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October 19, 2011

Via E-Mail

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

Re: ENERGY STAR Residential Dishwasher Cleanability Test Procedure Webinar

Dear Ms. Stevens:

On behalf of the Association of Home Appliance Manufacturers (AHAM), I would like to provide our comments on the ENERGY STAR Residential Dishwasher Cleanability Test Procedure Webinar which was held on September 19, 2011.

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 EPA and the Department of Energy (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 is pleased to see that DOE has taken the lead in developing the test procedure for cleanability, and hopes it will continue to do so, as it should under the ENERGY STAR Memorandum of Understanding dated September 30, 2009. AHAM urges DOE and EPA to ensure that any cleanability measure is linked to energy—in other words, the cleanability test procedure DOE develops for ENERGY STAR should be scored per the identical test load used to capture energy and water use under the DOE test procedure. In addition, it is critical in the current environment of increased third party testing and enforcement that the cleanability test procedure be repeatable and reproducible. Otherwise, there will be numerous cases of findings of false noncompliance and uncertainty for manufacturers and consumers.

I. Test Goals

DOE and EPA stated that the main test goals were to:

1. Determine which test method provides repeatable results with cleaning differentiation at the lowest test burden; and
2. Experiment with test method and scoring combinations and modifications to increase repeatability, increase differentiation, and reduce test burden. (Webinar Presentation, at 10).

AHAM strongly urges DOE and EPA to add (as perhaps the most important goal) that energy and performance be linked—the same test procedure should be used to measure both energy and water use and performance (cleanability). Accordingly, due to the current schedule to complete a performance test procedure, DOE's test procedure should be used as the base. This will not only minimize burden on manufacturers, but, more importantly, it will best communicate performance to consumers because it will communicate the performance achieved at the energy level claimed. At the end of the webinar, it seemed that EPA and DOE were favoring, along with several stakeholders, an approach that would measure performance based on the four, two, and one-half place setting soiled load provided for in the current DOE test procedure. AHAM supports that approach which would score cleanability of a test load at the end of a currently performed DOE energy test.

AHAM agrees that the cleanability test procedure must be repeatable. It must also be reproducible. Repeatability and reproducibility are especially difficult to achieve with a cleanability test procedure, such as the ones being examined here, that involves subjective scoring. A particular challenge, at least with ANSI/AHAM DW-1, is the scoring of the glasses. Sometimes it can be difficult to differentiate a scratch on a glass from a soil, for example. Furthermore, it can be challenging to know when new glassware should be used and the old glassware retired. A similar problem, without prescribed time limits for grading each dish or glass, different graders might get different results—the longer an item is examined, the more the grader might see. Challenges such as this need to be overcome in whichever test procedure DOE and EPA adopt for ENERGY STAR—it is critical that, with increasing third party and enforcement testing, the test procedure be repeatable and reproducible. Too much variation could result in false findings of noncompliance. One way to address some of these issues is through uniform training materials on soiling, grading, and reading use and care guides. AHAM and its members would be glad to work with DOE to develop these materials, perhaps including a guidance video to capture critical test procedure elements, and to train technicians.

Also in order to address reproducibility, a round robin test is likely needed. AHAM urges DOE to organize and oversee such testing once it has developed a cleanability test procedure. Similarly, in order to address confusion from myriad and inconsistent test procedure interpretations and practices emanating from the multiple parties now conducting testing (including DOE, EPA, its consultants, and multiple third party and other laboratories), AHAM urged, and we appreciate that DOE agreed to host, a correlation workshop to minimize variation in the interpretation of test procedures, including DOE's residential dishwasher test procedure. We look forward to that workshop and believe it is critical given the current climate of increased

enforcement and third party testing, particularly by multiple sources. Further work on the ENERGY STAR cleanability test procedure should only continue after this workshop as several of the issues DOE's consultants raised during the workshop would be addressed and could have a significant impact on the outcome of the testing (e.g., which detergent to use).

II. Test Procedure

A. Changes Were Made to the Test Procedures.

From the webinar presentation of the methods used to conduct the test procedure, it is evident that none of the tests (DOE, AHAM DW-1, IEC) were done according to the exact specifications of the relevant test procedure. For example:

1. The proper reference machine was not used for the IEC test procedure;
2. The proper food load for the IEC test procedure was not (and could not) be used and there did not seem to be a study of replacement soils to determine which soils would best replace the specified food loads and the effect the replacements would have on the test;
3. For the DOE test procedure, the current AHAM DW-1-2009 soil load was used instead of the AHAM DW-1-1992 soil load specified in the current DOE test procedure. Furthermore, soil substitutions were made for unavailable items without an assessment as to the effect the replacements would have on the test;
4. The same ambient conditions were used for all tests regardless of what the test procedure specified;
5. An alternate food soil application was used for DW-1 in some cases; and
6. The filter was cleaned for the DOE test procedure even though filter cleaning is not specified in the DOE test procedure.

These changes to the various test procedures are not minor or inconsequential. Any change to an established test procedure will change the results, and thus changes cannot be made at will or without attention being paid to the effect of the change on the results. For example, it is critical that preparation of food soils be done according to the specific test procedure being used. In addition, the food itself must be the same as required by the test procedure. The changes DOE and its consultants made to the test procedures give AHAM little confidence in the results and prevent us from drawing conclusions from those results. Furthermore, because the test procedures were changed, it is impossible for manufacturers to compare the results with results they may have experienced in their own laboratories. In addition, the comparison of the results DOE and EPA presented may not be meaningful given that all of the test procedures were changed substantially. From the webinar presentation, variation across cleanability test results appeared substantial.

Particularly troubling were changes made to the DOE soiling. As mentioned above, the current AHAM DW-1-2009 soil load was used for the DOE tests instead of the AHAM DW-1-1992 soil load, which is called for in the currently effective DOE test procedure. The soil load significantly impacts the test results. Furthermore, there are substantial differences between the 1992 and 2009 soil loads. For example, the 1992 version of the test procedure uses cooked egg yolks, whereas the 2009 version uses raw egg yolks. In addition, the order that the food soils are

placed on the dishes is different in the two versions. In order for energy and performance to be linked, the DOE test procedure must be used as the basis for the test. Changing the soil load adds significant burden. It would require manufacturers to do energy testing with one soil load and then to re-do the testing for performance purposes because a different soil load is required. Thus, DOE should use the soil load as specified in its test procedure. And if the 1992 soil load is not what DOE wants to use, it should update its test procedure to reference the most current version of AHAM DW-1, which is ANSI/AHAM DW-1-2009.

B. The Alternate AHAM Soil Application Is Problematic

There were also changes made to the AHAM DW-1 food soil application. A single soil was applied on each dinner plate, instead of one soil on each quadrant of the plate. A single soil was also applied on each bread-and-butter plate instead of one soil on each half. AHAM opposes the alternate soil application.

There was specific rationale for the soil application patterns used in AHAM DW-1. As mentioned above, preparation of food soils must be done according to the applicable test procedure and the food itself must also be exactly what the test procedure requires. The changes DOE's consultants made to the AHAM food soil application introduces variation. Wash performance is different depending on where the dish is placed in the dishwasher, and the grid and half soiling patterns in DW-1 are meant to mimic the different placements in a machine, and thus, minimize that variation. Changes in the soil application also could require changes to the specified drying times. In short, changing the food soil application changes the entire test procedure.

C. Insufficient Data Was Presented

The data presented during the webinar is insufficient from which to draw results. There is not enough data for manufacturers to effectively evaluate if any variation that occurred was the result of the procedure itself or other factors. Additional data that would be useful includes the water and energy usage, the cycle path, the wash temperatures, among other detailed data. That data could help determine why variation might occur.

III. Scoring

AHAM continues to believe that it is problematic to mix and match tests and scoring techniques. The same is true for combining scoring techniques and applying a combined scoring method to a different test. Both of DOE's initial recommendations—1) DOE sensor extra-heavy response tests with IEC scoring; or 2) AHAM tests with IEC scoring—present the issue of applying a scoring procedure to results obtained through a different test. That being said, AHAM believes that it is of utmost importance to ensure that cleanability is scored based on the identical test load used to capture energy and water use under the DOE test procedure. And the best way to do that is to use the DOE test procedure as the base for the ENERGY STAR performance test. Because the DOE test procedure does not have an associated performance scoring procedure, it may be acceptable to apply another scoring technique, such as that used in AHAM DW-1 for example.

Technicians in the United States have the most experience scoring using AHAM DW-1, and so that may be the best scoring procedure to use.

DOE mentioned potential use of a measurement tool and showed an example of a hand drawn AHAM and IEC scoring template it used for initial testing. AHAM does not oppose the use of a scoring tool, but it needs to be precise. It should not be hand drawn—instead it should be exact, clearly labeled, and calibrated. The tool could be as simple as a ruler, for example. Furthermore, every laboratory conducting the test would need to use such a tool in the future.

The most critical part of scoring is that multiple graders must be able to do the grading in the same way—that is the only way to achieve repeatability and/or reproducibility. From DOE and EPA’s presentation, we did not see evidence that its graders were able to achieve consistent results. We urge DOE to ensure that multiple graders can achieve consistent results before proceeding with a performance test procedure. This is particularly critical in the current environment of third party testing by multiple laboratories.

IV. Other

During the webinar, DOE and EPA sought comment on how many cleanability tests to run and on how many machines. Because AHAM believes that energy and cleanability must be evaluated during the same test, we suggest running the same number of tests that are required for the DOE energy test procedure (i.e., test a minimum of two machines, with one test on each machine). Each energy test for each test dishwasher (four, two, and one-half place settings) should be scored for cleaning performance. It is unnecessary to run additional tests.

AHAM appreciates the opportunity to submit comments on the ENERGY STAR Residential Dishwasher Cleanability Test Procedure Webinar, and would be glad to further discuss these matters.

Best Regards,

A handwritten signature in black ink, reading "Jennifer Cleary". The signature is fluid and cursive, with the first name and last name clearly distinguishable.

Jennifer Cleary
Director, Regulatory Affairs