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Via E-Mail

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U.S. Environmental Protection Agency
ENERGY STAR Appliance Program
appliances@energystar.gov

Re: ENERGY STAR Draft 2, Version 7.0 Clothes Washer Specification and Preliminary Approach for Addressing Cleaning and Rinsing Performance of Residential Clothes Washers

Dear Ms. Stevens:

On behalf of the Association of Home Appliance Manufacturers (AHAM), I would like to provide our comments on the ENERGY STAR Draft 2, Version 7.0 Clothes Washer Specification and the Department of Energy (DOE) Preliminary Approach for Addressing the Cleaning and Rinsing Performance of Residential Clothes Washers (Preliminary Approach).

AHAM represents manufacturers of major, portable and floor care home appliances, and suppliers to the industry. AHAM's membership includes over 150 companies throughout the world. In the U.S., AHAM members employ tens of thousands of people and produce more than 95% of the household appliances shipped for sale. The factory shipment value of these products is more than $30 billion annually. The home appliance industry, through its products and innovation, is essential to U.S. consumer lifestyle, health, safety and convenience. Through its technology, employees and productivity, the industry contributes significantly to U.S. jobs and economic security. Home appliances also are a success story in terms of energy efficiency and environmental protection. New appliances often represent the most effective choice a consumer can make to reduce home energy use and costs.

AHAM supports the Environmental Protection Agency (EPA) and DOE in their efforts to provide incentives to manufacturers, retailers, and consumers for continual energy efficiency improvement, as long as product performance can be maintained for the consumer. AHAM thanks EPA for proposing separate product classes for top- and front-loading clothes washers and for aligning the specification's effective date with the Federal standards that will become effective in March 2015. Consistency between the ENERGY STAR specifications and DOE's regulations is the best way to maintain clarity and consistency for regulated parties and to minimize consumer confusion. AHAM would propose that, with respect to the proposed cleaning and rinse performance test procedure, EPA and DOE wait until AHAM has completed

ongoing work on a capacity measurement test procedure which could provide a better measurement. This is explained in more detail below.

I. Definitions

EPA proposes definitions that are harmonized with those in 10 C.F.R. 430, Subpart B, Appendix J2 as well as the relevant definitions from 10 C.F.R. 430.2. AHAM supports that approach because it is critical that EPA remain harmonized with DOE's regulations.

To that end, EPA also proposed to add new footnotes to a number of definitions that provide the relevant citation to the Code of Federal Regulations (CFR) and "noting where and how one ENERGY STAR program definition differs from a DOE regulatory program definition. In addition, to ensure greater consistency where EPA's intention is to harmonize with a DOE regulatory definition, the Agency has added language that states when in cases of conflict, the definition in the CFR takes precedence." EPA and DOE welcome stakeholder feedback on those changes.

AHAM fully supports EPA's approach to add citations to the relevant DOE regulatory definitions and to indicate that in cases of conflict, the definition in the CFR will take precedence. As we have previously commented, citation to definitions is the best way to ensure consistency and harmonization with DOE definitions at all times—it ensures that as DOE definitions change, ENERGY STAR definitions also change to mirror them. To achieve consistency, the relevant definitions must be identical to each other at all times. Without such consistency and uniformity there would be significant confusion for manufacturers and for consumers. Furthermore, manufacturers must make energy representations based DOE's applicable test procedures and regulations. For these reasons, AHAM thanks EPA for making these changes which will ensure that the ENERGY STAR specification does not unintentionally differ from DOE regulations which are the foundation of the ENERGY STAR specifications.

AHAM notes that the definition for "basic model" is missing the word "all" to start the definition. The definition should read as follows (redline indicating addition), "All units of a given type . . ."

In addition, EPA proposed to define a commercial clothes washer as "[a] soft-mounted front-loading or soft-mounted top-loading clothes washer that is defined for use in applications in which the occupants of more than one household will be using the clothes washer, such as multi-family housing common areas and coin laundries." As, EPA notes in its proposed footnote 2, the proposed definition differs from the DOE definition of the very same product. [1] Unlike the DOE definition, the EPA definition does not specify a maximum capacity for commercial clothes

[1] DOE defines a commercial clothes washer as follows: "Commercial clothes washer means a soft-mounted front-loading or soft-mounted top-loading clothes washer that—(1) Has a clothes container compartment that—(i) For horizontal-axis clothes washers, is not more than 3.5 cubic feet; and (ii) For vertical-axis clothes washers, is not more than 4.0 cubic feet; and (2) is designed for use in—(i) Applications in which the occupants of more than one household will be using the clothes washer, such as multi-family housing common areas and coin laundries; or (ii) Other commercial applications." 10 C.F.R. 431.152 (emphasis added).

washers and does not include "other commercial applications." AHAM strongly objects to EPA's departure from the regulatory definition for commercial clothes washers. EPA's definitions should never differ from those in the regulatory text. This is particularly true because both DOE and EPA are to work together to administer the ENERGY STAR program. As we have commented in the past, DOE's regulations are to be the foundation for the ENERGY STAR program. Thus, EPA must not use an approach that varies from DOE's approach. Varying from DOE's approach, as is evidenced from the prior need for a clarification on the commercial clothes washer definition, creates confusion for stakeholders, and, ultimately, consumers.

AHAM is not suggesting that the ENERGY STAR program must necessarily encompass the same scope as is regulated by DOE—we understand that the ENERGY STAR program includes many products that are not regulated by DOE. But, when addressing products that DOE does regulate, EPA must recognize the DOE foundation and the requirements imposed through federal law, and should not stray from it without thorough analysis and stakeholder input. It seems that EPA's goal in straying from the DOE definition of commercial clothes washer is to define the scope of the specification—i.e., which commercial clothes washers can be eligible for the ENERGY STAR and which cannot. That would be better dealt with in the scope section and AHAM provides some further suggestions below in Section II.

II. Scope

EPA proposed that the Version 7.0 specification scope include products "with a clothes container volume that is not more than 6.0 cubic feet and that meet the definition of a Residential Clothes Washer or Commercial Clothes Washer" (with some specific exceptions).

AHAM opposes the limit of 6.0 cubic feet on residential clothes washers. EPA does not provide reasoning in the Draft 2, Version 7.0 document for making this change. But we assume that it is based on the same reasoning put forward during the "clarification" process earlier this year, which was that the DOE test procedure does not allow for testing of models larger than 6.0 cubic feet.

As we previously commented, though AHAM appreciates EPA's attempt to be consistent with the DOE test procedure, AHAM is concerned that EPA is misinterpreting the purpose of Table 5.1 in the DOE residential clothes washer test procedure. It is true that that table goes up to 6.0 cubic feet in Appendix J2. But it has nothing to do with the limit either on commercial clothes washer capacity or on residential clothes washer capacity. The limit on commercial clothes washer capacity is stated in the DOE definition for that product. If a manufacturer wanted to sell a commercial clothes washer larger than 3.5 or 4.0 cubic feet, the manufacturer could do so, but it would not be a DOE-covered product, and, thus, would not be subject to the DOE test procedure or standards. *See* 10 C.F.R. 431.152 (quoted in footnote 1 of these comments).

There is, however, no such limitation on residential clothes washer capacity. If a manufacturer wanted to sell a 7.0 cubic foot residential clothes washer, it would still be a DOE covered product, and in order to put that product on the market, the manufacturer would simply need to obtain a test procedure waiver from DOE extending the load size table, for the specified product, up to 7.0 cubic feet. The product would still need to be tested per DOE's test procedure (plus the

waiver), and would still be subject to the applicable standards. In fact, until recently, Table 5.1 only went up to 3.80 cubic feet and most manufacturers obtained test procedure waivers extending Table 5.1 up to 6.0 cubic feet. Thus, AHAM opposes changing the scope of the clothes washer ENERGY STAR specification to exclude residential clothes washers larger than 6.0 cubic feet. EPA has not shown a valid reason or sufficient (or any) data for departing from DOE's significant and lengthy regulatory analysis and standards making process that was open to debate and consideration by the public for a number of years.

With regard to commercial clothes washers, as stated above, AHAM acknowledges that the ENERGY STAR program must not necessarily encompass the same scope as is regulated by DOE—we understand that the ENERGY STAR program includes many products that are not regulated by DOE. But, if EPA does not want to parallel DOE's scope (e.g., wants to allow commercial clothes washers bigger than 3.5/4.0 cubic feet to qualify for ENERGY STAR even though they are not DOE-regulated products), EPA must do an analysis of those products and evaluate the potential energy savings, manufacturer costs, etc., and seek stakeholder input. We see no such analysis here, though EPA is properly seeking stakeholder input through the specification revision process.

Manufacturers might not design commercial clothes washers with larger capacities than those in the DOE definition on the same platforms as those that are designed to comply with DOE's standards. DOE's lengthy regulatory analysis should not be disregarded. Even if ENERGY STAR were to completely disregard years of analysis and review, it must present and analyze data through this open stakeholder process. In this case, to our knowledge, there has been absolutely no analysis of the energy savings that would result from extending ENERGY STAR to these larger units. Nor has there been any analysis on the impact of doing so on consumers (or manufacturers). Larger units may be designed to meet different requirements and their design and utility could be impacted were EPA to extend ENERGY STAR qualification to those units. For example, a larger unit might be designed for use in a hospital or nursing home where sanitization requirements require hotter water than is feasible to meet the ENERGY STAR requirements. Unless or until data and analysis demonstrate that it is justified to extend ENERGY STAR eligibility to commercial clothes washers not covered by DOE, AHAM opposes including commercial clothes washers above the 3.5/4.0 cubic foot limits in the DOE definition (which should also be the EPA's definition).

In EPA's proposed definition of commercial clothes washer, EPA proposed to not include "other commercial applications." Although AHAM believes that EPA should use the DOE definition as written in the regulatory text, AHAM agrees with EPA that "other commercial applications" should be excluded from the scope of the specification. Accordingly, AHAM suggests that rather than delete "other commercial applications" from the definition of commercial clothes washer, EPA simply exclude those applications from the scope of the specification.

III. Qualification Criteria

A. Connected Allowance

EPA has identified its intent to help advance the market for products with intelligent features in ways that deliver immediate consumer benefit as well as support a low-carbon electricity grid over the long-term. AHAM strongly supports EPA's decision to incorporate smart grid functionality and to provide a 5% allowance consistent with the "Joint Petition to ENERGY STAR to Adopt Joint Stakeholder Agreement as it Relates to Smart Appliances" from industry, efficiency advocates, and environmental groups. The allowance is intended to serve as an incentive to help jump start the market for clothes washers with smart grid functionality.

B. Metrics

EPA proposed to express the Version 7.0 requirements using Integrated Modified Energy Factor (IMEF) and Integrated Water Factor (IWF). AHAM agrees with that approach because that is consistent with Appendix J2 and with the standards that will be in effect when the proposed Version 7.0 ENERGY STAR specification becomes effective. We appreciate that EPA is aligning its metrics with the DOE metrics and thank EPA for harmonizing its requirements with the regulatory requirements.

In developing the proposed eligibility criteria, EPA identified revised MEF and WF requirements and then worked with DOE to translate the current metrics into IMEF and IWF using test data DOE collected during its rulemaking process. AHAM supports that approach and thanks EPA for sharing the data supporting that crosswalk. That data greatly assisted us in determining how EPA approached the analysis. In addition, we thank DOE and EPA for working together on this analysis.

C. Product Classes

i. *Top-Load and Front-Load Clothes Washers*

EPA proposed separate product categories (and levels) for top- and front-loading clothes washers. AHAM fully supports that proposal because it is consistent with the product classes in DOE's regulations. AHAM notes, however, that EPA undertook an independent analysis in order to reach this decision rather than simply relying on the product classes in the regulations. Albeit, that analysis relied on DOE's reasoning for creating separate product classes. But EPA need not re-litigate an issue DOE has already decided. It seems particularly odd and unnecessary for EPA to do so when DOE is its partner in administering the ENERGY STAR program.

As we have commented numerous times, DOE, through its lengthy, thorough, and long-existing rulemaking process for appliance efficiency standards, has established separate product classes and standards for good reasons. And DOE's regulations implement Congressional intent. DOE's standards are, and should be, the foundation for the ENERGY STAR program. EPA cannot use an approach that would vary from the approach DOE takes to regulating covered products. To do so ignores the extensive analysis DOE has done to formulate standards for those

products which includes a careful balancing of energy savings, consumer choice, product functionality, and manufacturer burden per the National Appliance Energy Conservation Act of 1987 (NAECA).

Despite our concerns with how the decision was reached, we fully support EPA's proposal to create separate product classes for top- and front-loading clothes washers in the ENERGY STAR specification.

ii. *Clothes Washers Less Than 2.5 Cubic Feet*

EPA proposed a separate product class for clothes washers between 1.6 and 2.5 cubic feet.

As discussed above in Section III.C.i, EPA must rely on DOE's product class determinations. DOE has not identified a separate product class for units between 1.6 and 2.5 cubic feet. It is, therefore, not appropriate for EPA to identify a separate product class. AHAM also continues to believe that the ENERGY STAR program should not be used to push products from the market. Based on EPA's analysis it seems, however, that that could be the effect of applying the levels EPA proposes for units larger than 2.5 cubic feet to units between 1.6 and 2.5 cubic feet. It is challenging to reconcile these two overarching principles. But AHAM believes that the best approach for EPA to take is not to identify a separate product class for units between 1.6 and 2.5 cubic feet, but rather to set levels for front loading clothes washers that allow these smaller units to qualify. EPA must evaluate its qualification criteria with regard to all products in a particular class. We believe that if EPA does that, it can set criteria that will allow some units 2.5 cubic feet and smaller to qualify for the ENERGY STAR. AHAM cannot comment on what those levels should be, but suggests that EPA discuss appropriate qualification levels with manufacturers. This is the best approach to balance driving the market toward more efficient products with certainty and consistency for ENERGY STAR partners who are regulated by DOE.

D. Supporting Data

In support of its proposed eligibility criteria, EPA provided stakeholders with access to its underlying data, including a payback analysis. AHAM thanks EPA for providing that data as it added significantly to our evaluation and understanding of EPA's proposals. We appreciate this increased transparency and look forward to EPA continuing to make this type of data available to stakeholders.

AHAM understands that EPA does not follow the same approach to payback analysis as DOE, i.e., does not look at future pricing projections because EPA does not always have that type of information available to it. AHAM appreciates that EPA is working with fewer resources in the context of ENERGY STAR specification development. Accordingly, we understand that it may not always be feasible for EPA to conduct the same analysis DOE would in a full rulemaking process. But EPA can, and should, rely on the data DOE has developed and presented in its extensive rulemaking analyses when that data is still recent enough to be relevant to EPA's analysis, as is the case in this situation.

After reviewing DOE's final rule for clothes washer standards, it does seem that EPA's payback analysis for top loading clothes washers is consistent with DOE's findings. But EPA's front-loading estimate seems to be too short. The Draft 2 proposed levels are between Trial Standard Level (TSL) 4 and TSL 5 in DOE's final rule. For TSL 4, DOE found a payback of 9.2 years and, for TSL 5, DOE found a payback period of 5.2 years. Both of these exceed the 0-3 years EPA estimated. Perhaps EPA could talk to DOE about this analysis. It could be that things have changed sufficiently since DOE did its analysis—for example, different products might be available now at different price points than when DOE did its analysis. But EPA should seek to understand the reason for the difference and either update its analysis (with explanation to stakeholders) or inform stakeholders of the reason.

E. Reporting Requirements for Cleaning and Rinsing Performance

EPA indicated that it is planning to consider minimum cleaning and rinse performance requirements in a future clothes washer specification. To support that initiative, DOE has initiated test procedure development and EPA is proposing a reporting requirement for Version 7.0. EPA does not plan to consider minimum cleaning and rinse performance requirements for the Version 7.0 specification. EPA welcomed comment on the proposed reporting requirement.

AHAM agrees with EPA that it is important for performance to be maintained as efficiency requirements become more stringent. AHAM also agrees with EPA that cleaning and rinsing performance thresholds need not be required in the Version 7.0 specification—there is nothing to indicate that, at this time, performance will be a concern at the levels EPA has proposed.

Manufacturers themselves have the most interest in ensuring that consumers receive superior performance regardless of the energy and water efficiency of the product. Accordingly, AHAM has been at work since 2011 developing a test procedure that would provide information to consumers regarding the quantity of clothes that can be effectively washed and rinsed in a single load (i.e., a capacity measure). This is a complex test procedure development process that requires significant investigation into consumer-relevant washing and rinsing performance characteristics. To ensure the capacity measure would add consumer value, the AHAM task force developing the procedure has already considered several metrics that could be relevant when determining the capacity of a clothes washer and has agreed to four: cleaning, rinsing, gentleness, and cycle time. The first three were selected because they represent the primary functions of a clothes washer and the fourth was selected to maintain consumer relevance. AHAM is about to undertake testing to quantify the overall performance of a sample of clothes washer models currently on the market in order to develop data on consumer expectations for current units based on actual performance. This information should inform judgments about performance that meets the majority of consumers' expectations.

The goal of this effort is to intimately tie performance and energy/water efficiency together in a way that cannot be done with the test procedures as they currently exist in the U.S. As we discuss more fully below, AHAM opposes the Preliminary Approach DOE proposed because it does not sufficiently link cleaning and rinsing performance with energy and water efficiency. Because of that, it opens the door for circumvention. The test procedure AHAM is working on developing, however, would not suffer from the same issues and could, therefore, be a better

method for ensuring cleaning performance is not sacrificed as energy and water levels become more stringent. Moreover, EPA has not provided sufficient justification of the need for government specification of cleaning and rinsing performance.

Accordingly, DOE and EPA should stop development of a test procedure like the one proposed in the Preliminary Approach and, instead, permit AHAM's task force to complete its work, which we expect to complete in a year's time. Given the work that DOE would need to do to further develop the Preliminary Approach, DOE's process would likely take the same amount of time, if not longer. (Note that the dishwasher cleanability test procedure has been in development for several years and, in comparison to a clothes washer test procedure to measure cleaning and rinsing performance, the dishwasher procedure was "simple.") There is no need for DOE and EPA to be duplicating efforts industry has already begun. We would be glad to meet with DOE and EPA to further explain the status and details of the procedure we are developing. Furthermore, we would be glad to share the draft procedure, at relevant points, with DOE and receive DOE's feedback. Then, once the AHAM capacity test procedure is complete, further discussion could be had about the best way to address performance at more stringent energy and water levels.

F. Significant Digits and Rounding

EPA proposed in section 3.D that all "calculations shall be carried out as specified in Appendix J1 to Subpart B of Part 430 or Appendix J2 Subpart B of Part 430, and 10 C.F.R. Part 430.23(j)." It seems that this section should only cite Appendix J2. AHAM assumes this is just a typo stemming from Draft 1's reliance on Appendix J1, and that the reference to J1 need only be deleted.

IV. Connected Criteria

Although Section 4 of the Draft 2, Version 7.0 ENERGY STAR Product Specification for Clothes Washers does incorporate the majority of the connected language from the most recent Refrigerator/Freezer ENERGY STAR Specification, there are some differences which are addressed here.

A. Section 4.F.1

EPA proposed to add additional operational/demand response reporting in Section 4.F.1 "Operational Status, User Settings and Messages" above that specified for refrigerators and freezers. This change has been proposed to ensure those entities authorized to send demand response signals are able to assess the order of magnitude of dispatch-able clothes washer load prior to signaling.

AHAM agrees there is a need for utilities to be able to determine the load available for demand response; however the specification is not clear on what level of detail would be required to be provided by manufacturers for operational status. For example, if unit is in delay start mode, would utilities require information on "time left" or other parameters? AHAM requests

clarification of this section in the specification to ensure no adverse potential impacts to the product connectivity.

B. Section 4.G.2

EPA proposed that a connected clothes washer must have minimum capabilities to earn a 5 percent allowance toward the energy performance level required to meet the ENERGY STAR specification. Section 4.G.2 specifies the minimum capability for temporary appliance load reduction as follows:

2) *Temporary Appliance Load Reduction Capability:* The capability of the product to respond to a signal by providing load reduction for a short time period, typically 10 minutes. Upon receipt of signal and in accordance with consumer settings, except as permitted below, the product shall restrict its average power draw during the load reduction period to no more than 50% relative to average power draw during this period in the operating cycle under DOE test conditions.

AHAM requests EPA remove "during this time period" in Section 4.G.2 to provide clarification that the product will reduce its average power draw by 50% over any 10 minute period (although utilities may request a shorter time period) when compared to the DOE test condition baseline. AHAM will provide more detail on this issue when we present DOE with a proposed test procedure.

V. Test Requirements

EPA and DOE updated the test procedure reference in Table 5 to reference Appendix J2. Because all residential clothes washers will need to be tested and certified using Appendix J2 as of the effective date of this specification, AHAM fully supports that updated reference.

DOE stated that it plans to develop a test method to validate the demand response capabilities of residential clothes washers that will be referenced in the Version 7.0 specification. As with refrigerator/freezers, room air conditioners, and clothes dryers, AHAM is drafting a procedure that it plans to present to DOE. AHAM will provide DOE with an update as to the progress of a proposed test procedure in the coming weeks.

VI. Effective Date

EPA proposed that the Version 7.0 ENERGY STAR clothes washer specification take effect on March 7, 2015. AHAM strongly supports that effective date which is aligned with the date the revised Federal standards for residential clothes washers become effective. That will serve to mitigate burden on manufacturers and reduce confusion for consumers due to the transition from the old to new standards. We thank DOE for taking into account the complex regulatory agenda facing these products when determining the effective date.

VII. Preliminary Approach

DOE sought comment on its Preliminary Approach test procedure which incorporates AHAM HLW-1-2010 (HLW-1), both the cleaning procedure and Annex E, the rinsing procedure, and specifies using wash and rinse settings consistent with those that would be tested under Appendix J2. Under the Preliminary Approach, the energy and water test (Appendix J2) and the cleaning and rinsing test (HLW-1) would be conducted separately. But the cleaning and rinsing test would use wash and rinse settings consistent with those that would be tested in Appendix J2. DOE acknowledges that there are several issues regarding integration of HLW-1 and Appendix J2 into a performance test procedure for purposes of the ENERGY STAR program and seeks comment on those issues.

AHAM strongly opposes the test procedure DOE outlined in the Preliminary Approach which would require two tests to determine energy/water and cleaning/rinsing. Although we certainly appreciate that DOE has done everything possible to try and link energy and water and performance using existing test procedures, we still do not think the Preliminary Approach is viable for a number of reasons. First, because one test requires detergent and the other does not, it will be very easy to accomplish circumvention under this proposed approach. In addition, requiring two separate tests will significantly increase the test burden on manufacturers—the clothes washer test procedure already places a large burden on manufacturers in terms of testing time. Furthermore, AHAM believes that, without including the mechanical action criteria (gentleness), the test procedure will result in only a partial analysis that will not be consumer relevant. Unfortunately, by adding that test, the test procedure would become even more burdensome to conduct separately from the energy test. Finally, the substantive issues this approach creates (described more fully below) will take years to overcome.

AHAM is already working on a procedure that could solve many of these issues. As we discussed above, therefore, AHAM proposes that DOE stop work on the Preliminary Approach and allow AHAM to finish development of its capacity test procedure (with significant input from DOE). Once that procedure is finished, a means for assessing performance under increasingly stringent water and energy criteria can again be discussed.

AHAM's opposition to the Preliminary Approach is an overlay to each of the below comments AHAM makes in response to DOE's requests for feedback. Our responses to DOE's requests for comment also further support our opposition.

A. Overview

DOE proposed to incorporate provisions of the AHAM Rinsing Effectiveness Test (HLW-1, Annex E) into the ENERGY STAR test procedure, with minor modifications. DOE invited comment on the appropriateness of adopting a rinsing test procedure based on that procedure.

AHAM opposes adoption of the test procedure DOE outlines in the Preliminary Approach. Should DOE continue with that procedure, however, AHAM would agree that the HLW-1 rinsing effectiveness test is the best available means to measure clothes washer rinsing performance at this time. As DOE knows, AHAM is developing a revised version of that test

procedure. That work is almost complete and, when it is finished, AHAM will inform DOE. Should DOE continue with the Preliminary Approach, it should use the most recent version of the AHAM rinsing effectiveness test.

B. Definitions

In proposed section 3(B), DOE proposed a number of definitions that appear to be similar or the same as those in HLW-1. Instead of copy and paste those definitions into the test procedure, should DOE continue with the test procedure outlined in the Preliminary Approach, AHAM recommends that DOE simply cite the relevant definitions.

C. Laboratory Test Conditions

DOE proposed criteria that are consistent with Appendix J2. Should DOE continue with the test procedure outlined in the Preliminary Approach over AHAM's objection, AHAM agrees that the laboratory test conditions should be the same as those in Appendix J2 in order to link the cleaning and rinsing test results to the energy test results as much as possible.

DOE proposed to specify water hardness requirements. The absence of a water hardness requirement in the test procedure could be a significant source of variation. AHAM thus agrees that DOE should specify water hardness in the ENERGY STAR test procedure, and, on a parallel path, should promptly amend Appendix J2 so that the DOE test procedure is not improperly amended via an ENERGY STAR test procedure. Even though the two tests will not be conducted at the same time, laboratories would likely set up their laboratories to meet the ENERGY STAR test procedure requirements which would effectively change the DOE test procedure.

D. Required Instrumentation

DOE proposed that the weighing equipment shall be in accordance with HLW-1 rather than Appendix J2. DOE stated that it "believes specifying a greater accuracy for the load-weighing equipment may produce more accurate and repeatable results for washing and rinsing performance testing." DOE invited stakeholder comments.

AHAM agrees that specifying greater accuracy may produce more accurate and repeatable results. But, should DOE change the accuracy requirement in the ENERGY STAR test procedure, it should also propose similar requirements in Appendix J2 so that the DOE test procedure is not improperly amended by an ENERGY STAR test procedure. Even though the two tests will not be conducted at the same time, laboratories would likely set up their laboratories to meet the ENERGY STAR test procedure requirements which would effectively change the DOE test procedure's requirements as well.

E. Test Materials

DOE invited comments from stakeholders regarding whether the proposed test procedure should require using HLW-1 base load (and stuffer load) materials or Appendix J2 test cloth for the base load (and stuffer load) composition. In addition to general comments, DOE requested comments on eight specific questions. AHAM's responses are provided below and lead AHAM to the conclusion that, should DOE continue to develop a test procedure as outlined in the Preliminary Approach over AHAM's objection, DOE should use the HLW-1 test cloth. This does create concerns regarding the link between energy/water testing and cleaning/rinse performance. But too much further development and potential changes to HLW-1 would be required to use the DOE energy test cloth instead of the base load (and stuffer load) specified in HLW-1.

1. The appropriate amount of detergent to use if DOE test clothes are required.

This would require further study. As DOE knows, detergent is not used during the Appendix J2 test procedure except during conditioning. Thus, we do not have data on the appropriate amount of detergent. It is possible that the amount of detergent could be the same as that used for preconditioning or that the amount would not need to change from that used in HLW-1. But testing would need to be done to make a determination.

2. Whether and what weighted-average age requirements should be applied to base loads consisting of DOE test cloths.

This would require further study.

3. The impact of test substrate choice on performance test results for soil/stain removal and rinsing effectiveness, including effects of fabric type and size and shape of base load articles.

This too would require considerable and, likely, long-term study.

4. Whether the presence of synthetic material in the base load would necessitate differences in test methodology.

This would require further study.

5. Energy test cloth supply issues if the test substrate is DOE energy test cloths.

Energy test cloth supply issues are already a concern and, thus, increasing the amount of test cloth that would need to be obtained would be a significant concern. As difficulty in obtaining test cloth increases, so does test burden. In addition, only a small number of entities can correlate the test cloth lots. Accordingly, if there were to be increased test cloth lot changes, the burden and cost would significantly increase for those entities.

6. Relative differences in testing cost and burden between using AHAM base load material or DOE energy test cloth.

Given the test cloth supply issues and burden associated with those issues, it is unclear which test cloth would present a higher cost and burden.

7. Key attributes of folding, loading, and test strip attachment that would govern the development of new folding, loading, and test strip attachment procedures applicable to DOE energy test cloths.

HLW-1 provides specific instructions for folding, loading, and test strip attachment. The same criteria would need to be evaluated for the DOE energy test cloths, which would require testing.

8. Any factors that would preclude eliminating mechanical action test swatches from the base load.

As AHAM commented above, the mechanical action part of the test should not be removed. Doing so makes the test results less meaningful—mechanical action is a key measure and a counterbalance to cleaning and rinse performance requirements. Accordingly, the mechanical action test swatches should not be eliminated.

F. Pre-Test Preparation

DOE proposed that the base load size shall be the "average" load size for adaptive-fill clothes washers and the "maximum" load size for manual-fill clothes washers. These load sizes represent the load sizes with the highest consumer usage factors in Appendix J2. DOE invited comment on the appropriateness of using the "average" or "maximum" load sizes for measuring cleaning and rinse performance. AHAM is studying this very issue in its development of a capacity measurement test procedure. This is yet another reason for DOE to cease its work on the Preliminary Approach until AHAM's test procedure is completed.

DOE proposed that if DOE energy test cloth is used for the base load, new base load determination requirements would need to be developed. This is another reason that, if DOE proceeds with the test procedure outlined in the Preliminary Approach, it should use the HLW-1 test cloth.

With regard to calibration, DOE invited stakeholder input on whether using the supplier's calibration data for each lot of soil/stain test strips would be appropriate for this test procedure, or whether the test procedure should require that each laboratory measure its own calibration data for each lot of soil/stain strips.

AHAM believes that the current method of using the supplier's calibration data is the best method. It would significantly increase test burden for each laboratory to measure its own calibration data.

G. Test Cycles

DOE proposed that the test procedure be separately performed on the cold wash/cold rinse and warm wash/warm rinse cycles of the DOE energy test cycle, as defined in Appendix J2. DOE invited stakeholder comment on whether including only those cycles in the test represents an appropriate tradeoff between minimizing test burden and maintaining test conditions that are representative of those in Appendix J2.

AHAM appreciates that DOE is considering test burden. AHAM is also studying this issue as we develop our capacity measurement test procedure. Accordingly, this is another reason DOE should wait for AHAM to complete that test procedure development.

H. Replications

DOE proposed that three replications of the test required for each wash and rinse temperature combination be performed. This is consistent with HLW-1's requirements.

I. Measuring Washing Performance

DOE noted that Appendix J2 does not specify the position or placement of energy test cloths into the unit under test. DOE stated that, if DOE test cloths are used in the ENERGY STAR test procedure, DOE would conduct extensive testing to develop folding and loading requirements that would produce repeatable and reproducible test results.

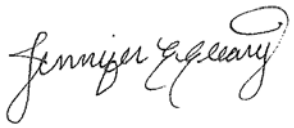
First, the need to develop folding and loading requirements for the DOE test cloth is yet another reason why, should DOE continue with the procedure outlined in the Preliminary Approach, it should use the HLW-1 test cloth instead of the DOE test cloth. Second, AHAM has previously raised concerns regarding test cloth loading for the energy test—the loading pattern can create a source of variability. Accordingly, we request that DOE address this issue in Appendix J2. AHAM would be glad to work together with DOE on this issue as it relates to the energy test.

J. Measuring Rinsing Performance

DOE requested information regarding the methods stakeholders have used to perform both the soil/stain removal and rinsing effectiveness tests in a single test cycle, using the same set of soil/stain strips, rather than in two separate test cycles with two sets of soil/stain strips. AHAM does not believe it is possible to perform both tests in a single test cycle. During HLW-1's development, we considered that approach, but determined it was not workable.

AHAM appreciates the opportunity to submit comments on the ENERGY STAR Draft 2, Version 7.0 Clothes Washer Specification and the Preliminary Approach and would be glad to further discuss these matters should you so request.

Best Regards,



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