

**ENERGY STAR Commercial Dishwasher Industry Stakeholder Meeting
National Restaurant Association Show, Chicago, IL
May 22, 2006**

Meeting Notes

Over 30 commercial dishwasher manufacturers and other industry stakeholders convened to discuss the Draft 1 ENERGY STAR Commercial Dishwashers Specification Version 1.0 at the NRA Show in Chicago, IL on May 22, 2006. Please refer to the Final Attendee List for the names of those who participated in the meeting. The attendee list and meeting presentations can be downloaded from the ENERGY STAR commercial dishwasher specification revision Web page at: www.energystar.gov/productdevelopment. Click on "New Product Specifications in Development" on the right navigation bar.

Provided below is a summary of the slides that were presented and the discussions that took place during the meeting. For ease in reviewing these notes, EPA has divided and grouped discussions according to topic. Where EPA was able to address stakeholder comments and/or questions during the meeting, these responses are provided within the notes below. EPA is continuing to research all comments and concerns that were raised during the meeting.

If you have any questions or comments on these notes please send them to Rachel Schmeltz, EPA, at schmeltz.rachel@epa.gov or Rebecca Duff, ICF International, at rduff@icfi.com.

ENERGY STAR 101
Rachel Schmeltz, EPA

Because the commercial dishwasher specification is a new specification and stakeholders have varying degrees of familiarity with the ENERGY STAR program, Rachel Schmeltz provided a general overview of ENERGY STAR's product labeling program that covered each of the following topics:

- how product labeling fits into the larger context of the program;
- the program's general goals;
- a brief synopsis of the history and current standing of the program;
- the specification development process;
- the guiding principles of the program;
- the steps to become a partner once a specification is developed; and
- the partner commitments once a manufacturer becomes a partner.

The last part of Mrs. Schmeltz's presentation explained the rationale behind pursuing an ENERGY STAR specification for commercial dishwashers, including analysis of the energy and cost savings potential offered by more energy and water efficient commercial dishwashers. She concluded by explaining how commercial dishwashers tie into EPA's efforts to improve commercial kitchen efficiency as a whole.

Consortium for Energy Efficiency's Commercial Kitchens Initiative
Ted Jones, CEE

Ted Jones delivered a presentation outlining the Consortium for Energy Efficiency's Commercial Kitchens Initiative and CEE's interest in an ENERGY STAR specification. The presentation

covered the following topics:

- CEE's membership and mission;
- why CEE is an enthusiastic supporter of the ENERGY STAR program;
- how CEE uses ENERGY STAR to market energy efficient products;
- why CEE has pursued commercial kitchen efficiency;
- the commercial kitchen specifications CEE has developed thus far; and
- how CEE and ENERGY STAR can collaborate on a commercial dishwashers specification.

Walk Through of Draft 1 Commercial Dishwasher Specification

Rachel Schmeltz, EPA

David Zabrowski, Fisher Nickel, Inc.

To conclude the presentations, Rachel Schmeltz walked stakeholders through the Draft 1 ENERGY STAR Commercial Dishwashers Specification Version 1.0. Currently, the specification includes single tank machines only in the following six categories:

- Door type high temperature sanitizing
- Door type chemical sanitizing
- Conveyor high temperature sanitizing
- Conveyor chemical sanitizing
- Under Counter high temperature sanitizing
- Under Counter chemical sanitizing

The specification levels in the draft 1 specification are set based on water consumption in gallons per rack, using water as a proxy for the energy consumption for products in these categories. EPA acknowledges that this is not a perfect measurement; however, within categories, water efficiency should serve as a fairly good indicator of energy efficiency.

With limited data and test procedures to measure energy consumption directly, water consumption can be used for the initial ENERGY STAR specification with the intent of measuring energy directly in the future once the data and test procedures are available.

The vast majority of discussion at the meeting occurred during this presentation, and the discussions are sorted below by topic in the order they were presented.

1) Definitions/Product Categories

General Comments:

- EPA should have different specification levels for door type chemical “dump and fill” or “batch type” machines as opposed to “holding type” machines. These machines serve different purposes and the current specification level is likely too low for any dump and fill machines to meet, as their best water efficiency is approximately 1.20 gallons per rack, and too high to encourage holding type machines to be more efficient. Dump and fills generally consume less energy but more water than holding type machines.
- EPA should also include multi-tank, flight type, glassware, multiple rack door type, and pot and pan commercial dishwashers to have consistency within the commercial dishwasher field. If a specification is not available for a certain type of machine, that machine may be incorrectly assumed to be inefficient simply due to its lack of the label. Each of these additional categories should have their own specification level as they serve functions different from the other categories.

- Note: Multi-tank conveyor machines have the same test procedure as single-tank conveyor machines.
- High temperature (must get up to 180° F to meet NSF requirements) and low temperature machines (generally 120-140° F) have different applications. High temp machines are typically used for glassware and low soil dishes because the water is recycled.

EPA Response: EPA will conduct additional analysis to determine the differences between dump and fill and holding type machines with the intent of developing separate specification levels. EPA is also willing to entertain adding other product categories to the specification as long as the number of models and differentiation in energy and water consumption within each category are high enough to result in significant energy and water saving potential. As stakeholders have noted that this is the case for glassware washers, EPA will consider adding this category.

Any information manufacturers can provide on models and energy and water consumption for the other categories not addressed in the current draft specification would be helpful. Also, if EPA does elect to add these product categories, manufacturers will be contacted directly and asked to review the NSF listings to identify these products as they are often ambiguously classified.

2) Test Methods/Energy-Efficiency Specifications

General Comments:

- Water is a fairly good proxy for energy consumption within categories but not between categories.
- Water heating represents 70-75% of the energy consumption for a commercial dishwasher.
- Measuring water consumption directly presents an opportunity for incentives programs supported by water utilities.

Stakeholder Comment: The NSF test allows water consumption testing at the minimum operating temperature.

Stakeholder Comment: If the nameplate of the machine says it will wash at 120° F then the test should be conducted at this temperature.

Question to Stakeholders: Should ENERGY STAR overlay a temperature requirement for the NSF test to ensure that water consumption in the NSF test represents field conditions?

Stakeholder Response: NSF test can be conducted with unheated water, but this is irrelevant as one aspect of the test measures water consumption and the other measures cleaning capability through the buttermilk test. The water consumption will remain identical whether the water is heated or not as it is based on the calibration of the machine.

Stakeholder Response: Temperature of the water makes very little difference in consumption. I have done the testing for this. The temperature of the water will be a non-factor in the total consumption.

EPA Response: It does not seem that a temperature requirement needs to be included.

Stakeholder Question: Is the NSF listing of water consumption a good indirect measurement of energy consumption?

EPA Response: Although it is not ideal, the NSF test's water consumption data does do a fairly good job of measuring energy consumption. In an ideal world, energy consumption data would be available, but for now using water efficiency seems a reasonable first step. This would allow for manufacturers to qualify ENERGY STAR products while also helping to develop the test procedures and data to directly measure energy consumption. Otherwise, manufacturers would have to wait for the procedures to be developed, testing to be conducted, and a database amassed from which a spec could be drawn before being able to join ENERGY STAR.

Stakeholder Response: Manufacturers will have all of their products meet a specification based on NSF within 6 months. The NSF procedure does not have a sufficient quality or sanitation assurance, and manufacturers will be able to reduce their rinse water consumption for the purposes of the test. Currently, manufacturers have lowered water consumption significantly but are pushing the upper limits of what is possible. A specification based on water consumption from the NSF test will create an incentive for partners to sacrifice quality in order to attain the ENERGY STAR label.

Question to Stakeholders: Is there a sufficient test of cleaning quality that can be included in the specification to ensure that quality is not sacrificed to meet the specification?

Stakeholder Comment: There is no such test currently in effect. Specifically, machines may sanitize the dishes adequately, but without sufficient rinsing, the dishes may have significant amounts of chemicals or soap remaining after exiting the machine.

Question to Stakeholders: EPA may entertain the idea of including an idle energy consumption level in a future version of the specification. For Version 1.0, this may mean requiring manufacturers to provide consumption data in order to build a data set for the future specification. What is the manufacturers' reaction to this requirement?

Stakeholder Response: If machines are allowed to idle (or sleep) at a lower energy consumption or water temperature level, this would result in having to run an empty cycle after idling just to reheat the water before running any additional dishes through the machine. This would be wasteful and would apply to all categories.

Stakeholder Question: Do the lab conditions resemble what is going on in the field? Can savings be expected to resemble the calculations based on the test procedures and are the energy savings going to be realized so that electric utilities can justify rebates? In order to justify incentive programs, especially in California, these numbers will need to carry over into field performance. Some stakeholders may be willing to fund more rigorous analysis if necessary.

EPA Response: While water efficiency will not directly coincide with energy savings, utilities can base their numbers on some conservative estimates for creating the incentives programs. As was mentioned, about 70-75% of energy use by commercial dishwashers is for heating the water, so water efficiency will track well with energy savings.

Stakeholder Question: Booster heaters can be steam, natural gas, or electric. If energy use is measured, the type of booster heater is a factor. Is there any way to include this in the specification?

Stakeholder Comment: Tank heaters are on 75% of the time.

Stakeholder Comment: Flow through style dishwashers keep water hot all the time, sometimes all day.

EPA Response: Because the current specification only measures water efficiency as a proxy for energy efficiency and is not a direct energy use metric, the type of booster heater will not be factored into the test procedure. However, booster heater energy use is something that can be explored in the future if the ASTM procedures that measure energy consumption directly become robust enough to create an ENERGY STAR specification based on direct energy consumption.

EPA Comment for Stakeholder Consideration: If enough data is gathered and ASTM test procedures are developed to directly measure energy consumption for enough of the commercial dishwasher categories, EPA will move toward a specification based on both energy consumption and water consumption. At this point, EPA would need to decide whether the NSF or ASTM test procedure be a better test for water use.

3) Effective Date

EPA Question for Stakeholder Consideration: Currently, the effective date of the specification is TBA. Without a NAFEM meeting this year, is there an appropriate trade show to use to promote the ENERGY STAR specification so that EPA may time its launch to coincide with a good marketing opportunity for the new program?

4) Other Comments

Stakeholder Comment: 475 thousand commercial dishwashers in stock and 39,000 commercial dishwasher units shipped in 2006 both seem to be higher than is actually the case.