

DOCKETED

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LWTA_Comments_Tub-Spout_Diverters

Additional submitted attachment is included below.



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June 14, 2017

Ryan Nelson
California Energy Commission
Docket Unit, MS-4
1516 Ninth Street
Sacramento, CA 95814-5512

RE: DOCKET NO. 17-AAER-09 TUB SPOUT DIVERTERS

Dear Mr. Nelson:

Lixil Water Technology is the global market leader in the sanitary ware industry. Through powerful, well established brands renowned for quality and innovation including GROHE and American Standard, we provide a full suite of bathroom and sanitary designs and technologies. Lixil Water Technology Americas (LWTA) is focused on providing water efficient products that perform beyond our customer's expectations for the North American market.

On May 11th, the CEC made known during their Phase 2 Pre-Rulemaking Webinar that staff is considering reducing the leakage rate for tub spout diverters below the current requirements of 0.01 gpm when new (pre-life cycle) and 0.05 gpm after 15,000 cycles (post-life cycle). LWTA opposes any further reductions in the leakage rate requirements for the following reasons:

1. Most tub spout diverters are designed to automatically reset. Per ASME A112.18.1/CSA B125.1, this type of tub spout diverter is required to reset to address the safety concern of thermal shock. As a manufacturer, we can attest that it is extremely difficult to design a tub spout diverter which meets the already stringent CEC leakage rate requirements and design the same product to automatically reset. Reducing the leakage rate below the current requirements is a potential safety hazard because designing diverters to reduce leakage will have a direct effect on the automatic reset function. This may lead to thermal shock to the user of the product after the product has been installed.
2. There is a perception that many diverters can achieve 0.0 gpm leakage rates based the CEC database, but it is extremely difficult for automatic reset diverters to achieve the 0.0 gpm leakage rate, and the CEC database does NOT distinguish between automatic reset diverters and non-automatic reset diverters. As a manufacturer, I can attest that none of our automatic reset diverters listed on the CEC database can meet the 0.0 gpm requirement. That said, we do have tub spout diverters listed on the CEC database that do NOT automatically reset with a 0.0 gpm leakage rate.
3. It is our perception that the main issue with regards to leakage of diverter tub spouts is "old leaky diverters". The EPA WaterSense NOI (dated December 8, 2016) seems to agree with this perception. "Old leaky diverters" are caused by hard water and debris build up on the seals of the diverter over time. Changing the CEC leakage rate

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requirement for brand new tub spout diverters will do nothing to address the main issue.

The Commission, during the May 11th Phase 2 Pre-Rulemaking Webinar, also requested information on the following pertaining to tub spout diverters: product definition and scope; existing standards and standards under development; existing test procedures; sources of test data; product lifetime; product development trends; maintenance, operation, and function; water savings and efficiency; costs; and market characteristics.

- **Product Definition and Scope**

- **Improvements to the current CA definitions?** The current definitions of “lift type,” “pull type,” “turn type,” and “push type” tub spout diverters are not defined in the product standards and are not a part of common terminology used throughout the industry or marketplace. Requiring manufactures to choose one of these options does not add any value to manufacturers, consumers or the CEC.
- **Other accepted terminology?** Remove current definitions and replace with “bath and shower diverter” to be consistent with ASME A112.18.1/CSA B125.1.
- **Does CA/WaterSense cover all products and configurations (i.e. roman tub faucets with showerheads, claw foot tub faucets with showerheads, other showerhead system combinations)?** Yes, all products are covered by current CEC requirements, and listed on MAEDBS, including tub spout/showerhead combinations with tub-spout diverters that are intended for use on free-standing tubs.
- **Other products and configurations (i.e. companion products/fittings, replacement kits/valves)?** No additional products would fall under this category.

- **Existing Standards and Standards Under Development.**

- **Are there features or designs that prevent tub spout diverters from meeting a maximum leakage rate that is below the current standard?** Yes. With a zero leakage at the tub spout diverter, there will be no relief of operating pressure which means the column of water behind the diverter will have no way to escape. This will create a hydraulically locked situation and the diverter will be difficult to undivert. In this state, the diverter would not be able to automatically reset itself to tub mode which is a requirement in ASME A112.18.1/CSA B125.1, Section 5.6.1.5.2. All plumbing codes, including the California Plumbing Code, require tub spout diverters to be compliant with ASME A112.18.1/CSA B125.1.

If the diverter remains activated, there is potential for thermal shock to the next user. A hydraulically locked situation is also likely to cause accelerated wear on the sealing member resulting in earlier leaking of the seal. Additionally, based on the nature of plumbing systems and components, there is often residual water within the system and its components. This residual water needs to drain and the amount

of water will not be reduced by changing the requirements of the tub spout diverter itself.

- **Should the performance standard include a tolerance level (i.e. structure of tolerance level, residual water, automatic reset diverters)?** The ASME A112.18.1/CSA B125.1 leak test requirement and CEC's additional tolerance to the hundredths of gallons, is sufficient.
- **Structure of performance standard (i.e. rate vs. volume)?** ASME A112.18.1/CSA B125.1 is sufficient where rate is used.
- **Existing Test Procedures**
 - **Are there any limitations or improvements that can be made to the test procedure (i.e. setup/procedure, measuring data, accuracy of equipment)?** Current test procedures are well defined in ASME A112.18.1/CSA B125.1.
 - **Recording/reporting data?** To meet the requirements for CEC, the test measurements are rounded to the hundredths of a gallon per minute (gpm). Therefore, although there are many tub spout diverters listed in the CEC database as 0, there was most likely a small amount of leakage for several of these tub spout diverters to maintain compliance with ASME A112.18.1/CSA B125.1.
- **Sources of Test Data**
 - **Test lab reports?** Tub spout diverters are required to be tested by a CEC recognized test lab.
 - **Field studies discussing age of tub spout diverters?** Replacement of a singular integrated tub spout diverter product appears to be at the same rate of typical remodeling which lends to the assumption that tub spouts are not replaced due to age, performance, etc., but rather with home remodeling trends.

Note that showers are becoming more popular than baths and it is not uncommon for a tub/shower with a tub spout diverter to be replaced with a shower base and showering components only, reducing the amount of tub spout diverter installations overall.
- **Product Lifetime.** Product lifetime is highly variable depending on use, water quality, and manufacturer.
- **Product Development Trends.** Product development efforts are proprietary and we cannot share this information.
- **Maintenance, Operation and Function.** Owner's manuals provided by manufacturers are widely available on the web.

- **Are there factors (water hardness, water pH, water temperature, pressure) that can cause diverters to leak or cause parts to deteriorate?** Manufacturers are required to test to ASME A112.18.1/CSA B125.1 which utilizes potable water at a specific temperature (100 +/-10 °F to mimic a typical bather) at 10 psi. The quality of potable water varies substantially between regions and localities and therefore it is extremely difficult to characterize every possible water type that could be used with these products. As an example, some locations may have very hard water and mineral deposits build up on the internal components, thus making it difficult to seal as designed.
- **Do the diverter mechanism parts vary by diverter type?** Yes, and they vary by manufacturer. For example, the parts of a tub spout diverter are totally different than a wall-mount or valve-type diverter.
- **Which parts are more often replaced? And how often?** Most spouts with serviceable parts are typically not serviced but rather replaced with new products or simply ignored and left installed. Many can be cleaned however, and depending on how harsh the water quality is, products may require constant cleaning which can erode the seals.
- **Are there any health and safety concerns if the leakage rate is reduced below current standards?** Yes. With a zero leakage at the tub spout diverter, there will be no relief of operating pressure which means the column of water behind the diverter will have no way to escape. This will create a hydraulically locked situation and the diverter will be difficult to undivert. In this state, the diverter would not be able to reset itself to tub mode which is a requirement in ASME A112.18.1/CSA B125.1, Section 5.6.1.5.2. All plumbing codes, including the California Plumbing Code, require tub spout diverters to be compliant with ASME A112.18.1/CSA B125.1.

If the diverter remains activated, there is potential for thermal shock to the next user. A hydraulically locked situation is also likely to cause accelerated wear on the sealing member resulting in earlier leaking of the seal. Additionally, based on the nature of plumbing systems and components, there is often residual water within the system and its components. This residual water needs to drain and the amount of water will not be reduced by changing the requirements of the tub spout diverter itself.

- **Water Savings and Efficiency.** Earlier this year, EPA announced their “WaterSense® Notice of Intent to Develop a Draft Specification for Bath and Shower Diverters.” Using the California Energy Commission’s (CEC) Appliance Efficiency Regulations calculations for water usage, the difference in water saved between the CEC regulations and the proposed values



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in the EPA WaterSense® draft specification would be negligible, especially when factoring in the adoption rate of existing fixtures.

- **Costs.** Retail prices are widely available on the web.

Market characteristics. No comment.

Thank you for the opportunity to submit comments on this topic. LWTA looks forward to discussing this matter further with the California Energy Commission.

Best Regards,

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