

ENERGY STAR® Commercial Dishwasher Stakeholder Meeting
Orange County Convention Center – Orlando, FL
February 10, 2011

Summary of Draft 1 Version 2.0 Discussion

More than 25 commercial dishwasher manufacturers and other industry stakeholders participated in a meeting hosted by the U.S. Environmental Protection Agency (EPA) prior to the North American Association of Foodservice Equipment Manufacturers (NAFEM) Show. The purpose of the meeting was to review the Draft 1 Version 2.0 specification released on January 4, 2011 and discuss comments received from stakeholders on the proposal.

Provided below is a summary of the discussion and next steps for preparing the next Draft 2 version. For more information visit www.energystar.gov/revisedspecs and click on Commercial Dishwashers.

Revisions to Existing Product Category Performance Requirements

New performance levels and supporting data plots were presented to attendees for under counter, single tank door type, single tank conveyor, and multi-tank conveyor machine types. The Draft 1 proposal is supported by a data set that includes models from both the ENERGY STAR Qualified Product List and NSF Certified Products Directory. Idle energy rate levels were not changed for low temp under counter and door type machines due to limited data sets that appear to be skewed toward units without a tank maintenance heater. EPA also chose not to revise the water consumption requirements for conveyors due to the fact that the existing ENERGY STAR level continues to provide effective differentiation in the marketplace and significant savings to the end user.

Stakeholder comments:

- Some dump and fill machines also have a tank maintenance heater so units that show an idle energy rate may actually represent this design, as opposed to assuming recirculation.
- EPA might consider setting different performance levels for single tank door type based on fill and dump and re-circulating designs.
- ENERGY STAR Response: The low temp data set is already quite limited and these machine types compete against one another in the marketplace so it would be difficult to justify separate levels simply based on design.

EPA is considering developing separate performance levels for pot/pan/utensil performance data due to the fact that these are different applications and inherently more consumptive than traditional door type machines. These machine types are more customized in design and offer a variety of rack sizes to the end user. EPA presented two data plots analyzing pot/pan/utensil machines based on a normalized GPR and gallons per square foot of rack.

Stakeholder comments:

- Energy consumption is related to the volume of the wash chamber so EPA should take this into account when determining levels. Specifically, the taller the chamber the more distance between the wash/rinse arms and the pots, increasing heat loss that needs to be compensated in increased hot water use to meet the minimum HUE level.
- Question: How are pot/pan/utensil machines currently tested under NSF 3?
- During the soil removal test, the test engineer fills the rack as much as possible with the largest stock pot that can fit, filling the corners with hotel pans all coated with baked on pie media. Following the wash cycle it is visually inspected for soil removal.
- Cabinet height can vary up to 3 times in pot/pan/utensil machines.
- EPA needs to make sure that there is correlation between water and energy when determining levels.
- There are some dual rated machines (standard door type and pot/pan/utensil machines), how will EPA address these designs?

- EPA Response: Similar to machines rated at high and low temp, it makes sense to also require that dual door type and pot/pan/utensil machines also need to meet both requirements to qualify as ENERGY STAR.
- EPA should determine what is driving the water consumption in pot/pan/utensil machines. For example, plot water consumption against rack size. This might unveil an appropriate metric for this machine type.
- Question: Will pot/pan/utensil machines have a similar idle energy level (i.e., tank maintenance heater) as standard door type machines?
- Pot/pan/utensil machines use larger pumps, run longer cycles, include a larger tank surface area and heating elements so dedicated machines will inherently consume more energy in idle mode.
- EPA should send out a request for idle energy data on these machine types.
- Question: Is EPA taking into account legacy data that might be skewing the data set? Manufacturers continue to list machines no longer available for sale since these machines continue to be out in the field.
- ENERGY STAR Response: EPA recognizes that there may be some models listed that are no longer available but there is no way to track this through the NSF Directory. ENERGY STAR partners are required to tell EPA when a qualified model is no longer being manufactured so we assume that the Qualified Product List is up to date. For models listed in the NSF Directory, we would need to either get that information from manufacturers or review every listing and company website, which would be burdensome. The hope is that manufacturers can look at the proposed levels and provide feedback as to whether they are representative of what is available in the marketplace.
- If after 5 years an audit hasn't occurred on a given model then NSF certification expires and the model is removed from the company's listing.

New Product Category: Flight Type Machines

EPA is considering covering flight type machines with the Version 2.0 specification. Currently the NSF Directory lists GPH and EPA received stakeholder feedback on using this as a metric for evaluation of flight type efficiency performance. An alternative approach presented was using gallons per 100 dishes which takes into account peg spacing and conveyor speed. This approach considers "work" done by the machine; however, peg spacing and conveyor speed could be manipulated to obtain a better rating.

Stakeholder comments:

- Peg spacing is too variable, EPA could just look at square foot/inch of belt per hour then you don't have to worry about peg spacing.
- EPA should consider a gallons/square foot of belt metric with no time factor.
- If EPA uses the gallons/100 dishes approach then the lowest conveyor speed could be used to determine the worst case scenario. NSF tests and lists the fastest speed (i.e., worst case for sanitation) but that is rarely used in operation.
- It's important that EPA break out single tank and multi tank units similar to the approach for conveyors.
- The longer machines tend to run faster during which enough heat is accumulated such that final rinse is not really needed to meet NSF requirements. Plates already meet the 3600 HUE requirement before even getting to the final sanitizing rinse section.
- If EPA goes with a GPH approach then you also need to take into account narrow vs. wide belt. Perhaps a GPH vs. width metric would be a good proxy for performance. Perhaps a narrow belt and wide belt category with separate GPH levels would suffice.
- Conveyor speed needs to be taken into account because this is tied to the cost of operation.
- EPA could determine a fixed conveyor speed to compare apples to apples and avoid gaming to get a better rating.
- Some machines have a fixed speed, most are variable speed controlled that should never exceed NSF listed number.
- ENERGY STAR Response: EPA is interested in a metric that provides an apple to apple comparison but also reduces the opportunity for gaming. Initially a metric may be chosen that may not perfectly emulate real world operation but does a good job of meeting these requirements.

- Using width would keep it simple in the short term. Once the ASTM test standard is available, it will most likely account for all of these variables under a total machine approach. We don't want to necessarily set a metric that results in significant design changes when the ASTM standard focuses on a more holistic approach.
- With flight type machines, manufacturers don't have the cost constraints that other machine types are driven by and there are many more variables and design features that can be tweaked to meet customer needs and ultimately ENERGY STAR requirements.
- Question: Should EPA also look at idle energy rate for flight type machines? How much time is typically spent in idle?
- The majority of machines enter into a standby mode when not being used, but tank temperature is still maintained (pumps, motors, rinse all turn off).
- The tank maintenance heater will be similar to other conveyor machines so EPA could use the same levels proposed in the Version 2.0 for flight type units.
- The ASTM conveyor test method for idle energy could also be applied to flight type machines.

EPA shared a proposal received that would require specific energy or water saving components or approaches for ENERGY STAR qualification (i.e. prescriptive requirements). For example, a requirement that machines come equipped with sensors that shut off pumps when dishes are not being moved through the machine.

- EPA shouldn't dictate how manufacturers should reduce energy or water consumption in machine design, impacting costs.
- ENERGY STAR Response: EPA typically avoids prescriptive requirements but is also interested in rewarding additional efforts by manufacturers to further reduce the energy and/or water consumption not accounted for in the current ENERGY STAR requirements. If not a specification requirement then perhaps EPA could include some best practices that encourage end users to look for these features.
- Most flight type machines have sensors to shut off pumps
- The energy/water saving measure should be part of the tested result rather than requiring something prescriptive.

Adjustment of Machines in the Field

EPA received some concerns about manufacturers testing door type machines at one level for NSF certification and then these machines being adjusted in the field to higher water consumption levels, in many cases resulting in the machine no longer meeting ENERGY STAR levels.

- Machines are always shipped at NSF tested levels.
- Question: Could manufacturers test in a worst case scenario (i.e., highest water consumption setting)?
- It may be more practical to educate because no matter how you design or test the machine, there will always be someone tampering with the settings in the field and finding a worse scenario than tested.
- Tampering is happening in all categories and what we need to ask ourselves is why these adjustments are happening and then determine a course of action.
- ENERGY STAR Response: EPA recognized the potential gravity of this situation but it would be difficult to address/control through the specification vehicle. The best practices and education approach may be the best that we can do to prevent it or at the very least, ensure that the end user understands the implications.

Other Industry Updates

- NSF/ANSI 3 has been finalized and published (reference will be 2010 but was published in 2011).
- The ASTM standard for door type machines passed the first round of committee review. Once the ballot is complete and published, which is expected to be within the next two months, testing and data compiling can begin. Test standards for conveyors and under counter machines are about a year out from completion. The committee has agreed to a flight type standard but testing will be challenging since the FSTC lab is not big enough. Manufacturers will need to be engaged and provide data.

Next Steps

- EPA will analyze the pot/pan/utensil data to determine the degree of correlation between GPH and rack area, and GPH and chamber volume. EPA will set the water consumption metric based on the better correlating factor.
- EPA will send out a request for idle energy data for pot/pan/utensil machines.
- EPA will develop new performance levels for pot/pan/utensil machines targeting the top 25% performing models with reasonable payback and energy savings potential.
- EPA will retrieve the latest NSF Flight Type data and evaluate various water use metrics based on stakeholder feedback.
- EPA will incorporate stakeholder feedback and analysis into a Draft 2 Version 2.0 specification and publish it at the end of February 2011 for further comments.