

Summary of Revisions to the WaterSense® Specification for Tank-Type Toilets

The U.S. Environmental Protection Agency's (EPA's) WaterSense program is announcing the release of Version 1.1 of its WaterSense Specification for Tank-Type Toilets (specification). The purpose of this document is to summarize the revisions made to the specification, share the reasoning for the changes, and provide a timeline for compliance with the new requirements.

Background

WaterSense released its initial Tank-Type High-Efficiency Toilet Specification in January 2007. Since that time several issues requiring clarification have come to EPA's attention, including tanks with adjustable water use settings, certification and labeling of tanks and bowls manufactured and sold by different companies, and compliance with the aftermarket closure seal requirements now that three-inch adjustable flappers are readily available on the market. EPA is issuing Version 1.1 of the specification, which incorporates these important clarifications and provides some minor revisions necessary to align this specification with the other WaterSense product specifications. These clarifications and revisions will ensure that tank-type toilets that receive the WaterSense label are certified and labeled consistently, in accordance with EPA's intent, and will continue to meet consumer expectations for efficiency and performance.

General Revisions

Specification Title

EPA has revised the title of the specification from "Tank-Type High-Efficiency Toilet Specification" to "WaterSense Specification for Tank-Type Toilets". This change does not affect the specification's original scope and objective, which is to establish criteria for a tank-type high-efficiency toilet under the WaterSense program. It is primarily a reflection of the EPA's goal for the WaterSense label to become synonymous with and symbolize high-efficiency, high-performing products, particularly as the program has gained traction in the marketplace. This change also adheres to the naming convention of other WaterSense product specifications.

Section 3.0 Water-Efficiency Criteria

Sampling Plan

The U.S. Department of Energy (DOE), through its February 2011 *Energy Conservation Program: Certification, Compliance, and Enforcement for Consumer Products and Commercial and Industrial Equipment* rulemaking, has clarified the application of its statistical sampling plans that products must be evaluated in accordance with in order to be certified for compliance with the applicable energy efficiency regulations. These sampling plans provide direction for the number of units selected and tested and the statistical analysis that must be applied to the sample results in order to determine a product's compliance.

To ensure consistency with DOE's sampling plan requirements and streamline the WaterSense certification process for manufacturers, EPA is now requiring both single flush and dual flush toilets to be sampled and statistically evaluated in accordance with the Code of Federal Regulations (CFR) 10 CFR 429.30, the governing sampling plan for water closets. This change replaces the sampling plan requirements outlined in Section A4 of ASME A112.19.2, Nonmandatory Appendix A, Demonstrating Compliance with ASME A112.19.2, as previously required in Appendix A, Section 2.1 of Version 1.0 of the specification. In addition, this change creates consistency between the tank-type toilet specification and the other WaterSense product specifications, which refer to and require compliance with the applicable DOE sampling plans outlined in the CFR.

Section 6.0 Product Marking

In response to questions raised by manufacturers, licensed certifying bodies, and consumers/consumer groups, EPA has added a new section to the specification (Section 6.0) to address tank and bowl product marking requirements. The purpose of this section is to clarify EPA's intent regarding how WaterSense labeled toilets must be marked to convey and maintain their efficiency.

Tank Marking

EPA is providing two important clarifications regarding toilet tanks. First, tanks must be marked in accordance with ASME A112.19.5, which requires the manufacturer to permanently mark or label the tank with information pertaining to the appropriate flush valve replacement parts. As recognized in the ASME standard, when a flush valve seal or flapper is replaced, it could change the toilet's water use; therefore, it is necessary for manufacturers to provide service information about the installed flush valve. Making this information readily available and easily accessible will assist end users with proper maintenance so their toilets will continue to provide the expected level of efficiency and performance.

Second, EPA is explicitly stating that the tank shall not be packaged, marked, or provided with instructions directing the user to an alternative water use setting that would override the toilet's rated flush volume. In addition, EPA is requiring any instruction related to the maintenance of the product to direct the user on how to return it to its rated flush volume. With these requirements, EPA is making it clear that toilets that have adjustable water use settings allowing them to be set to either 1.28 gallons per flush (gpf) or 1.6 gpf do not comply with the intent of this specification. In addition, this language, as incorporated into all of the other WaterSense product specifications, provides some assurance that the toilet can be operated and maintained over the long term to provide the expected level of efficiency and performance.

Bowl Marking

Currently, as specified by the ASME A112.19.2 standard, many manufacturers mark their toilet bowls with a water use of 1.6 gpf flush volume despite compatibility and certification with tanks that flush at lower volumes (e.g., 1.28 gpf). Because the ASME standard requires the flush volume to be visible on the installed product, it often creates confusion for the end user, particularly if they purchased a WaterSense labeled tank-type toilet with an effective flush volume of 1.28 gpf or less and the bowl is marked with a higher flush volume. To help alleviate

this type of confusion, EPA is clarifying that toilet bowls certified as part of a WaterSense labeled tank-type toilet may be marked in a manner that indicates compatibility with flush volumes below 1.6 gpf. This voluntary marking requirement is intended to encourage manufacturers to provide more accurate flush volume information for WaterSense labeled toilets so that it is clear that a particular tank and bowl are compatible. It also provides flexibility in how toilet bowls are marked with respect to flush volume and allows manufacturers to maintain compliance with the ASME A112.19.2 marking requirements.

Appendix C, Section 3.0 Tank-Type Gravity Toilets with Aftermarket Closure Seals

Aftermarket Three-inch Adjustable Flappers

Section 3.0 of Appendix C outlines the requirements for testing toilets with available aftermarket closure seals. Its purpose is to ensure that the tank-type toilet can maintain its maximum effective flush volume when an off-the-shelf replacement flush valve seal/flapper is installed.

Since Version 1.0 of the specification was released, aftermarket replacement three-inch adjustable flappers have entered the market as a readily available replacement option for toilets with three-inch flush valves. These flappers, unlike their two-inch counterparts currently included in the specification, can be adjusted for use in toilet models with varying efficiencies to provide the appropriate flush volume (e.g., can be adjusted to flush 1.28 or 1.6 gallons). Because the flush valve is part of the tank trim, by default under the initial specification, these flappers were required to be adjusted to their maximum water use setting instead of the setting intended to provide the appropriate flush volume for the toilet. As a result, EPA was concerned that when these flappers are installed and adjusted for maximum water use, many potential and existing WaterSense labeled tank-type toilets could fail either the initial certification or ongoing surveillance testing because the toilet may be unable to maintain its maximum effective flush volume.

While EPA wants to continue to test product performance with off-the-shelf replacement aftermarket parts as a way to ensure the long term water savings, it does not intend to unfairly penalize products that were not designed to operate with an adjustable three-inch flapper that is installed at its maximum water use setting. As a result, EPA has made three important clarifications to Section 3.2 of Appendix C.

First, for ongoing surveillance testing, EPA is requiring the licensed certifying body to use the same model replacement flush valve seal (flapper) that was used during the initial product testing and certification. If the original replacement model flapper is no longer available, the manufacturer does not have to comply with this aftermarket closure seal testing requirement of the specification. EPA provided these clarifications to ensure that manufacturers would not be unfairly penalized when new aftermarket flappers are introduced onto the market with which their existing WaterSense labeled toilets were not originally designed or intended to work.

Second, as is currently done for two-inch flappers, EPA has specified a specific three-inch aftermarket flapper model that may be used to assess compliance with the aftermarket closure seal requirement for toilets with three-inch flush valves; the Lavelle Korby model 3060 flapper. This particular flapper was selected for inclusion in the specification based upon recommendations from the ASME A112.19.2/CSA B45.1 Joint Harmonization Task Force and is

widely available on the market. Specifying this model provides consumers with confidence that their toilet will continue to provide the expected water savings if they replace the flapper with an off-the-shelf model. It also provides manufacturers with a defined flapper with which they must design their products to work, based on what is currently available.

Third, EPA has specified that the three-inch adjustable flapper must be adjusted in accordance with the flapper manufacturer's instructions as opposed to defaulting to the flapper's maximum water use setting. Though it is possible for the end user to adjust the flapper to its maximum water use setting in the field, these flappers are provided with installation instructions that should be followed to maintain the expected level of efficiency and performance of the toilet. As a result, EPA is requiring that the toilet be tested with the aftermarket flapper on the setting in which the flapper is intended to operate.

Further, EPA has clarified in Section 6.0 Product Marking that the tank must be marked in accordance with ASME A112.19.5, which requires the manufacturer to permanently mark or label the tank with information pertaining to the appropriate flush valve replacement parts. The intent with this requirement is to provide clear, easily accessible information to the end user regarding the replacement parts the manufacturer has deemed compatible with the toilet and to ensure the long-term efficiency and performance of their toilet.

Appendix D: Requirements for WaterSense Labeling

Section 2.0 Conformity Assessment

When Version 1.0 of this specification was originally published, EPA was operating under and interim certification process while it worked to establish the infrastructure and requirements for its final product certification system. EPA published its final WaterSense product certification system in March 2009, and therefore, has revised the language under this section to require certification by an EPA licensed certifying body that is accredited for this specification in accordance with the WaterSense product certification system. EPA no longer approves certifying bodies independent of this accreditation process.

Section 3.1 Adjustability

Soon after the publication of Version 1.0 of the specification, EPA received questions related to whether a tank-type single-flush toilet with multiple flush volume settings (e.g., a toilet that could be set to flush at either 1.28 gallons per flush (gpf) or 1.6 gpf) would qualify under the specification for use of the WaterSense label. In May 2007, EPA issued a clarification statement stating that toilet tanks with adjustable water use settings that can be identified and activated by a user or plumbing professional to override the water-efficiency level established by the specification do not comply with the intent of this specification or the WaterSense program and do not qualify for use of the WaterSense label. EPA has incorporated this clarification into the specification, to ensure that it is enforced as a requirement and to eliminate the need for separate stand alone guidance on this topic.

Section 3.2 Tanks and Bowls Manufactured and Sold by Different Companies

Similarly, EPA received questions relating to whether tanks and bowls manufactured and sold by different companies are eligible to be certified in accordance with the specification and would qualify to earn the WaterSense label. In April 2010, EPA issued clarification guidance describing the circumstances under which these products can be certified and established specific requirements for how manufacturers must effectively communicate that the combination tank and bowl is WaterSense labeled. EPA has also incorporated this clarification into the specification to ensure that it is enforced as a requirement and to eliminate the need for separate stand alone guidance on this topic.

Section 3.3 Product Packaging Marking and Labeling

EPA has recently decided to make the use of the WaterSense label mandatory in order to ensure that it is clear to consumers which products have been certified to meet EPA's criteria for efficiency and performance. EPA is in the process of incorporating this requirement into its program documents and has clarified in this specification that the manufacturer is required to display the label on product packaging.

EPA recognizes that in some cases toilet tanks and bowls may not be packaged and sold together even though they have been certified to this specification as a unit. Because consumers and manufacturers have sought clarification on this topic and because use of the WaterSense label is now mandatory, EPA has included requirements in the specification for how the individual toilet bowl and tank packaging must be marked and how the WaterSense label must be used to ensure that it is clear to the purchaser that a particular combination tank and bowl is labeled.

Timeline for Compliance with Version 1.1 of the Specification

Version 1.1 of this specification is effective May 20, 2011. EPA is providing manufacturers with a six month grace period to begin complying with the new requirements. By November 1, 2011 all certification activities must be done in accordance with Version 1.1 of this specification. The existing licensing agreement between EPA and the licensed certifying body will remain in full force and effect.