

**ENERGY STAR Conference Call on Commercial Dishwashers
Idle Test Review and Data Collection
October 17, 2006**

Discussion Notes

The U.S. Environmental Protection Agency (EPA) held a conference call with commercial dishwasher manufacturers to address any questions or concerns with the EPA memo, ASTM test standards, and idle data collection sheet distributed to stakeholders on October 4, 2006. These documents can be found on the ENERGY STAR Web site at www.energystar.gov/productdevelopment (click on New Product Specifications in Development). Provided below are some of the key questions that were asked by participating manufacturers along with the answers provided by the ENERGY STAR team. If you have any questions please refer to the list of contacts at the end of this document.

Status of Specification Development Process and Purpose of the Call

Rachel Schmeltz of EPA, reviewed where things are in the process of developing an ENERGY STAR specification for commercial dishwashers – that electric and gas utilities need more information on direct energy consumption (not just the water consumption proxy presented in Draft 1) in order to justify basing their incentive programs off of ENERGY STAR, and therefore, EPA is asking manufacturers to test the idle energy consumption of their machines.

- The purpose of collecting idle energy consumption data is to be able to draw conclusions as to 1) whether idle energy consumption is of significant enough magnitude to include in the ENERGY STAR specification and why, and 2) if it is significant, the results will give an idea of where to set an idle level for the next draft.
- It is not a foregone conclusion that an idle energy level will be in the ENERGY STAR specification, rather EPA needs data to make an informed decision and be able to justify that decision to all stakeholders.

ASTM Test Standards F1696 and F1920

David Zabrowski, Fisher Nickel, Inc. (FNI), walked through the idle test procedures and conditions included in the ASTM Standards F1696 and F1920. ASTM F1920 should be used for conveyor-type machines while ASTM F1696 should be used for undercounter and door-type machines. EPA is encouraging manufacturers to use the ASTM idle test methods to collect data on idle energy use on the following machine types: low and high temp undercounter, door, and conveyor machines (including pot and pan machines).

- Comment: Testing should be tied to performance because the primary driver for manufacturers is dishwasher performance (sanitation, ability to clean); energy efficiency is secondary.

Answer: A performance metric for idle energy consumption will be coupled with a metric for water use, which references the NSF-3 test procedure (not the ASTM procedure for washing energy).

- Question: Ambient air temperature can impact energy consumption and specific temperature conditions should be included in the idle test procedure.

Answer: Both ASTM methods specify an ambient temperature of 75° +/- 5° during testing.

- Question: Is there a canopy hood requirement for conveyor type machines, similar to what is included in Section 9 of F1696 for door type machines?

Answer: Yes, there is a similar Section 9 in F1920 that requires either 3-ft by 6-ft canopy exhaust hood OR a connection to vent cowl exhaust ducts (specific CFM rates also provided).

- Question: Does the test procedure take into account the energy used by controls?

Answer: Right now the procedure is focused on capturing the maintenance energy, but does include the energy used by the controls during idle. EPA's intention is evaluate the energy used while the machine is in standby, waiting to be used to wash dishes.

- Question: Since the ASTM test procedures were initially written for high temperature machine models, how should manufacturers use them to test low temp machines, specifically in regards to tank and booster heater idle energy use? What if the booster heater is internal to the machine?

Answer: The test procedure was written under the assumption that the booster heater was external to the machine. Manufacturers with low temp (i.e., dump and fill) machines should report the booster heater idle energy rate. Those machines with internal booster heaters can report wash tank and booster heater idle energy rates separately or collectively. In this case it is important that manufactures indicate if the booster heater is either internal or external on the datasheet, and make a note if wash tank temperature is not maintained by that particular model.

- Question: For door type machines, many times the door is left open in the kitchen. Given this situation, does ASTM provide real world results?

Answer: Section 10.8.2 requires the machine to be tested with the door closed, allowing it to idle for at least 2 tank heater "on" cycles followed by a 3-hour idle period. This test is then followed by an open door test following the same procedures as the closed door test. This should provide more realistic results.

- Comment: Temperature swings in any one machine can be 5-20 degrees and the testing condition should match the manufacturer-specific recommendations.

Answer: Manufacturers should indicate in the idle data collection sheet the nameplate minimum tank temperature as determined by NSF Standard 3, the measured minimum tank temperature and average tank temperature during testing. The machines should be tested at the manufacturer's recommended settings, as long as the wash tank is maintained above the nameplate minimum tank temperature. The wash tank temperature must not fall below the nameplate minimum temperature at any time during the idle energy rate test.

- Question: Would EPA consider using Pacific Gas and Electric's facility to test the commercial dishwashing machines? This would allow for consistency in testing.

Answer: In an effort to make it easier for manufacturers to perform the testing EPA is allowing in-house testing. However, manufacturers are welcome to use third-party testing facilities to test their models including the Food Service Technology Center (FSTC). Manufacturers interested in using the FSTC to test are encouraged to contact David Zabrowski, FNI, at dzabrowski@fishnick.com or (925) 866-5614.

Data Collection and Analysis

Rebecca Duff, ICF International, reviewed the idle data collection sheet and explained that by collecting the gallons per rack information in addition to idle energy, EPA will easily be able to match up the new data with the existing database of models used to develop the specification levels.

- Question: What information needs to be tested and submitted to EPA regarding commercial dishwashing machines' idle energy?

Answer: Manufacturers should measure and submit (1) tank heater idle energy rate (2) booster heater idle energy rate (if applicable), (3) the nameplate minimum wash tank temperature per NSF Standard 3, (4) the measured minimum tank temperature during the test, and (5) the average tank temperature during test. The data collection sheet will be updated based on manufacturer feedback and redistributed to manufacturers.

- Question: Does EPA want manufacturers to test both electric and gas models? If so then manufacturers may need more time than the January 5, 2007 due date.

Answer: Right now manufacturers should focus on testing electric machines since they represent the majority of the market. If manufacturers have time to test gas models as well then EPA would also be interested in that data.

- Question to Consortium for Energy Efficiency (CEE): Does CEE support focusing on electric machines in the short term?

Answer: CEE supports focusing on electric machines for now and that would satisfy the utilities. However, longer term the specification should address both gas and electric since there is some interest in this product category from gas utilities.

- Question: What about other machines types, such as flight type? Does EPA want data on these machines as well?

Answer: Due to the complexity of this machine type and small market share, EPA is not evaluating flight type machines at this time.

- Question: When EPA is evaluating commercial dishwasher energy efficiency performance is there one line drawn for all product types or is it based on the different machine types?

Answer: EPA analyzed the different machine categories separately to determine the gallons per rack levels proposed in the Draft 1 specification. EPA will again consider each machine category separately (including low vs. high temp) when analyzing the idle energy data, unless the data shows otherwise.

Next Steps

Idle energy datasheets are due to EPA on January 5, 2007. Manufacturers on the call admitted that this was a tight deadline but agreed that it could be met. Once EPA has had a chance to review and analyze the data a Draft 2 specification will be released for stakeholder review and comment (targeted for the end of January). There will be a comment period of approximately four weeks after the Draft 2 document is released. EPA will then distribute a Final Draft specification based on comments received on the Draft 2 version. EPA is striving to finalize the specification and launch it at the National Restaurant Association (NRA) Show in May.

- Questions regarding the **ASTM test standards** can be directed to David Zabrowski, FNI, at dzabrowski@fishnick.com.
- Questions regarding the **ENERGY STAR data collection and/or specification development process** should be directed to Rachel Schmeltz, EPA, at schmeltz.rachel@epa.gov or Rebecca Duff, ICF International, at rduff@icfi.com.
- Questions regarding the **CEE Commercial Kitchen Initiative**, including commercial dishwashers, should be directed to Afroz Khan, CEE, at akhan@cee1.org.