufacturers and private labelers have suspended use of the WaterSense label and associated language on any online or newly printed materials for all previously labeled products that are no longer eligible. EPA will resume brand monitoring

following the discontinue date and will work with manufacturers, private labelers, and certifying bodies to ensure product certification listings and product documentation are current and compliant.

EPA's intended timeline and associated activities are summarized below in Table .

Table 1. Proposed Timeline and Activities Associated With the *WaterSense Specification for Private Lavatory Faucets, Version 2.0*

<u>Date</u>	<u>Estimated Timeline</u>	<u>Activities</u>
<u>Publication date</u>	<u>2025</u>	<ul style="list-style-type: none"> • <u>EPA publishes the final <i>WaterSense Specification for Private Lavatory Faucets, Version 2.0</i>.</u> • <u>Manufacturers, at their discretion, can begin to remove ineligible models from product certification listings.</u>
<u>Effective date</u>	<u>Publication date + 12 months</u>	<ul style="list-style-type: none"> • <u><i>WaterSense Specification for Private Lavatory Faucets, Version 2.0</i> takes effect.</u> • <u>Faucet models that are unable to meet the specification criteria can no longer bear the WaterSense label.</u> • <u>New bar faucet models are unable to earn the WaterSense label.</u> • <u>EPA designates all private lavatory faucet models no longer meeting specification criteria as “delisted.” Existing bar faucet models that otherwise meet the Version 2.0 specification criteria may remain on the certification listings until publication of a specification for kitchen and bar sink faucets.</u>
<u>Certifying body transition period</u>	<u>Effective date + 90 days</u>	<ul style="list-style-type: none"> • <u>Licensed certifying bodies are required to update certification listings and submit Version 4.0 of the PNT with up-to-date product listings.</u>
<u>Grace period</u>	<u>Effective date until the discontinue date</u>	<ul style="list-style-type: none"> • <u>EPA pauses brand monitoring activities related to private lavatory faucets to offer manufacturers and private labelers the opportunity to update materials associated with previously labeled models.</u> • <u>Manufacturers and private labelers work on updates to online and newly printed materials associated with previously labeled models to remove the WaterSense label and any language associated with WaterSense labeling.</u>
<u>Discontinue date</u>	<u>Effective date + six months</u>	<ul style="list-style-type: none"> • <u>All private lavatory faucet models no longer meeting specification criteria that were designated as “delisted” are removed from the WaterSense Product Search Tool.</u>

<u>Date</u>	<u>Estimated Timeline</u>	<u>Activities</u>
<u>Ongoing</u>	<u>Following discontinue date</u>	<ul style="list-style-type: none"> • <u>EPA resumes brand monitoring activities related to private lavatory faucets and works with manufacturers, private labelers, and licensed certifying bodies, as applicable, to resolve any identified brand monitoring issues.</u> • <u>EPA releases a specification for kitchen faucets at a later date. EPA will work with manufacturers and licensed certifying bodies to transition bar faucets to this new product category. When this specification is published, new bar faucet models may apply to earn the WaterSense label.</u>